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Inspire policy making by territorial evidence

PROFECY – Inner Peripheries: national territories facing challenges of access to basic services of general interest

Applied Research

Interim Report

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PROFECY – Proceses, Features and Cycles of Inner Peripheries in Europe

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Abbreviations

Act.	Activity
App.	Application
BABF	Federal Institute for Less Favoured and Mountainous Areas
CLLD	Community-Led Local Development
CREA	Council for Agricultural Research and Economics
D1	Delineation 1
D2	Delineation 2
D3	Delineation 3
D4	Delineation 4
DFR	Draft Final Report
DG AGRI	Directorate-General for Agriculture and Rural Development
DG REGIO	Directorate-General for Regional and Urban Policy
EBM	EuroBoundaryMap
EC	European Comission
EDORA	European Development Opportunities for Rural Areas
EP	European Parliament
ESPON	European Territorial Observatory Network
ESPON EGTC	ESPON European Grouping on Territorial Cooperation
EU	European Union
FYROM	Former Yugoslav Republic of Macedonia
GADM	Global Administrative Areas Database
GDP	Gross Domestic Product
GIS	Geographic information system
HAS	Hungarian Academy of Sciences, Centre for Economic & Regional Studies
ID	Inception Delivery
ILS	Research Institute for Regional and Urban Development
IP	Inner Periphery(ies)
ITI	Integrated Territorial Investment
JRC	Joint Research Centre
LAU	Local Administrative Units
LEADER	Links between the rural economy and development actions
Min	Minutes
NGO	Non-Governmental Organization
NMS	New Member States
NORDREGIO	Nordic & European research centre for regional development and planning
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
OSM	OpenStreetMaps
POI	Point of Interest
PROFECY	Processes, Features and Cycles of Inner Peripheries in Europe
PST	Project Support Team
QCA	Qualitative Comparative Analysis
SGI	Services of General Interests
TCP	TCP - International Transport Consulting Partners
ToR	Terms of Reference
UK	United Kingdom
UMZ	Urban Metropolitan Zones
ULODZ	University of Lodz
UVAL	University of Valencia
WP	Work Package

1 Introduction

The Interim Report represents an advance of the investigation in relation to the previous deliverable in two senses: on the one hand, an attempt has been made to respond to the comments and orientations to the Inception Delivery by the PST members and ESPON EGTC staff; on the other hand, significant progress has been made in various areas of research that will be described in later chapters.

The Interim Delivery has been designed to provide information and results on the issues foreseen in the Terms of Reference of this call. These are:

- *An overview of data gathered*, fully described in Chapter 6 of the main report and in several annexes.
- *Identification of Inner peripheries* through development of operational types and delineations. Chapter 5 provides a description of the methodological process created to convert the theoretical concepts of inner peripherality developed in the Conceptual Framework into operational types that can be measured, delineated and analysed at different territorial scales.
- *State of affairs for the "Status" of the inner peripheries identified (Chapter 8).* The structural data gaps, the delays incurred by some projects in providing their part of the "common effort" for data gathering, and the efforts made to partially downscaling the territorial unit of reference have caused an enormous amount of added work in WP 2 and WP 3. The results of these efforts are now allowing us to generate better maps and better understanding of the concept under analysis. Only now we begin to be able to carry out an analysis of the inner peripherality that allows a closer approximation to the reality of this territorial phenomenon. The improvement of the continuous databases, as well as the expextativa of obtaining data in the common task established by ESPON EGTC. In any case, we are beginning to develop the analyzes designed to characterize the inner peripherality as a specific territorial phenomenon in Europe. The results of these analyzes will be presented in the DFR.
- *Processes and drivers identified*. Chapter 9 of the Interim Deliverable includes the initial versions of three Interpretive Models for the three Conceptual Types of Inner Peripherality identified in the conceptual framework.
- *Case study regions proposed*. Chapter 10 of the Interim Report includes the methodology for selection and the selection itself of the Case Studies of inner peripherality.
- *State of affairs for strategies for inner peripheries (Chapter 11).* This task depends to a large extent on the results obtained in previous stages of the project and, in particular, on the characterization of the phenomenon of inner peripherality and the identification of the main processes and drivers involved in its configuration, maintenance or improvement. Despite the difficulties encountered in defining the concept itself, the implications of the lack of relevant statistical data at various scales and the fact that the project timetable implies that the knowledge derived from the case studies is yet to be produced, an important effort has been made to provide relevant information on the type of strategies and orientation of the action that may produce better results to counteract the phenomenon of inner peripherality. The conceptual framework, the operationalization of the theoretical concepts into measurable types of inner peripherality, and the first available statistical data, have allowed to venture some preliminary orientations that must be revised in the light of the advances that must still be produced in the understanding of the phenomenon.

An operationalization of the theoretical concepts of "inner periphery" developed in the conceptual framework, and already presented in the Inception Delivery (ID thereinafter), has

been carried out. This process has led to the conversion of the three theoretical concepts into four operational types that can be measured in terms of indicators and processes, and analysed qualitatively through the subsequent implementation of case study methodologies (WP6). The 4 operational types have been the basis for the development of 4 Delineations of inner peripherality in Europe. The first three delineations are based on accessibility to regional centers (Delineation 1) and a set of Services of General Interest (SGI) (Delineation 3), as well as on the relative potential of access to population and GDP of each region (Delineation 2). In these three cases, the possibilities for the elaboration of maps are ample and this is shown both in the text of this document and in some annexes. On the contrary, Operational Type 4 focuses on processes of territorial connexity, relational proximity, social capital, power relations, etc., which represent more diffuse, multi-causal, path-dependent and contex-related situations. As a result, it is much more complex to capture the location of these areas on a European-scale map because, simply, adequate information is not available at an appropriate level of detail. This makes it necessary to be particularly cautious in interpreting the maps associated to the Delineation of Type 4. In any case, caution should be extended to all four IP Delineations, as the Consortium is still waiting for some new data that would allow for a more comprehensive and relevant mapping of IP dimensions. In particular, some databases should be added soon to the collaborative process proposed by ESPON EGTC of building a baseline of indicators. On the other hand, the Consortium expects that the implementation of the 7 case studies will allow for more comprehensive statistical analysis, with a greater number of variables and diachronic series of data that will allow for better capturing of the essence of inner peripherality.

The consortium has made great efforts to use scales of analysis suitable for the detection and understanding of the phenomenon. The initial approach in NUTS3 has given way to the use of information in raster format (2.5 x 2.5 km grid) to which statistical information has been associated. It has resorted to sources rarely used before, being aware of its limitations, to enable the geographical expression of the phenomenon on a more detailed scale than NUTS3, which is clearly inappropriate, in some European countries, for the analysis of territorial phenomena such inner peripherality. In connection with this idea, the enormous difficulties encountered in obtaining up-to-date, harmonized information covering the entire European area must be highlighted, including that at the NUTS3 level. There is no doubt that the first great conclusion emerging from the analyses carried out is the need to unify and harmonize existing statistical information, at least as far as a basic set of regional development indicators is concerned. This recommendation is accompanied by the urgent need to have more disaggregated territorial units of analysis than the NUTS3 level. Even being aware of the difficulties (number of territorial units involved, continuous changes in thresholds, etc.), competent authorities should work on the development of a regional database at LAU2 level. Technological improvements enable georeferencing of information and more and more data availability. The creation of layers of georeferenced information in "grid" format is a fundamental companion to improve the possibilities of analysis and knowledge of the European regional reality.

The project is now in a position to deploy all of its potential for work and analysis in the remaining WPs, once the database of the project has been intensively worked out, and the delineations of inner peripherality in Europe are available. This starting point for several WPs (4, 5, 6, 7 and 8), may be subject to revision and improvement if the necessary information becomes available, or in the event that the last developments in WP2 and the full development of WP4 allows for a fine-tune process of the current work.

2 Background

Inner peripherality is a set of processes and phenomena that, individually or jointly, act on some territories in such a way that cause significant limitations in their development potential, in the medium and long term. The novelty of the concept is that, unlike the well known and studied geographical-based peripherality, marked by distance to the centers of accumulation of economic activity and population, in the case of inner peripherality “geography” is not the only (and some times even the basic) component, because other processes and features whose behaviour is not strictly associated to distance play a role in the overall situation of the territory. These "other” factors have to do with the way local actors interact with each other, the level of insertion in relevant territorial and thematic networks, or the capacity of local institutions, organizations and companies to establish links with other entities in contiguous territories and beyond. The scientific and academic literature contains enough references to the concept of "relational proximity" to refer to the ability of a territory to remain "connected", through networks of all kinds, to other regions and, in particular, to centers of power and decision making. According to this approach, a well-connected territory offers more possibilities for development, access to services of general interest in better conditions, or a more dynamic labour market capable of retaining qualified population. All these advantages, in turn, generate greater opportunities for the establishment of new connections, generating virtuous circles that favour the better connected territories. Inner peripherality, whatever the combination of processes and factors that causes it, tend to reproduce in time due to the evolutionary character of “disconnection” and its feedback effects. The diversity and specificity that characterises inner peripherality make it difficult to encapsulate the concept when offering diagnoses and intervention proposals. For this reason, the main objective of this project is to understand the phenomenon in its complexity and multidimensionality, to locate it in the European space, and to propose strategies and solutions that are valid according to the combination of processes, features and cycles of inner peripherality.

3 Main Conducted Tasks

During the period between the Inception Deliverable and the Interim Deliverable (August 2016 – March 2017), many tasks and works have been carried out in the framework of the project. The following is a list of the most relevant ones:

- Development of the methodology to obtain 4 Operational Types of inner peripherality from the 3 theoretical concepts developed in the Conceptual Framework of the project.

- Development and implementation of a data collection strategy in line with data needs (WP2 - WP3).

- Development of the necessary databases and datasheets and generation of an integrated information base (WP3). This is a particularly complex and time-consuming task. The number and diversity of tasks, routines and processes involved to achieve this objective is the subject of a detailed description in chapter 6 of this deliverable.

- Improvement of databases available in order to close gaps, update several outdated informations and using numerous sources of information, many of them only covering one or few countries, in ordr to complement the existing data.

- Contribution of the databases assigned in the common task with other applied research projects.

- Development of the full methodology of WP 4 on the analysis of inner peripherality (Chapter 8 of the Interim Deliverable).

- Development of the methodological approach and some initial results for WP 5, describing the main “processes and drivers” involved in the different dimensions of inner peripherality.

- Development of the general methodology of WP 6 "Case Studies", including a detailed procedure for the selection of 3-5 case studies in the geographical context of each partner based on the existing delineations of IPs and the application of local knowledge. From this database a proposal of 7 Case Studies of inner peripherality is proposed (Chapter 10 of the Interim Deliverable).

- Development and implementation of a specific methodology for the analysis of the 7 case studies of the project (Chapter 10 of the Inception Delivery)

- Development of the contribution for the Cohesion Report (Deliverable 2)

- Further development of the Handbook proposal (Chapter 12 of the Interim Deliverable)

4 Brief Summary of the Conceptual Framework

The purpose of this section is to highlight the main aspects of the conceptual framework of the project so that the progress presented in the Interim Delivery is embedded in its corresponding theoretical basis.

Inner Peripherality represents a complex, multidimensional phenomenon which, unlike purely geographical peripheries (those associated with distance to population and economic activity centers), also suffer the effects of socio-economic processes that cause disconnection with neighbouring territories and networks. Their disctinctive feature is, therefore, their degree of “disconnection” and not (or not only) their geographical position in relation to centres.

The “tyranny” exerted by geographic peripherality in some types of territories (eg mountainous areas, small islands or secondary islands in archipelagos, remote rural areas, etc.) is so structural that it becomes very difficult to escape its effects (mostly negative). In this context, the "advantage" of inner peripherality is that the problem of "disconnection", and the other "non-spatial" peripherality factors that characterise IPs, are less structural and, consequently, more likely to be influenced by good policy and practices, helping to a better management of their negative effects.

Inner peripheries do not behave as a unified phenomenon. They have in common the fact that their general performance, levels of development, access to SGI, or quality of life of the population, are relatively worse when compared with their neighbouring territories. However, there is not a single type of inner peripherality because multiple processes, factors and contex-related elements come into play in each individual case.

Therefore, one key to understand inner peripheries as a specific territorial phenomenon is to realise that, although geography remains an important element in the explanation of peripherality, in the case of "inner peripheries" it is not the only explanatory factor and, therefore, distance of any kind to regional centres, agglomerations of population and economic activity, as well as access to SGI, are part of the process of peripherality, but do not fully explain this process. Non-spatial or “aspatial” components also affect these territories in such a way that they contribute, sometimes strongly, to enter and remain in conditions of marginalization and suboptimal development.

The theoretical framework of the research has identified 3 theoretical types of inner peripherality (Inception Deliverable, pag. 29):

1. *Areas with low levels of economic potential (as in the Keeble model) which are “interstitial” between core areas with higher economic potential.*

2. *Areas which are characterised by poor access to services of general interest, whether this is a consequence of geographic remoteness, or to changing service delivery technologies, or to austerity, or other changes in provision such as privatisation.*

3. *Areas which exhibit low levels of socio-economic performance which can be attributed to an absence of “organised proximity” (of whatever kind), which are in some way excluded from “the mainstream” of economic activity, or which can be said to be experiencing a process of*

"peripheralization". These characteristics will often be associated with an absence of influence, distant from the centres of political power, lacking influence in terms of governance.

The conceptual framework also explains that (Inception Report, pag. 29):

Each of these may be applied at a range of scales, local, regional, national, macro-regional. Although the first tend to be rural/small town by definition, the other two could equally apply to urban neighbourhoods. At the same time, it is important to note that most territories may share characteristics of different types of IP. That is, regions where features of one of the definitions of IP dominate, but also show some characteristic features and processes of one or more of other types of IPs

The first results of research point to this idea of "hibridation"; that is, in the territorial reality of Europe, there are no "pure" inner peripheries that perfectly fit one, and only one, of these theoretical concepts. It seems customary that inner peripheries are the result of different combinations of the three theoretical concepts.

Taking into account the complexity and multidimensionality of the phenomenon, the strategies and actions of public policy directed to inner peripheries must take into account its complexity, multi-causality and singularity. It is therefore appropriate to focus on initiatives in which local actors play a key role, provided that these are well-organized, well-founded and orderly processes that take advantage of the benefits of community-based approaches (CLLD) and incorporate a strategic vision and the actions required to achieve substantive improvements in regional development processes.

5 From theoretical concepts to operational types: a methodology to measure inner peripherality

5.1 Introduction

The research team has identified 4 “operational types” of Inner Peripheries in Europe. One of them was already defined in the ToR while the other three emerge from the “theoretical concepts” described in the Conceptual Framework of the project.

Unlike in the case of the theoretical concepts of IPs, the Operational Types are primarily conditioned by the availability of the statistical information needed for their definition. As this is the first attempt on the European scale to define, delineate and characterise the concept of Inner Peripheries, a pragmatic approach has been chosen which can be carried out with the statistical information available, while still providing sufficiently relevant results for decision-making.

The theoretical framework of the research leads to think that the phenomenon of inner peripherality does not fit well the territorial dimensions of NUTS3, at least in a relevant part of European countries. The configuration of inner peripherality is dominated by functional processes and trends that contrast with the mostly administrative nature of NUTS3; In other cases, NUTS3 divisions are too extensive and heterogeneous to be identified with a single type of territory. Moreover, we believe that the correct way to identify and characterize inner peripheries, whatever the type, is to start with smaller territorial units (i.e. LAU2) acting as “building blocks” of the inner periphery that allow for the exclusion of areas that are not classifiable as IP but are "hidden" in the heterogeneity of larger units such as NUTS3.

However, the delimitation and characterization of the phenomenon at the municipal level is beyond the scope of this project since the LAU2 databases are clearly insufficient and the necessary information does not exist, even for a small percentage of European territory. This is a huge cross-sectional problem that affects the ability to deliver meaningful results in the territorial analysis. The construction of a statistical database homogenized at the LAU2 scale is more than necessary in the current context, if we want to achieve a more significant and relevant knowledge of the European territorial reality, and if we want to raise with greater assurance, recommendations and strategies for decision-making.

For these reasons, NUTS3 as territorial reference framework have been used only when there is no viable alternative.

5.2 The Operational Types of Inner Peripheries

Four Operational Types of Inner Peripheries in Europe have been identified and characterised from the theoretical concepts developed in the conceptual framework of the project (see Table 5.1).

Each of these types may be applied at a range of scales, local, regional, national, macro-regional. Although the second and third tend to be rural/small town by definition, the other two

could equally apply to urban neighbourhoods. At the same time, it is important to note the four types are not mutually exclusive. That is, most territories may share characteristics of different types of IP. For instance, regions where features of one of the definitions of IP dominate, but also show some characteristic features and processes of one or more of other types of IPs.

Table 5.1: The four Types of Inner Peripheries

#	Delineation Name	Description / Thematic focus of delineation	Factors/Variables considered	Initial spatial unit
1	Higher Travel time to Regional Centres	Regional centres are considered as a proxy for administrative, economic and generally most important centres for SGI provision and for all social and economic activities. Areas experiencing a lack of access to such centres can thus be interpreted as 'inner peripheries'. This delineation accounts for the geographical distribution of regional centres, and for the existing transport networks connecting these centres with the surrounding territories.	- Geographical location (i.e. location of cities) - Population (via city size) - Accessibility / travel time - Physical factors (via transport networks)	grid
2	Economic potential interstitial areas	"interstitial" areas of increased peripherality, which are not on the physical edge of Europe, and are surrounded by areas of greater centrality. IPs here are areas of lower potential accessibility to population and GDP than neighbouring areas, relative to the region or country average	- Geographical location (i.e. cities? metropolitan areas? GDP (absolute value) - Population (municipality size)	NUTS3
3	Areas of poor access to SGI	An adequate provision and access to the main Services of General Interest constitute an indicator of the degree of connectedness of territories. An easy and cheap connectedness to SGI ensures higher quality of life and contributes to fix population and jobs. This type of IP tries to capture areas that suffer from relative poorer access conditions than the average in the surrounding areas and/or in the region.	- Geographical location (i.e. location of the provision of each selected SGI): - Accessibility / travel time to the closest SGI provider (for each SGI selected) - Physical factors (via transport networks) - Health: general doctors, emergency care (hospitals) and pharmacies. - Education: primary and secondary schools - Transport: train stations and motorway (highway) ramps. - Culture: cinemas - Shopping: supermarkets - Work: indicator of 'access to UMZ. - Business: banks.	Grid
4	Depleting areas	Areas which exhibit low levels of socio-economic performance which can be attributed to an absence of "organised	- Population change (2001-2016) - GDP per capita	NUTS3

		proximity" (of whatever kind), which are in some way excluded from "the mainstream" of economic activity, or which can be said to be experiencing a process of "peripheralization"	- GDP per capita change (2001-2016) - Unemployment rate - Unemployment rate change (2001-2016) - Price of property market - Price of property market (2001-2016) - Economic Resilience	

The proposal that emerges from this "operationalisation" undergoes a process of "trial and error" (see chapter 7) to identify and outline the best possible procedures in order to delineate in practice each type of inner peripherality, taking into consideration the following elements:

- The factors/variables/elements to consider in each Operational Type of IP
- The spatial units (grid, LAU-2 or NUTS-3) to use in each case
- The input data needed for the selected variables.
- The thresholds to apply for the variables (if relevant).
- The rules on how to mathematically/statistically/technically combine the different variables.

The definition of the four Operational Types of Inner Peripheries in Europe has been carried out considering three fundamental principles:

- Emphasis that the different definitions differ as much as possible, in order to account for as many factors as possible, acknowledging that not all influencing factors can be integrated into one delineation. The conceptual types of IPs already identified by the project follow this logic, as each type has a certain thematic focus. Comparing the results of these different definitions not only ensures that a sufficiently large number of factors are considered, but also proofs that if certain areas appear as Inner Peripheries under all definitions, we can be quite sure that these results are statistically of high relevance.
- Consideration that none of the 4 IP types of IP identified is *a priori* incompatible with the rest of IP types. Therefore, no exclusions are made in advance of territories with specific characteristics (for example, traditional or "remote" peripheries, mountain areas, etc.). The resulting delineations will be compared to each other by overlapping GIS layers and excluding those territories in which dominant territorial processes that are different from those characterizing inner peripheries.
- The problem of the scale of analysis. Inner peripheries are new territorial concepts in the scientific literature and in the main decision-making documents at European level as well as in the states and regions of Europe. According to the results of the theoretical framework of the project, IPs do not necessarily coincide with administrative units, but rather with functional realities, mainly on a subregional level. Consequently, the most appropriate scale for the identification and analysis of IPs is the territorial grid with data at municipal (local) level (grid + LAU2). This combination has been achieved for three of the four operational IP types identified, based on accessibility and gravitational models. On the other hand, the lack of statistical information of a socio-economic nature on a sufficiently discrete territorial scale considerably limits the possibilities of analysis.

There is a whole methodological development in the process of operationalization of the theoretical concepts of inner peripherality. Some parts of this process have been collected and expanded for the development of the 4 Delineations presented and explained in Chapter 7. However, other parts of the methodological process remain unused due to several causes, among which the difficulty of obtaining the necessary data or the need to arrive at a unified

concept of inner peripherality. The research group believes that some of these methodological procedures will be used in the analyses to be developed in WP4, in the work still to be done to outline and improve some of the current delineations and, finally, in the fieldwork to be carried out in the case studies.

6 Overview of Data Gathered

6.1 Scope of data gathering

Work package 3 on data collection and data processing has four main objectives:

- Developing an actual overview of data availability in correspondence with the datasets proposed in the ToR, as well as with the data needs identified in Activity 2.1 as part of the development of the theoretical concept. (Activity 3.1)
- Collecting the identified datasets and building the overall database of GIS and statistical datasets (filling data gaps, processing data, converting data formats, …) (Activity 3.2)
- Development of the database and calculation/generation of the indicators including modelling of GIS-based and of accessibility indicators (Activity 3.3)
- Indicator mapping and preparation of contributions to the ESPON database (Activity 3.4).

The activities under WP 3 have a serving function for the other work packages. WP 3 will not generate, or obtain, substantive content-wise findings, but it provides a sound and necessary quantitative basis for all other work packages through its data collection and indicator generation activities. WP 3 is subdivided into four activities on data review (Activity 3.1), data gathering and indicator generation (Activity 3.2), database development (Activity 3.3), and mapping (Activity 3.4).

The overview of data availability (Activity 3.1) at grid, LAU-2, NUTS-2 and NUTS-3 levels has already been presented in the Inception Delivery, and has been updated for the Interim Report. Chapter 6.3 will present the actual situation.

Basically, the delineation and characterization of Inner Peripheries in Europe require different GIS datasets as well as statistical data. For both types of data, and for those datasets required for the delineation of IPs in Europe, the project team strives to compile a complete geographical coverage for the ESPON space, at the smallest spatial level possible.

Additional datasets, that will only be used for the characterization and analysis of IPs, do not necessarily be collected for the entire ESPON space, but for the territories of the selected case studies (see Activity 6.2). In order to allow for a small-scale analysis of these case study areas (Activity 6.4), these additional datasets need to be collected at very local level (preferable LAU-2) from national data sources.

The data have been gathered from various data sources (Activity 3.2); as regards the locations of services-of-general-interest, OpenStreetMap (OSM) has been identified as the main data provider. Despite all indisputable advantages, OSM also has some drawbacks, which are discussed in Chapter 6.2. In this respect, PROFECY can also be seen as an explorative study of the extent to which OSM data can be used for such purposes. Apart from OSM, many additional data sources have been utilized (Chapter 6.3).

A special case is the compilation of a seamless LAU-2 layer (Chapter 6.4). During the delineation of inner peripheries, the project team found that overlaying the grid level results with NUTS-3 regions does not reveal convincing results due to the size of the NUTS-3 regions. Therefore, overlay with LAU-2 units appeared to be the better option. ESPON provided the

project team with three different LAU-2 layers, all of which including certain potentials and drawbacks. Eventually, the project team had to compile a new seamless and comprehensive LAU-2 layer.

All collected GIS and statistical datasets have been imported into an overall GIS database in ArcGIS File Geodatabase Format (Activity 3.3). This database format allows storing multiple data formats such as point, line, and polygon GIS features, raster datasets, network datasets, matrices, and tabular data. This geodatabase is the basis for the delineation exercises, as well as the indicator production and indicator mapping, and mapping of the delineation results (Chapter 6.5). Indicator maps are presented in as a map gallery in Annex 2, while maps illustrating interim steps of the delineation process are given in Annex 6. All maps were generated by utilizing the latest, still tentative, ESPON Mapkit that was provided to us end of 2016; however, this tentative mapkit still encountered some drawbacks for high-quality cartographic products, which are discussed in Chapter 6.6.

6.2 Utilizing the OpenStreetMap database

OpenStreetMap[1] (OSM) is a collaborative project to create a free editable map of the world, aiming at establishing a geodatabase of all geographical objects. For this purposes, OSM developed a simple data structure consisting of point features and ways (i.e. lines and polygons). All real-world geographical objects will either be stored as points, or as ways in its database. In order to differentiate types of points and ways, a TYPE field is associated with the features, where each feature type is assigned a unique code.

Being a collaborative platform, the OSM database is built up and maintained by the engagement of thousands of contributors world-wide.

The main advantages of OSM are as follows:

- *Spatial coverage:* Basically, OSM covers the entire world. So, datasets for all European countries should be available from OSM.
- *Types of features:* OSM gathers information on all real-world geographical phenomena and geographical objects, whether natural or man-made. Basically, all different types of services-of-general-interest are covered.
- *High spatial resolution:* All geographical objects are represented with high precision with their real-world coordinates.
- *Actuality:* Assuming that local contributors know best when changes to geographical objects occur (for instance, a new road is opened to traffic, agricultural areas converted to urban settlements, a shop is opened or closed), new real-world developments will be implemented into OSM very soon, ensuring actuality of the OSM database.
- *Free usage:* Anybody has free access to, and can use OSM data freely for non-commercial use as long as the results of his activities are also freely shared to the public.
- *Easy access:* The OSM database can be easily accessed either by directly visiting the OSM website, or by using specific interfaces built-in into GIS software products.

[1] www.openstreetmap.org

At the same time, OSM also shows some important drawbacks for using this database in PROFECY:

- *Quality assurance:* As there is no centralized quality assurance mechanism implemented in the OpenStreetMap initiative, the OSM database has problems with quality assurance with regard to the completeness and actuality of the information. The general idea being that the local contributors at the same time ensure completeness and actuality; however, as the number of contributors in cities and regions, and their levels of engagement, vary substantially, the completeness and actuality of the information cannot be guaranteed. Experiences show that the coverage (completeness) of real-world objects in agglomerations is quite high, while in rural areas problems exist with the level of completeness. The level of activities of the OSM community also differs between countries, with some countries being highly active while in others countries only few activities exist. **By way of consequence, we need to expect differences in completeness of OSM data between regions and countries.**
- *Object types:* As regards SGIs, sometimes OSM has multiple entries for one facility in its database; a school might be represented by a point and by a way (for its building). To make the situation even more complex, sometimes only the point or only the way is available in OSM. **Thus, when downloading data from the OSM database it is not sufficient to look at point features alone, but also ways must be evaluated.**
- *Missing detailed information:* Although OSM differentiates the basic types of SGIs (i.e. schools from kindergardens, doctors from banks, shops from restaurants etc.), a further differentiation of schools into primary or secondary schools, or of doctors or hospitals into general doctors/general hospitals and specifalized doctors/hospitals is quite difficult. The TYPE field does not allow for such further differentiations; only the facility name sometimes provides such additional information (for instance, if the name of a surgery is like “Dr. Smith Dental Centre”); unfortunately, often the facility name is too general to obtain such details (“Dr. Smith”), and in many cases the facility name is not given at all or is too general (“School”). **The project team thus also evaluated the NAME field to obtain additional information for a further sub-differentiation of facilities, and also looked into additional data sources to verify / enrich OSM information.**
- *Multiple database entries:* For larger facilities like hospitals or schools, which in real-world often have several buildings or locations within a city, OSM includes multiple entries in its database. For instance, in case of hospitals, each hospital building may be stored in the database. **For the purpose of calculated access times to the closest facility, the multiple entries allow to model accessibility very precisely2. By way of consequence, the number of facilities such as hospitals or schools in the OSM database may be higher compared to official statistics, which only count the administrative view.**
- *Miscodings / errors:* Like in all databases, sometimes facilities are wrongly coded in the OSM database. For instance, a kindergarden or university may be coded as a school, or a bank as a shop. Options to identify such errors automatically are very limited. **By comparing the facility name with the type of facility sometimes identifies such errors, but often one can only identify such errors by comparing OSM with other data sources, which is quite complex and a lenghty task given the high amount of SGI facilities.**

[2] For PROFECY, it is good to have each building/location as individual entry in the database, as this allows for a realistic access assessment.

Eventually, these characteristics of the OSM database lead to quite diverse situations as regards the completeness, accuracy, actuality and correctness of SGI facilities in European countries. Details on the evaluation results are provided in the following chapter.

Due to the large amount of data to be downloaded from OSM database, for technical reasons OSM data were not downloaded from the OSM database directly, but from the GeoFabrik Download Section[3]. GeoFabrik provides pre-processed OpenStreetMap data for free download by continent and country in different data formats (OSM PBG, OSM BZ2, ArcGIS Shapefile). Download was triggered in Shapefile format.

In order to identify and select the service facilities relevant for PROFECY, the following feature types were selected (Table 6.1):

Table 6.1.: Codes used to identify relevant SGIs in OSM database.

Service facility	**OSM type code**
Doctors	2120
Hospitals	2110
Pharmacies	2101
Banks	2601
Schools	2082 (primary schools), 2084 (secondary schools)
Retail sector	2501 (supermarkets), 2511 (convenient stores)
Cinemas	2203

In order to set up a database on SGI facilities based upon OSM data, accounting for the curcumstances described above, the following workflow has been implemented:

1. Download country packages in Shapefile format from GeoFabrik server.
2. Uncompressing data packages
3. Select all point POIs from POI point layer with the relevant code(s) (Table 6.1) and store them as new layers
4. Merge the individual country-wise point layers into one overall point layer covering the entire ESPON space.
5. Select all polygon POIs from POI polygon layer with the relevant code(s) and store them as new layers.
6. Merge the individual country-wise polygon layers into one overall polygon layer covering the entire ESPON space.
7. Check whether the polygons are already represented as points in OSM. If yes, neglect that polygon; if not, add the polygon centroid to the point layer as additional point.
8. Select all buildings with the relevant type from the buildings polygon layer.
9. Merge the individual country-wise building layers into one overall building layer covering the entire ESPON space.
10. Check whether the buildings are already represented as points in OSM. If yes, neglect the building; if not, add the building centre to the point layer as additional point.
11. Further differentiate doctors, hospitals, schools and retail facilities by evaluating the facility names. Remove facilities that are of no relevance for PROFECY.
12. Compile additional data sources to complement or verify the OSM database.

[3] http://download.geofabrik.de/

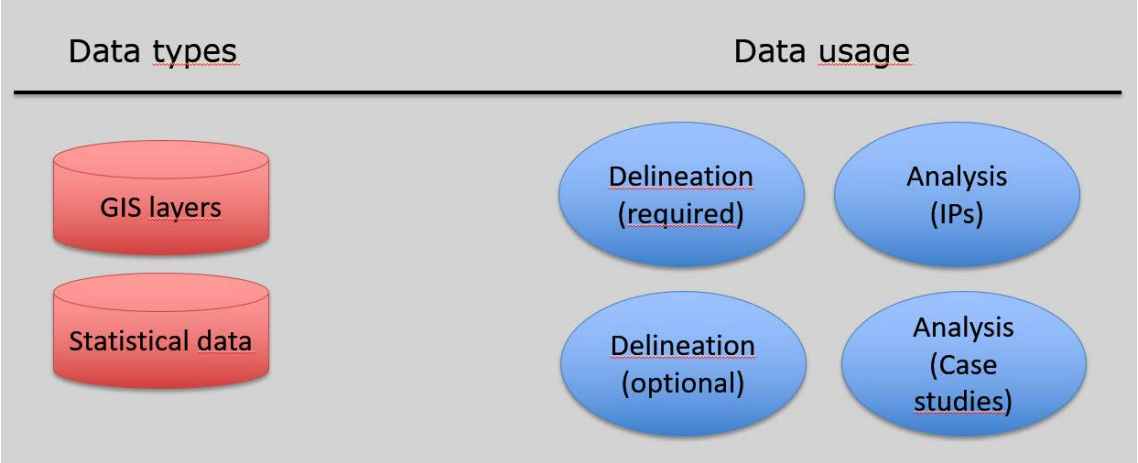
13. Check OSM data against additional data sources, and edit OSM data as needed.

The above basic workflow was implemented for each type of SGI individually, with some slight modifications for each type. Steps 1 to 10 were completely implemented in form of automated Python scripts (by using ArcPy funtions), Steps 11, 12 and 13, however, was to alarge degree based upon manual works.

6.3 Data collection overview

Basically, the PROFECY team compiled GIS layers and statistical data (Figure 6.1). The data are being used for various purposes, such as datasets required for delineation and optional datasets to be used in the delineation process, data used for the analyses of IP regions in Europe, so as datasets being used in the case study analysis. Some datasets are being used for different purposes, while others are being used for one specific purpose only.

Figure 6.1: Data types and data usage.



Tables in Annex 1 provide overviews about the actual data gathering situation for GIS datasets (Table 1.1) and statistical datasets (Table 2.1), as well as on regional typologies (Table 3.1). They update and extend the corresponding overviews of the Inception Delivery.

Although data collection for most of the datasets is finished, some datasets are still incomplete or are still pending at all, as indicated in the tables.

Maps illustrating the various datasets, and further comments on individual indicators are provided in Annex 2.

6.4 LAU-2 Layer

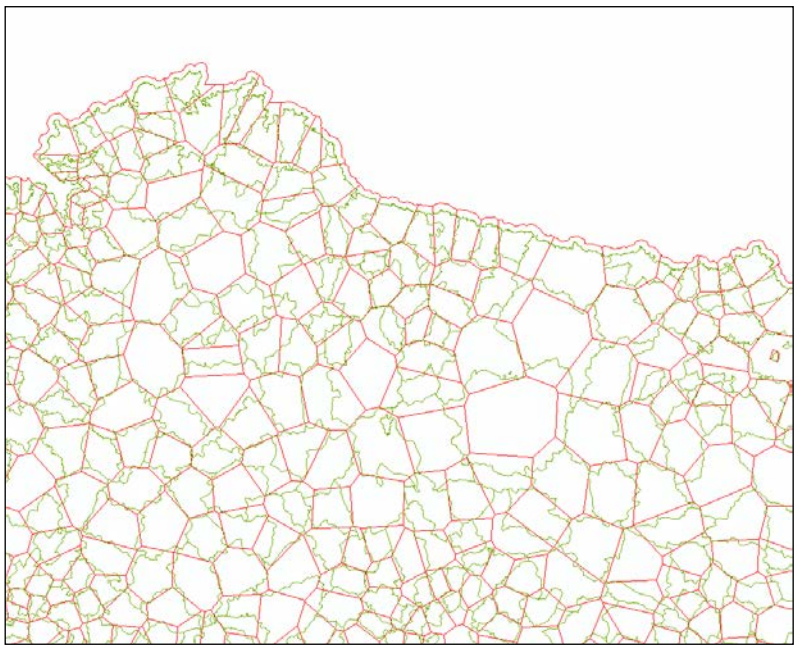
ESPON provided the project team with three different LAU-2 layers, which are the EuroBoundaryMap V. 62 (EBM V62 for 2013), the EuroBoundarymap V. 60 for 2011 (EBM V60) and the Voronoi-LAU2 layer produced by ESPON itself. All these three layers have certain potentials and drawbacks, as summarized in Table 6.2.

Table 6.2: LAU-2 layers: Potentials and drawbacks.

LAU-2 layer	Potentials	Drawbacks
EBM V62	Seamless layer High resolution Detailed boundaries LAU-2 codes available Most actual version	Albania, Andorra, Greece and Turkey missing Countries of former Yugoslavia missing (except Croatia)
EBM V60	High resolution Detailed boundaries Seamless layer for entire Europe available, as well as individual layers by country For each country, different statistical (LAUs) and administrative units provided	The following countries are missing: Albania, Andorra, Bosnia e Herzegovina, Montenegro, Turkey
Voronoi-LAU2	Seamless layer Covers entire Europe	LAU-2 units not represented by their true geographical boundaries, but by artificial Voronoi polygons with straight lines Albania, Bosnia e Herzegovina, Kosovo under UN Security Council Resolution 1244, Montenegro, FYROM, Serbia and Turkey represented by NUTS-0 boundaries.

The EBM V61 layer seem basically very useful for PROFECY in terms of resolution and boundary details; the only drawback being the missing countries. The same can be said about the EBM V60 layer. The Voronoi layer is, in contrast to the previous two, not suitable for PROFECY as it does not provide the true LAU-2 boundaries but artifical Voronoi polygons. An overlay of these polygons with the true boundaries from EBM V62 layer reveals this drawback (Figure 6.2 exemplifies this for Northwest Spain).

Figure 6.2: Overlay of Voronoi polygons (red straight lines) with true LAU-2 boundaries (green lines) (Northwest Spain).



In order to obtain a comprehensive coverage for all ESPON countries, the EBM V62 layer has been taken as a starting point. Additional LAU-2 boundaries for Greece, Kosovo under UN Security Council Resolution 1244 and former Yugoslav Republic of Macedonia (FYROM) have been taken from the EBM V60 layer; for the remaining missing countries (Albania, Andorra, Bosnia e Herzegovina, Montenegro, Turkey) layers from the Global Administrative Areas Database (GADM) have been downloaded[4].

Although the resolution of the GADM datasets is not that high as the EuroBoundaryMap, and data for Turkey are at district level only, these drawbacks were considered acceptable in order to obtain a seamless LAU-2 layer for entire ESPON space.

6.5 The PROFECY Geodatabase

As the Delineations 1 and 3 rely on grid-based approaches for the entire ESPON space, it is anticipated that a large amount of data will be generated. To efficiently compile, handle, and store these large datasets, an ArcGIS File Geodatabase has been implemented.

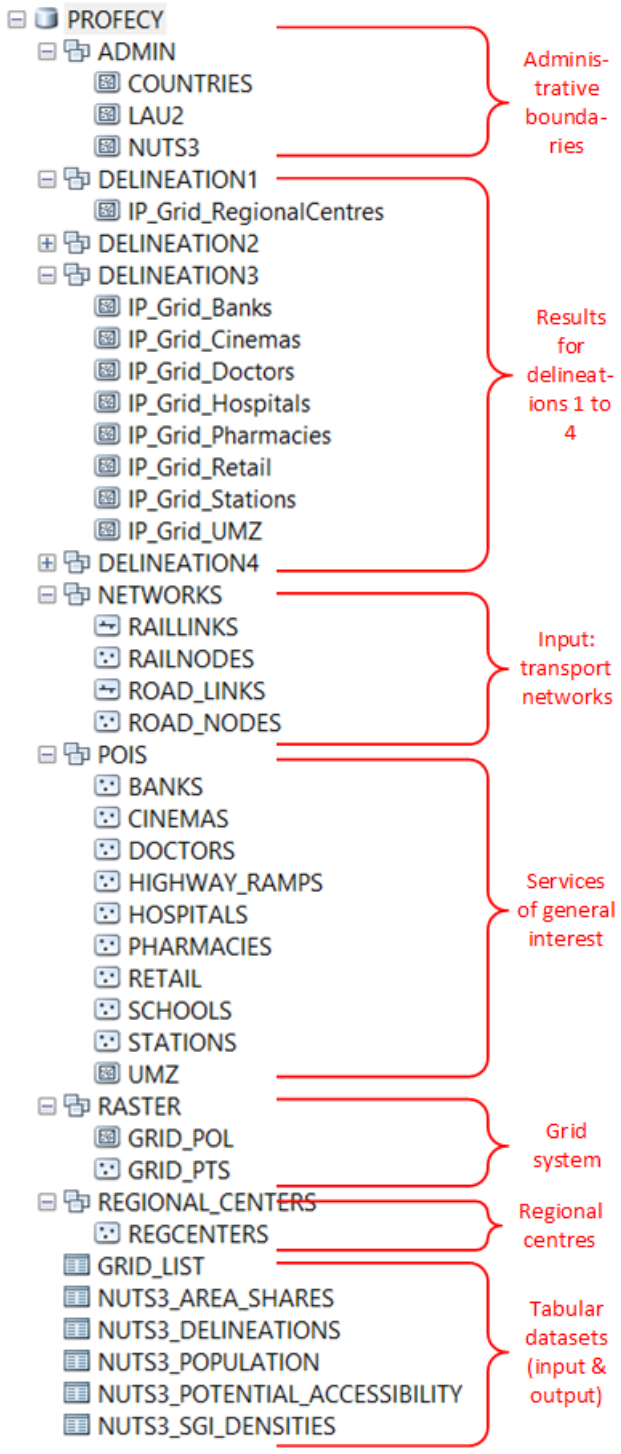
This geodatabase stores all required input data, temporal interim data sets, and all output data. The name of the database is **PROFECY**; it is subdivided into 9 feature datasets, plus several tables (Figure 6.3).

The 9 feature datasets store various feature classes on administrative boundaries (**ADMIN**), the results of the four delineation approaches (**DELINEATION1**, **DELINEATION2**, **DELINEATION3**, and **DELINEATION4**), the required input road and rail transport networks (line and point feature classes, **NETWORKS**), point and polygon feature classes for the services-of-general-interest (POIS), the grid system (**RASTER**), and regional centres (**REGIONAL_CENTRES**). In addition to these feature datasets, a number of tables are also stored in the geodatabase to provide statistical input data (**NUTS3_POPULATION**, **NUTS3_POTENTIAL_ACCESSIBILITY**) required for the delineation of inner peripheries, and to store indicators (**NUTS3_SGI_DENSITIES**) and delineation results at grid level (**GRID_LIST**) and NUTS3 level **(NUTS3_AREA_SHARES**, **NUTS3_DELINEATIONS)**.

Temporal datasets generated by scripts will also be stored within this database, but will be removed immediately after the final output has been produced, in order to keep the geodatabase as small and compact as possible.

[4] Datasets can be downloaded from GADM free for academic and other non-commercial uses. Website: www.gadm.org. Download section by country: www.gadm.org/country

Figure 6.3: Structure of the PROFECY geodatabase.



Further details on the contents of the tabular datasets are listed in Table 6.3.

Table 6.3: Contents of the tabular datasets

Table name	Spatial level	Contents
GRID_LIST	Grid	Stores results of accessibility calculations at grid level: - Shortest travel time to next SGI by type of SGI - Standardized travel time to next SGI by type of SGI
NUTS3_AREA_SHARES	NUTS3	Stores results of overlay of IP grid areas with NUTS-3 boundaries: Share of NUTS-3 territory overlaid by IP areas, by type of SGI
NUTS3_DELINEATIONS	NUTS3	Identification of NUTS-3 areas as inner peripheries by type of Delineation and SGI
NUTS3_POPULATION	NUTS3	Input data on population for NUTS-3 regions
NUTS3_POTENTIAL_ACCESSIBILITY	NUTS3	Input data on potential accessibility at NUTS-3 level from ESPON Matrices project (standardized index values, as well as unstandardized raw data)
NUTS3_SGI_DENSITIES	NUTS3	Indicator: Number and density of SGIs per NUTS-3 region (processed indicator required for analysing IP regions in Europe)

The projection parameters of the **PROFECY** geodatabase are as follows:

```
Projection:                          Lambert
Datum:                                (none)
Units:                                 Meter
Spheroid:                          Clarke1866
1st standard parallel:             27 0 0.000
2nd Standard parallel:             63 0 0.000
Central meridian:                  10 0 0.000
Latitude of projection's origins:  52 0 0.000
False easting (meters):                0.000
False northing (meters):               0.000
```

6.6 Tentative ESPON Mapkit

A tentative ESPON Mapkit received from ESPON EGTC by 20th December 2016 was used to produce all maps for the Interim Report. As it is a tentative mapkit, it still had some major drawbacks:

- The ten zoom-in maps for the outermost regions and for small countries cannot be used, as they are poorly implemented in ArcGIS. In order to use them, it would be necessary to move all grid cells representing that particular geography exactly to the positions in Russia, which is not possible. Nowadays there are better ways in ArcGIS to implement such zoom-in maps by using individual data frames for each zoom-in, which unfortunately wasn´t implemented in the map templates so far. By way of consequence, the maps cannot show information for Canary Islands, Madeira and the Acores, and for the small countries.
- Since the tentative NUTS-3 region shapefile we received from ESPON as part of the mapkit did not include non-EU countries and has a very poor spatial resolution (too poor to

be used for overlay analysis with the grid layer), we developed a new NUTS-3 region layer to conduct the overlay analyses, to delineate IPs at NUTS-3 region level and to produce all the following maps; however, as the boundaries of this new NUTS-3 layer are not identical to those of the mapkit, there may be slight boundary shifts visible in the maps.

7 Preliminary Identification of inner peripheries

7.1 Introduction

As a result of the theoretical and conceptual considerations, as presented in the Inception Report, we identified four different approaches to delineate inner peripheries in Europe, all of which try to look a the phenomenon of “inner peripheries” from different angles.

The four approaches have been implemented in the GIS by means of scripts, to identify inner peripheries. The results of this exercise will be presented in the following chapters. Chapter 7.2 first summarizes the four approaches, followed by Chapters 7.3 to 7.6 presenting the outcomes of the four delineations. How relate the delineated inner peripheries to other region types? Chapter 7.7 overlays IP regions with regional typologies. Chapter 7.8 identifies possibilities to combine the results of the four delineations, while Chapter 7.9 describes options to identify areas of risk to become inner peripheries in future. Chapter 7.10 then concludes this section with an outline of next steps.

The project team considers the results presented in Chapter 7 as preliminary results, for the following reasons:

(i) Some delineations could not be fully implemented so far since important input data are still pending. This particularly concerns Delineation 4, where we are still waiting for input data from parallel ESPON projects, but to some extent also to Delineation 3, where some refinements of the SGI database are still pending.

(ii) During implementation of the concepts for Delineation 1 and 3 several methodological questions arose (for instance, means of standardization, thresholds used, normative exclusion of certain areas, suitability of NUTS-3 regions, combination of variables). Some of them have been solved after explorative testing (standardization, thresholds), some of them are rather fundamental questions addressing the core idea of the project call itself (suitability of NUTS-3 regions in relation to LAU-2 units)[5] and thus needs to be discussed with ESPON EGTC and the PST members. A detailed discussion of the methodological challenges are given in Annex 6. As PROFECY is the first European-wide project trying to delineate inner peripheries, such fundamental questions had to be addressed and solved for the first time ever, since no pre-existing knowlesde existed in the literature.

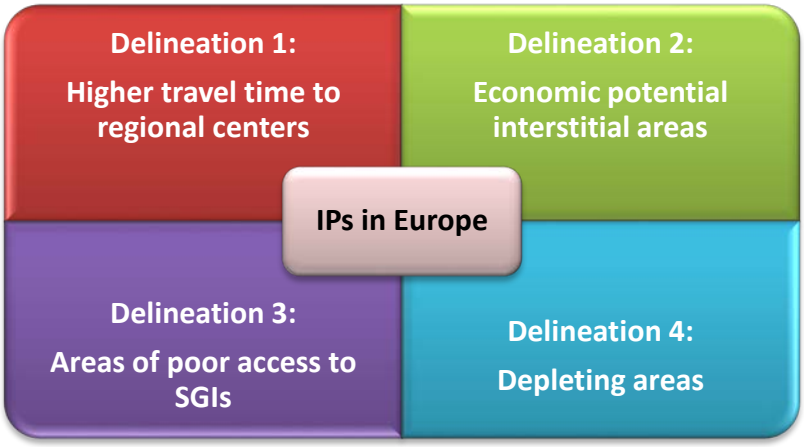
(iii) In the course of the project we changed the methodology for identifying areas of risk to become inner peripheries in the future. The new approach still needs some testing and refinements (see Chapter 7.7).

7.2 Delineation Approaches

Altogether, four different delineation approaches have been identified in PROFECY (Figure 7.1), each of which looks at inner peripheries from different perspectives:

[5] In brief, the basic idea from the ESPON call was: once we have obtained a delineation of inner peripheries at grid level, we can overlay the grid results with NUTS-3 boundaries to identify NUTS-3 regions that are IPs. The results of Delineations 1 and 3, however, show that reality is much more complex than this, suggesting that NUTS-3 regions per se are an inadequate level to use.

Figure 7.1: Comparison of delineation approaches.



The four delineations were developed in a way that they, regarding the methods and variables considered, differ as much as possible, in order to account for as many factors (variables) as possible, acknowledging that not all influencing factors can be integrated into one-fits-all delineation.

Delineation 1 (Chapter 7.3) goes back to the proposal in the terms-of-references by identifying areas of inner peripheries based on a lack of access to regional centres, i.e. **higher travel times to regional centres**. Areas of higher travel times, compared to surrounding areas, are considered as inner peripheries. This delineation was implemented at grid level, by calculating travel times from each grid cell to regional centres in Europe.

In Delineation 2 we are looking for interstitial areas in Europe which have **lower economic potentials** compared to surrounding regions, and can thus be considered as disadvantaged (Chapter 7.4). The economic potential is measured by indicators of potential accessibility at NUTS-3 level.

The third delineation is based upon the assumption that inner peripheries are suffering from **poor access to services-of-general-interest** (SGIs) (Chapter 7.5). A set of important SGIs has been identified (Chapter 6), and travel times from each grid cell to the nearest SGI facility has been calculated. Areas with poor access to these facilities, again in relation to neighbouring areas, have then been identified as inner peripheries.

The fourth delineation (Chapter 7.6) looks at inner peripheries as a process where the lack of connectedness to “organised proximity” (of whatever kind) results in lagging socio-economic development. At some point inner peripheries entered into a downward spiral of negative demographic and economic development. Here, the main idea is to identify ***depleting regions*** in order to map potential inner peripheries and to select some of these areas which are experiencing processes of peripheralization.

While the general character of these four delineation approaches was developed as a result of the theoretical and conceptual considerations, the actual implementation took account of issues of data availability in Europe. Data availability was crucial in identifying the set of SGIs in

Delineation 3 and in selecting the key variables in Delineation 4. The European-wide data situation also prevented us from some interesting analyses, like analysing the process of closing SGI facilities over time statistically, and relating the closures to demographic developments.

Eventually, we identified four delineation approaches at two spatial levels (Table 7.1):

Table 7.1: Delineations and spatial levels.

Aggregate	**Grid level**		**NUTS-3 level**	
Proxy	1	Higher travel time to regional centres	2	Economic potential interstitial areas
Detailed insights	3	Areas of poor access to SGIs	4	Depleting areas

Delineations 3 and 1, and also Delineations 4 and 2 not only have their spatial levels in common, but are also interrelated in their level of aggregation:

While Delineation 3 provide detailed insights into the access patterns to individual types of SGIs, Delineation 1 is based on the assumption that all SGIs are mainly provided in regional centres, thus regional centres can be used as a proxy for the detailed analysis of SGI. Similarly, in Delineation 2 accessibility potential (population-weighted by travel time) is used as a proxy for the general economic and demographic development, while in Delineation 4 we are looking into socio-economic variables. This research framework not only tries to identify inner peripheries as such, but this set up also addresses the methodological question whether a detailed approach is needed in delineating IPs (i.e. Delineations 3 and 4), or whether a simplified approach (Delineations 1 and 2) suffices.

The preliminary results of these delineations are presented in the following sub-chapters. A detailed description of the implemented methodology is given in Annex 6. The main outcomes for Delineation 1 have already been presented in Deliverable 2.

7.3 Delineation 1 - Higher Travel Time to Regional Centres

One of the outstanding characteristics of the urban system in Europe is its fine-grained hierarchical and generally dense system of cities, towns and regional centres. Administrative functions, economic and social activities, as well as the full range of services-of-general-interest (SGIs) are provided in these centres. They provide their services not only for the resident population, but also for the population in the surrounding territories. Areas experiencing a lack of access to such centres can thus be considered as “inner peripheries” (disadvantaged, compared to other areas), as they do not have sufficient short access to services of all kind, even though geographically they may be located in the centre of Europe.

Globalization processes, with its economic tendency to centralize services and facilities, and processes of demographic change (overageing and outmigration) challenge the traditional European system of service provision from two sides, as the former processes tend to close facilities in many regions, while due to the latter processes the necessary economic basis

(demand) for such services is scouring off. As a consequence, it becomes more and more difficult to maintain a service provision in many areas.

Enabling good access to regional centres thus implies two main facets: on the one hand, a sufficiently good access (i.e. short travel time) should be strived for. For many services (like health care, education) sufficiently short travel times are a *conditio sine qua non*, while for other services people accept only certain maximum travel times (e.g. banks, shopping). On the other hand, certain areas may be considered as disadvantaged if they experience comparatively long travel times – compared to the surrounding regions. Due to the difference in access, these areas face the risk that in medium or long run service providers, enterprises, general economic and also social activities may move away to areas of higher access.

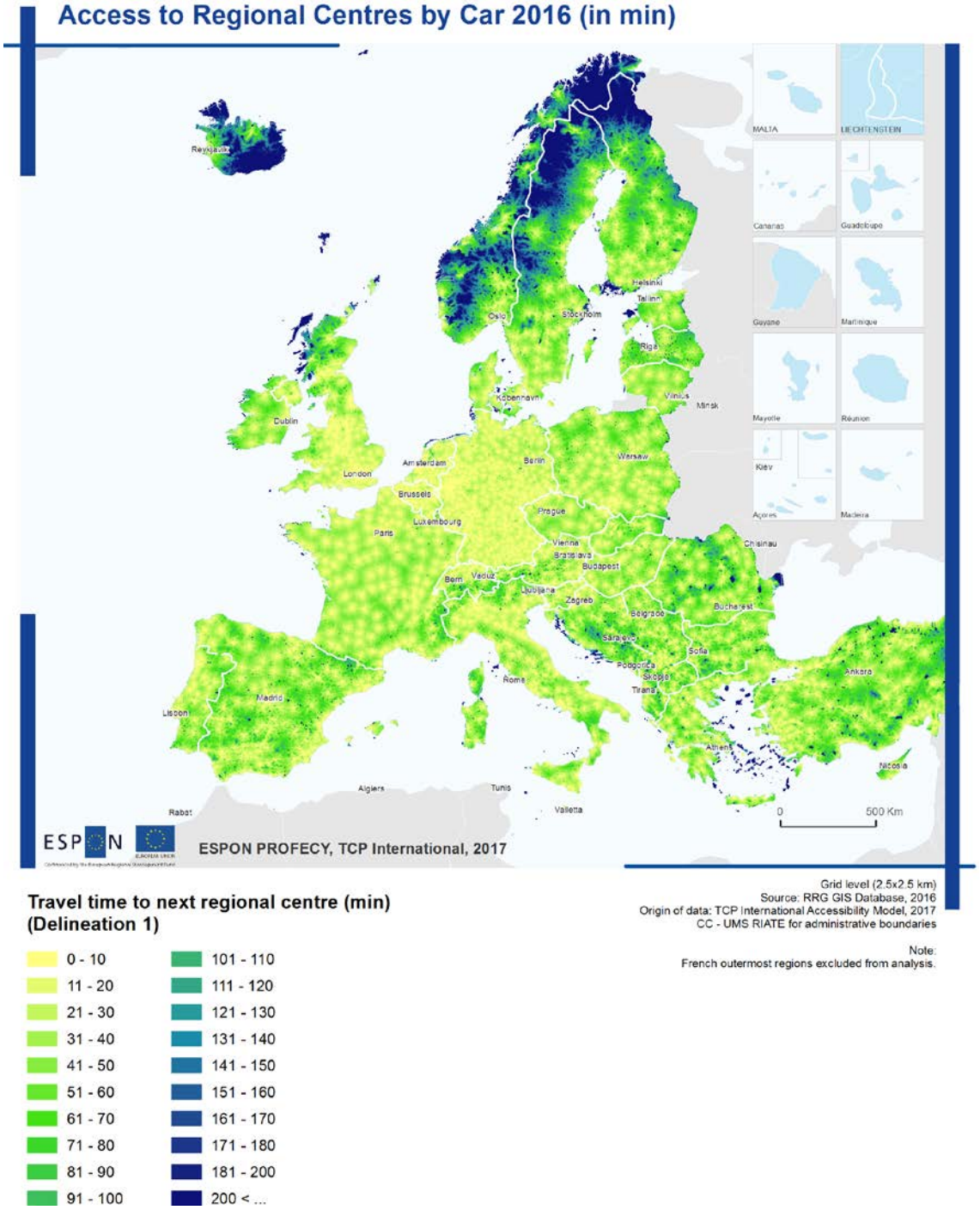
At a regional scale the challenge then is not only to minimize travel times to regional centres, but also to minimize comparative differences in travel times. At the same time these regional processes are overlaid by larger access differences at the European scale, between the countries (for instance, central European countries vs. Eastern European countries, Mediterranean countries vs. Central European countries, etc.) and between specific types of regions (such as mountains and islands vs. central areas).

The main characteristics of this delineation can be summarized as follows:

Origins	Grid cells
Destinations	Regional centres
Transport modes	Car, (passenger trains)
Variables considered *(explicitly or implicitly)*	• Geographical location (i.e. location of regional centres) • Population (via size of regional centre) • Accessibility (expressed in travel time from each grid cell to closest regional centre) • Physical factors (density and connectivity of the transport networks) • Quality of the transport systems (road types, speed limits, train speeds and train schedules)

Today, many areas in Europe experience travel times to the next centre of 30 minutes or below (Map 7.1). In Germany, the Benelux countries and in England many centres can be reached from most of the territory within 20 or even within 10 minutes driving times. Intermediate areas in countries with a less dense system of centres (like Spain, Romania, Bulgaria, Poland) have travel times up to 90 minutes. Areas with more than 100 minutes travel time are mountain ranges (such as Alps, Carpathians, Pyrenees). The most disadvantaged areas are the Northernmost regions in Scandinavia, Scotland, Iceland, and the islands. Still, there are significant differences in the access to regional centres in all countries, representing the dichotomy of central areas (i.e. regional centres and their hinterland) and the rural areas.

Map 7.1: Access to regional centres by car.



Inner peripheries at grid level (Map 7.2), i.e. areas in a regional context with poor access to regional centres, can be found in all ESPON countries[6]. Often, these areas follow NUTS-3 region boundaries and span areas of low accessibility along region borders. Sometimes these

[6] Except for Cyprus and Malta, representing rather small island states.

areas are quite small (for instance, in Germany), sometimes they constitute large continuous areas covering several NUTS-3 regions (see for instance Norway and Sweden, Spain or Italy).

At NUTS-3 level (Map 7.3), one can identify 100 Type 1 IP regions in Europe. The largest IP regions can be found in Norway and Sweden, followed by Spain and the Alpine regions, while the smallest ones are observed for Germany and the Benelux countries. Some of these IP regions represent traditionally disadvantaged regions such as mountain areas (Alps, Pyrenees, Carpathians, Apennines); others, though, cover central or rural areas (like IP regions in England or Germany). A complete list of these 100 regions is given in Annex 3.

However, the generally low shares of the overlay of inner peripheries at grid level with the NUTS-3 regions doubt the usefulness of the NUTS-3 level at all (see Annex 3). Only very few NUTS-3 regions have shares of more than 50% of their territories, and there is only one region with more than 75%; for most regions, the share is far below 20%. Therefore, in a second attempt, grid level IP areas where overlaid with LAU-2 units to get more precise results (Map 2 Annex 4), and an explorative identification of LAU-2 units as inner peripheries has been developed (Map 3, Annex 6).

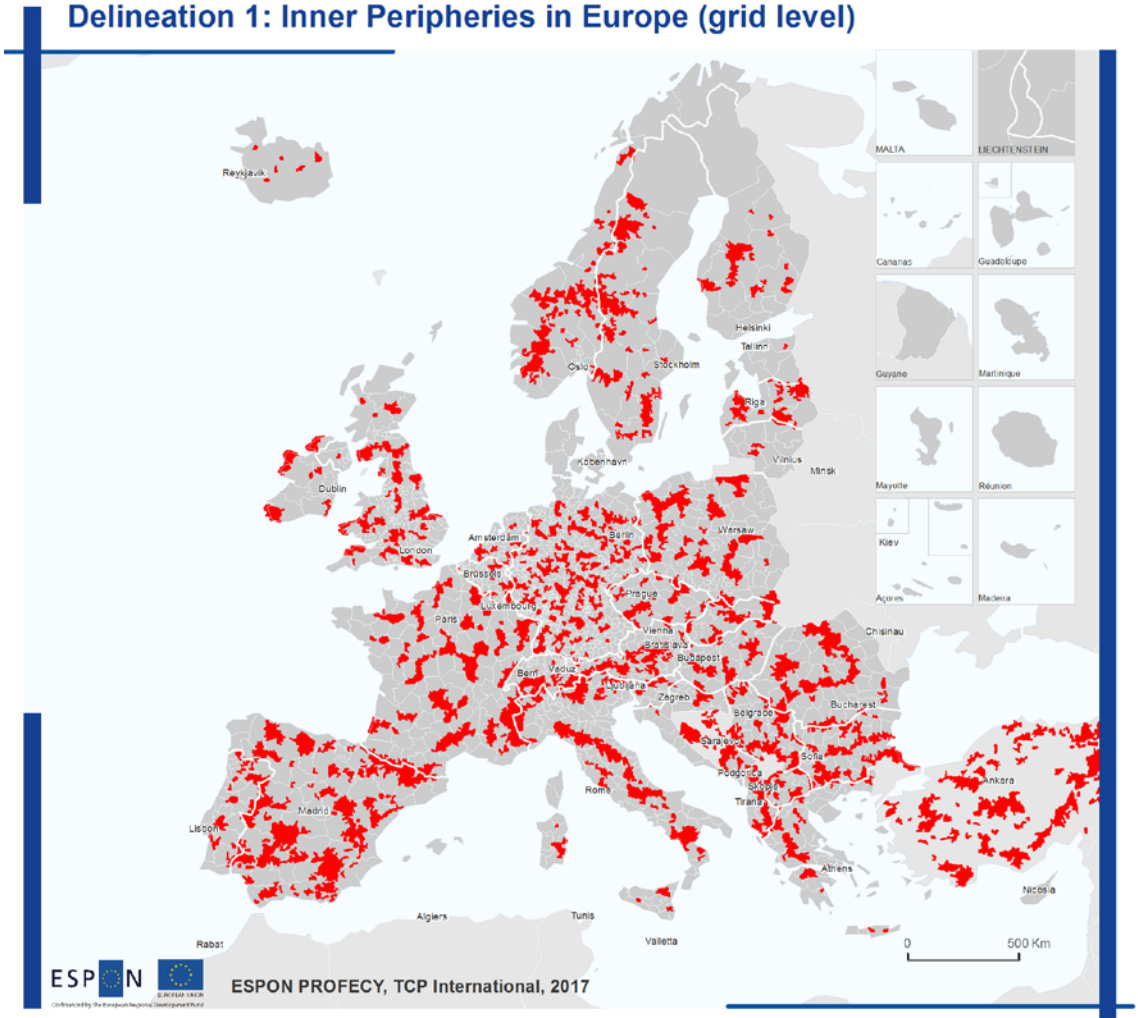
Usefulness of NUTS3 regions for delineating IP regions:

Regardless of existing political interest to get to know which NUTS-3 regions can be regarded as inner peripheries, and regardless the options the NUTS-3 level provides to compare NUTS-3 level IP regions with other typologies and with other spatial phenomena, from a methodological point of the usefulness of the NUTS-3 level seems doubtful on basis of the available results. The spatial “jump” from the grid level to NUTS-3 level by leapfrogging LAU levels appears to be too large for many countries. An overlay of grid level results with LAU-2 units seem preferable over NUTS-3 units *(a detailed discussion of the NUTS-3 / LAU-2 issue can be found in Annex 5)*

Access of regional centres by public transport:

Unfortunately, it is not possible to compile a comprehensive European-wide public transport dataset including trains, metro, tram, busses and other types of public transport. Specifically, it is not possible to compile a complete bus network for all of Europe; therefore, a dataset representing passenger train networks has been compiled and applied to analyse access to regional centres by trains. However, results are not convincing as for many countries in Europe they reflect the poor density and poor quality of the railway network rather than a reasonable delineation of inner peripheries. This is a direct outcome of the missing bus network. Therefore, the project team decided not to use these results for the delineation of inner peripheries, nor to follow-up with small-scale grid-based indicators based on access by public transport (a detailed discussion of this issue including sample maps can be found in Annex 5).

Map 7.2. Delineation 1: Areas of inner peripheries at grid level.



Delineation 1: Inner peripheries in Europe (grid areas) (based upon access to regional centres by car)

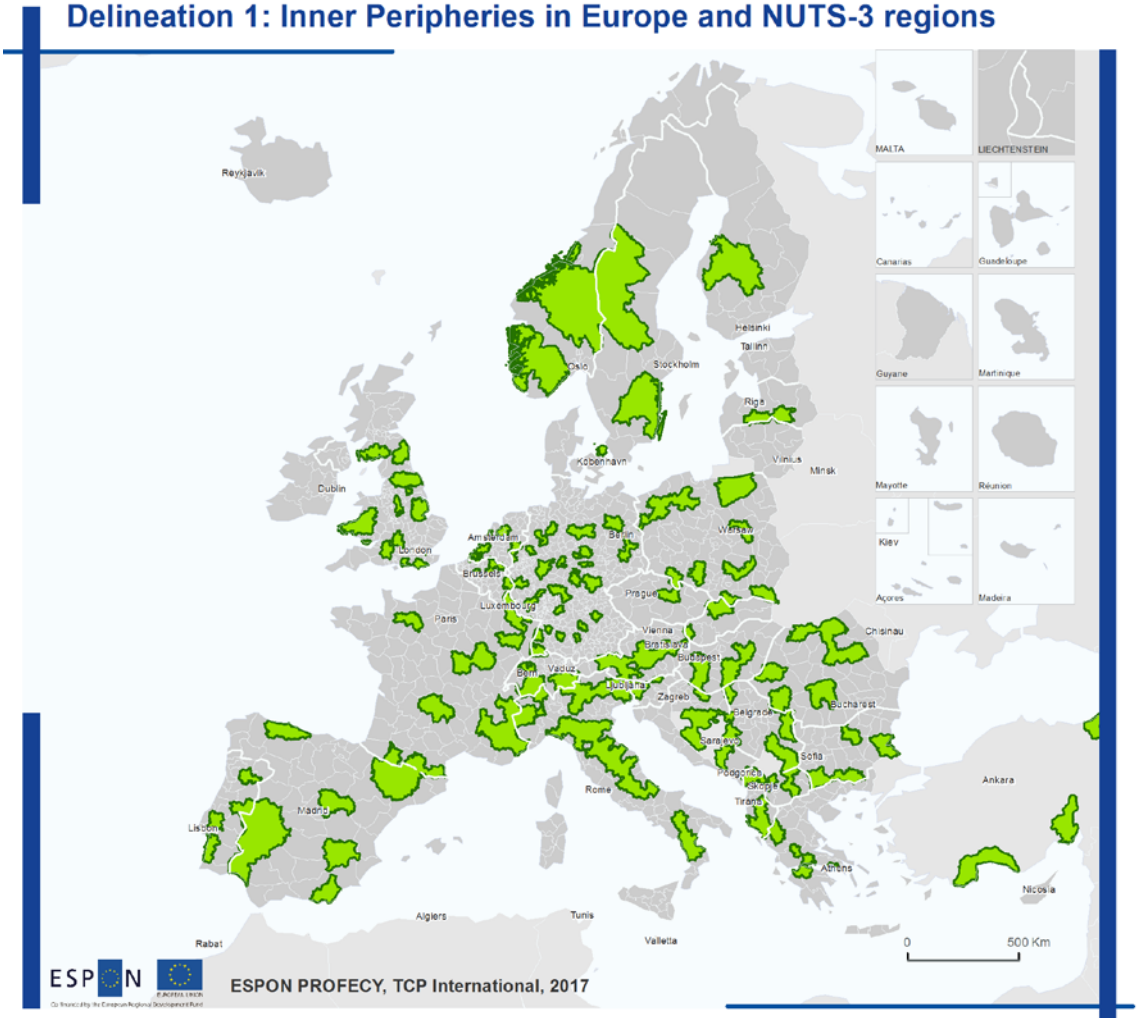
Areas identified as inner peripheries at grid level

Notes:
- *minimum patch size: 100 sqkm*
- *average patch size: 1,720 sqkm*
- *neighboring grid cells merged, cell boundaries smoothed*
- *patches on small islands and in outermost regions removed*
- *small patches along coastlines and aling the border to Russia, Belarus, Ukraine and Moldova removed.*
- *total number of patches for ESPON space: 461*

Grid level (2.5x2.5 km)
Source: TCP International, 2017
Origin of data: TCP International Accessibility Model, 2017
CC - UMS RIATE for administrative boundaries

Note:
French outermost regions excluded from analysis.

Map 7.3. Delineation 1: Identification of NUTS-3 regions as Inner Peripheries.



Level: NUTS-3 (NUTS 2013 classification)
Source: TCP International, 2017
Origin of data: TCP International Accessibility Model, 2017
CC - Eurostat-GISCO, RRG GIS Database

Note:
French outermost regions excluded from analysis.
Cyprus and Malta excluded because the represent rather small island states.

Delineation 1: Identification of NUTS-3 regions as Inner Peripheries (combination of area shares and overlay by 75 largest IP patches)

IP regions in Europe (100 regions)

non-IP NUTS-3 regions

Remarks:

IP regions include all NUTS-3 regions
(i) whose territory is at least overlaid by 30% by grid IP patches
(ii) who are covered with a significant portion by the 75 largest IP patches
(iii) as far as possible all ESPON countries should have at least one IP region

IP regions not include
- small and medium islands and island states like Malta, Cyprus or Ireland
- outermost regions (French overseas territories, Iceland, Acores and Madeira, Canarias)
- border regions towards Russia, Belarus, Moldova and Ukraine
- small coastal areas (except when connected to wider hinterland IP regions)

7.4 Delineation 2 - Economic Potential Interstitial Areas

Inner peripheries can also be identified as interstitial areas of poor economic potential in relation to their neighbouring regions. The economic potential of a region is measured as potential accessibility[7] by road and by rail[8].

All NUTS-3 regions currently having an economic potential below the regional average[9] for road and rail and which have experienced a poorer development of the accessibilities for road and rail in the period 2001 to 2014, compared to their neighbouring regions, are regarded as disadvantaged, and thus are regarded as inner peripheries according to this delineation.[10]

The main characteristics of this delineation can then be summarized as follows:

Origins	NUTS-3 regions (2010 NUTS classification)
Destinations	NUTS-3 regions (2010 NUTS classification)
Transport modes	Road, rail
Variables considered (explicitly or implicitly)	• Potential accessibility 2014 • Potential accessibility, development 2001-2014 • Physical factors (connectivity of transport networks) • Quality of the transport system (road types, speed limits, train speeds and schedules)

As a result of this delineation, larger continuous areas of inner peripheries can be found in Scandinavia, in Eastern Europe (Poland, Slovakia, Hungary, Bulgaria, Romania, Turkey) and on the Iberian peninsula (Map 7.5); smaller IP areas are scattered in the Benelux countries, Germany and Italy, France and the UK.

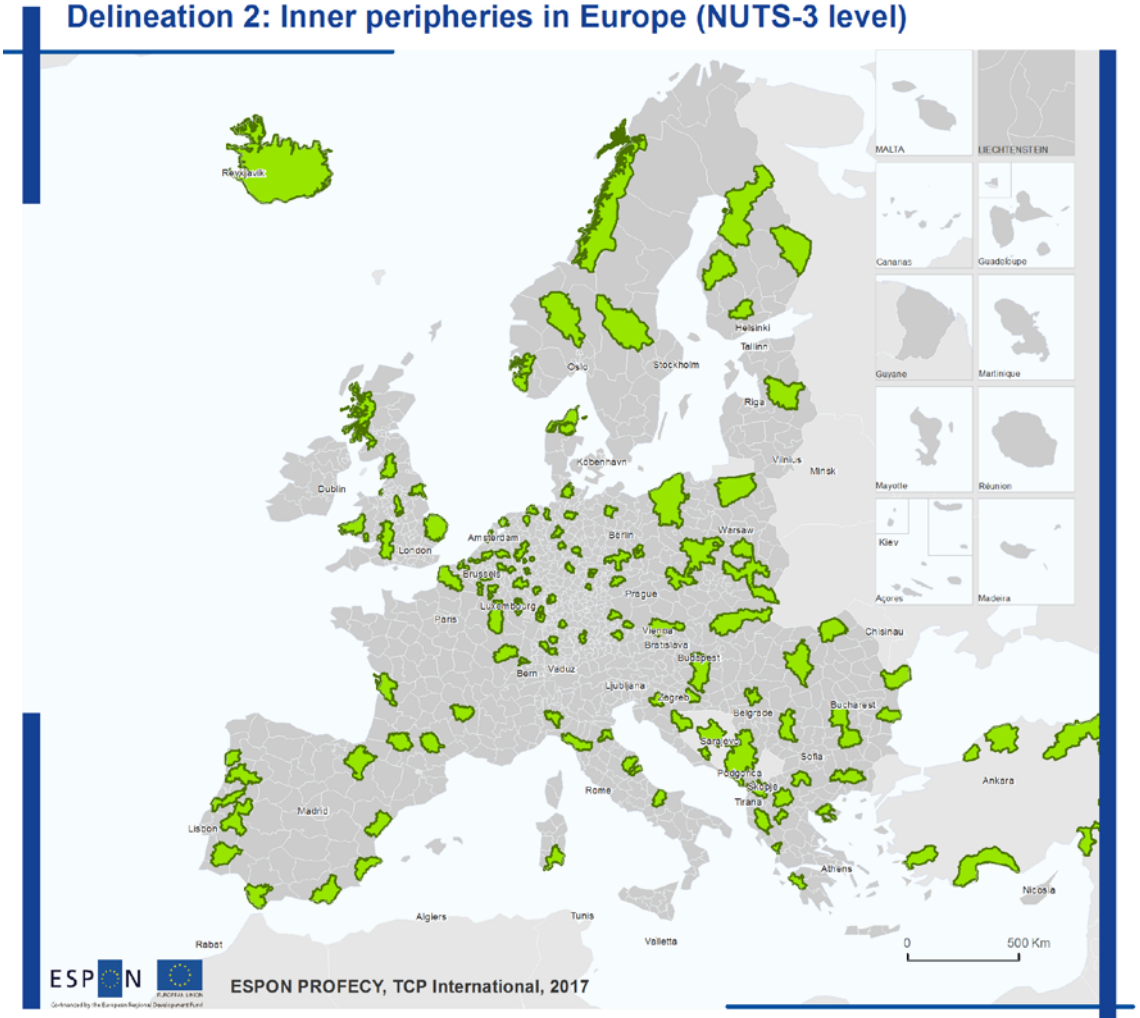
[7] Potential accessibility is based on the assumption that the attraction of a destination increases with size, and declines with distance, travel time or cost. Destination size is usually represented by population or economic indicators such as GDP or income.

[8] Most recent potential accessibility indicators were for entire ESPON space calculated in the ESPON Matrices project (Spiekermann and Wegener, 2014).

[9] In ESPON Matrices project, the accessibility values were standardized at the ESPON average resulting in the well-known large scale European core-periphery divide. For PROFECY, however, we are looking into regional accessibility patterns. Therefore, the raw accessibility numbers were re-standardized at the average of the neighbouring regions, as done in the other delineations.

[10] Further information on the operationalization of this delineation including additional maps can be found in Annex Report 5.

Map 7.4. Delineation 2: Identification of NUTS-3 regions as inner peripheries.



Delineation 2: Potential accessibility
Identification of NUTS-3 regions as Inner Peripheries

IP regions in Europe

non-IP NUTS-3 region

Remarks:

IP regions include all NUTS-3 regions
(i) whose standardized potential accessibility indices in 2014 for road and rail are below average of neighbouring regions, and
(ii) whose development of the standardized potential accessibility indices between 2001 and 2014 for road and rail is negative (i.e. whose accessibilty development was worse compared to its neighbours - negative change rates).

Level: NUTS-3 (2010 classification)
Own classification
Source of accessibility indicators:
ESPON Matrices, 2014
Spiekermann&Wegener Urban and Regional Research, 2014;
Origin of data: S&WAccessibility Model, 2014
RRG GIS Database, 2014
CC - UMS RIATE for administrative boundaries

Notes:
French outermost regions excluded from analysis.

7.5 Delineation 3 - Areas of Poor Access to Services-of-General-Interest

Delineation 3 builds upon and extends Delineation 1. In the latter one, regional centres have been used as proxies for locations of service provision. In Delineation 3 we are now looking into access to individual facilities of selected services-of-general-interest (SGIs).

An adequate provision and access to main SGIs not only constitute an indicator of the degree of connectedness of territories, but easy and cheap access to such facilities ensures higher quality of life, provides choice opportunities for the resident population and thus contributes to fix population and jobs. This type of IP tries to capture areas that suffer from relative poor access conditions than the average in the surrounding areas.

The main characteristics of this delineation can be summarized as follows:

Origins Grid cells

Destinations Different types of SGIs:

- Banks
- Cinemas
- Doctors
- Hospitals
- Pharmacies
- Retail sector (both supermarkets and convenient stores)
- Schools (primary and secondary schools)
- Train stations (main stations and all stations)
- UMZ (proxy for jobs)

Transport modes Car

Variables considered

- Geographical location (i.e. location of the SGI facilities)
- Accessibility (expressed in travel time from each grid cell to the closest SGI)
- Physical factors (connectivity and density of the road network)
- Quality of the transport systems (type of roads, speed limits)

Map 7.5 illustrates areas of inner peripheries delineated at grid level for the complete set of SGIs. The map series shows many areas appearing as inner peripheries for several SGIs; however, a detailed view reveals that the shape of the patch boundaries differ between the SGIs, so as their total numbers and average sizes (Table 7.2). There is a clear tendency that with increasing number of facilities per SGI the number of IP patches will also increase, while at the same time the average patch size decreases. In other words, the higher the number of facilities per SGIs, the higher the degree of fragmentation of IP areas will be (more but smaller IP patches).

A complete map series including access maps and overlays with NUTS-3 regions and LAU-2 levels, and enlarged grid results, can be found in Annex 5.

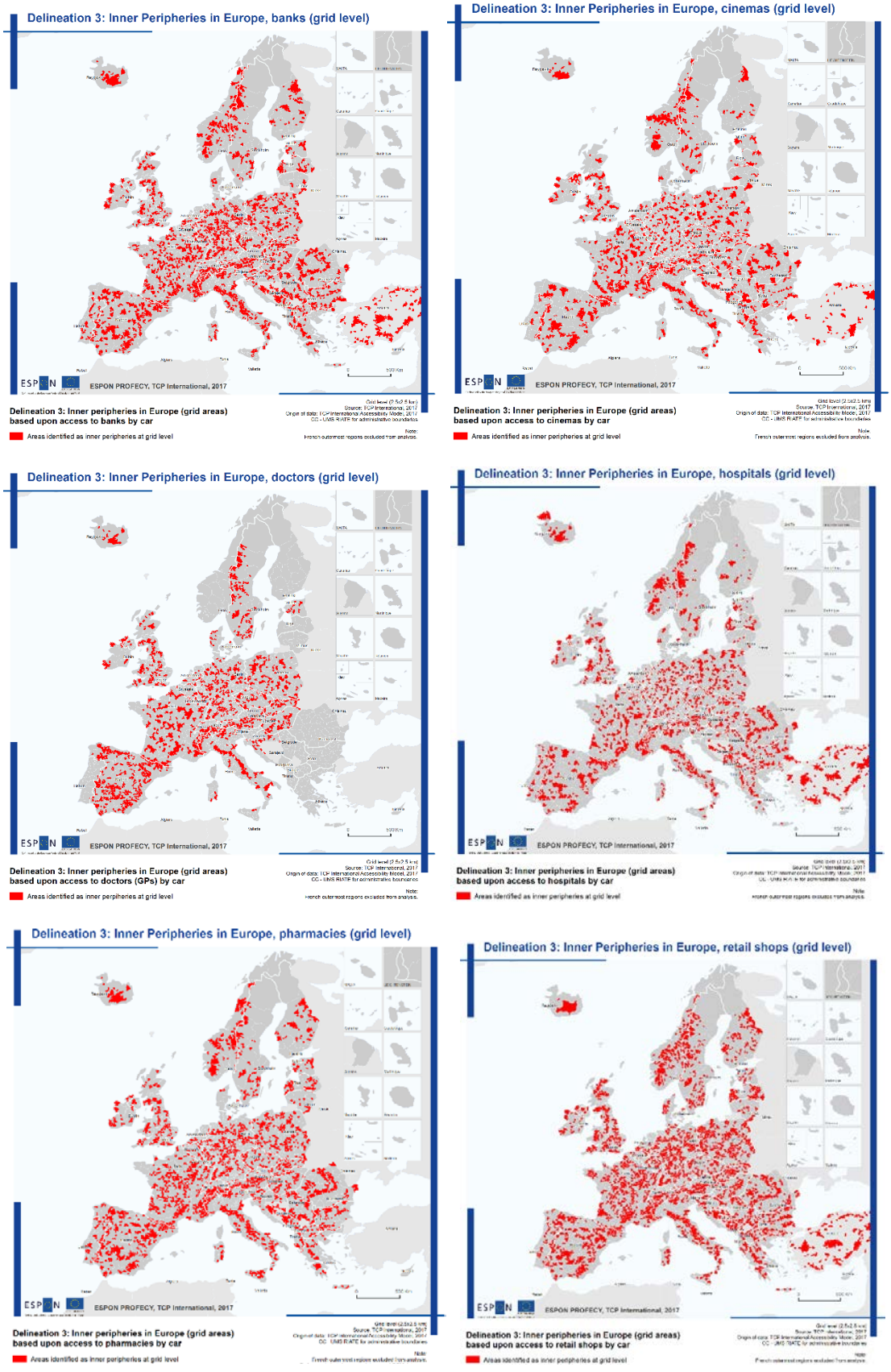
In a next step, the results for the individual SGIs need to be combined into one overall delineation. Different options have been developed and described in Annex 6, which will be explored in the coming weeks.

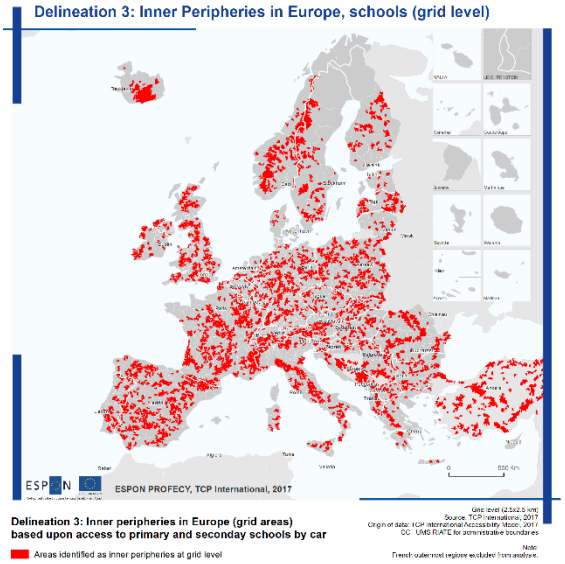
Table 7.2: Characteristics of IP patches at grid level by type of SGI.

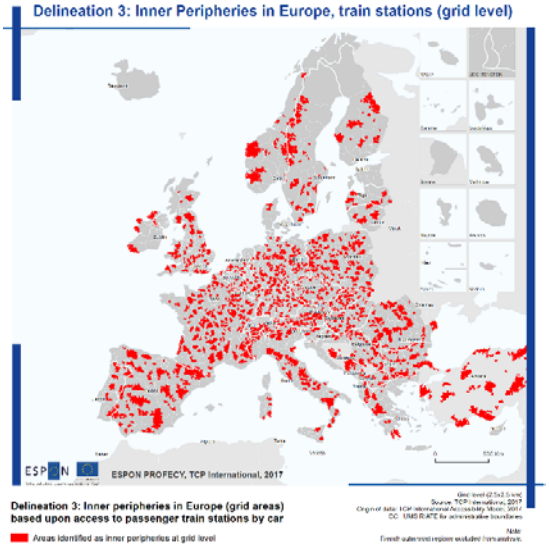
SGI	Number of facilities in ESPON space	Number of IP patches at grid level	Average size of IP patch at grid level (km^2)
Banks	94,619	1,117	613
Cinemas	8,385	733	800
Doctors	48,182	650	610
Hospitals	11,614	879	675
Pharmacies	91,957	1,001	621
Retail sector	206,045	1,339	570
Schools	204,597	1,264	603
Train stations	35,225	872	810
UMZ (jobs)	5,078	381	2,327

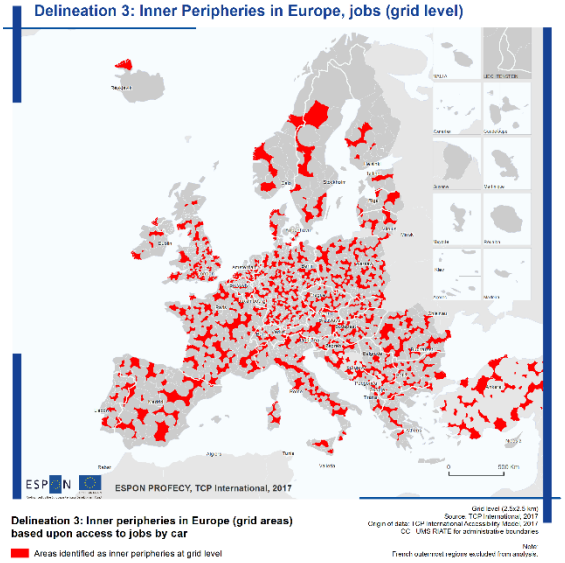
Source: own elaboration

Map 7.5. Delineation 3: Inner peripheries at grid level identified for selected SGIs.









(from top left to bottom right: banks, cinemas, doctors, hospitals, pharmacies, retail shops, schools, train stations, and jobs)

7.6 Delineation 4 - Depleting Areas

In this delineation, the phenomenon of inner peripheries is considered as a process. At some point in time, regions may enter into a negative downward spiral, often triggered by external shocks like closure of important industries or loss of importance of raw material deposits. Such shocks may then lead to increasing unemployment, decreasing wealth (GDP per capita), with further impacts on out-migration. A population loss may then weaken the basis (demand) for further economic activities which may result in closure of services and so in a further increased risk of out-migration.

Such processes may occur even if the area in question has good access to regional centres or to SGIs. Therefore, the basic idea of this delineation is to go beyond accessibility variables as implemented by the first three delineations, by looking into key demographic and economic indicators. These type of areas are thus areas exhibiting low levels of socio-economic and socio-demographic performance which can be attributed to an absence of "organized proximity" (of whatever kind), which are in some way excluded from the "mainstream" of economic activity, or which can be said to be experiencing a process of "peripheralisation".

The main characteristics of this delineation can then be summarized as follows:

Origins NUTS-3 regions (2013 NUTS classification)

Destinations n.a.

Transport modes n.a.

Variables considered

- Population 2015
- Population change (2000-2015)
- GDP per capita
- GDP per capita change
- Unemployment rate
- Unemployment rate change
- Economic resilience[11]

[11] According to the ESPON Economic Resilience ECR2 project, "Economic Resilience" is defined as: "The ability of a regional economy to withstand, absorb or overcome an internal or external economic shock" (ECR2 DFR, accessed on 20th of February 2017). The term refers both to "the response of economic output (as measured by levels of total GDP) and employment (measured as total number of persons employed)" (Ibid, p.15). Four types of regions are identified in the framework of the ECR2 Project:

- Resistant regions (RS): those regions that have not experienced an absolute decline in economic activity following the economic shock.
- Recovered regions (RC).those regions that experienced a decline in economic activity, but have since recovered to pre-shock activity levels.
- Not recovered, but in upturn (NR1): those regions that experienced a decline in economic activity, have passed the trough of the recession, but have not yet recovered to pre-shock activity levels
- Not-recovered, still in decline (NR2):those regions that experienced a decline in economic activity, which was still ongoing at the time of the analysis.

Note that employment as an indicator of resilience, is subject to fewer revisions over time than measures of GDP and because it resonates with the wider public.

The delineation uses three main variables, which are demography (population), wealth/output (GDP), and labour market (unemployment). For each variable, the situation in the most recent year as well as the development over the last decade will be considered.

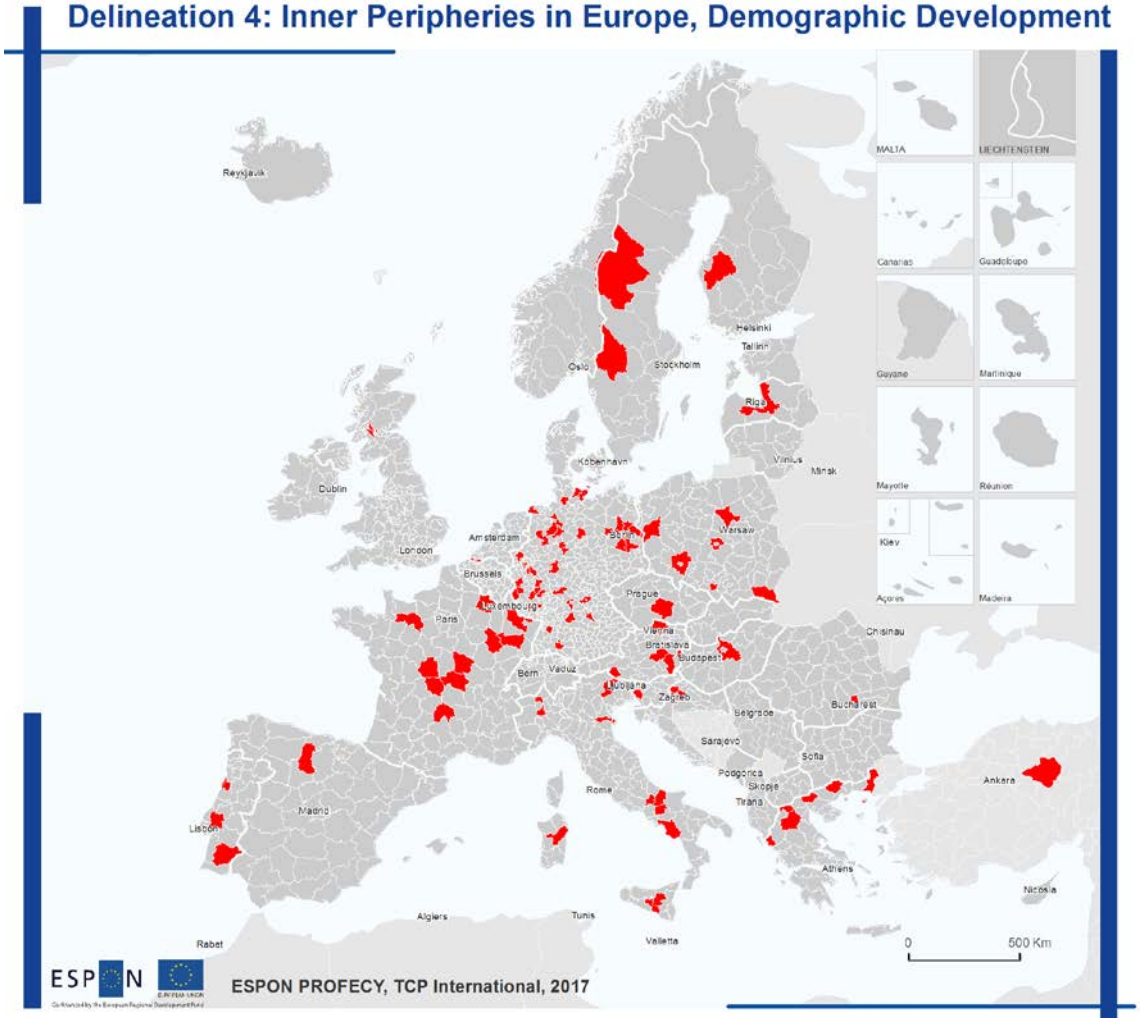
A NUTS-3 region will be considered as an inner periphery, if the region has a comparatively poor performance in the most actual year, and if it experienced a negative trend over the last year.

Unfortunately, so far only population data are available to the project team[12]. Therefore, the following results are tentative results relying solely on population data.

Map 7.6 illustrates the NUTS-3 regions considered as inner peripheries as regards their demographic situation. Most of these regions are located in Germany and France, plus regions in Poland, Czech Republic, Italy, Austria, Portugal, Greece and Sweden. Individual NUTS-3 regions considered as inner peripheries can also be found in Belgium, Finland, Lithuania, Scotland, Spain, Hungary and Romania.

[12] According to the initiative of the ESPON EGTC to share the data collection efforts evenly among all ongoing parallel ESPON projects, data on GDP and on unemployment rates were allocated to parallel ESPON projects. Since the other projects follow their individual time paths, the PROFECY team has, unfortunately, only received the employment dataset by 1st Feb 2017. The PROFECY team itself was responsible to collect population datasets.

Map 7.6. Delineation 4: Inner peripheries according to their demographic situation.



Delineation 4: Inner peripheries in Europe (NUTS-3 level) based upon demographic situation

Areas identified as inner peripheries at NUTS-3 level

Notes:
All NUTS-3 regions considered as inner periphery,
(i) whose population density in 2015 is < 75% of the average of neighbouring regions, and
(ii) who experienced negative mean annual change rates in the time period 2000-2015

non-IP region

Level: NUTS-3 (2013 classification)
Source: own calculation based on Eurostat, 2016
CC - UMS RIATE for administrative boundaries

Note:
French outermost regions excluded from analysis.

7.7 Relation of Inner Peripheries to Regional Typologies

In the past, geographical analyses in Europe concentrated on traditional divides such as the urban-rural dichotomy, centre (core)-periphery, border and non-border areas, East-west divide, North-South differences, or mountain areas vs. lowland areas. These divides were often seen, and analysed, from a transnational and European perspective. Only recently attention was drawn on potential differences and marginalization processes within these large-scale divides.

By definition, inner peripheries cannot be analysed, delineated or described by applying the above mentioned traditional geographical concepts, but a shift to regional approaches is needed. Inner peripheries are areas that, for different reasons (see Chapter 9), lag (in several dimensions) behind prosperous neighbouring regions.

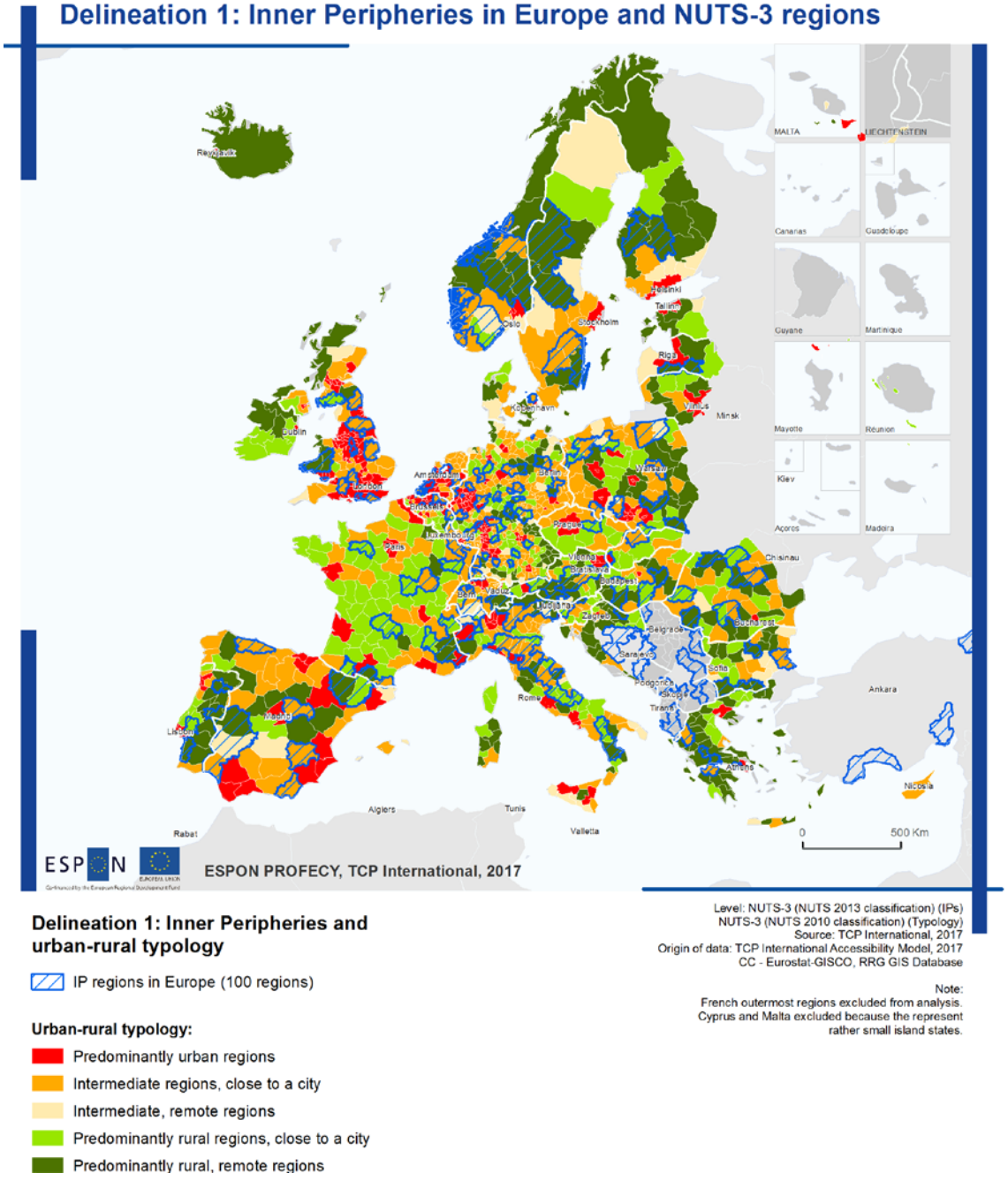
In order to analyse the relationship between inner peripheries and previous regional typologies, results of Delineation 1 at NUTS-3 level (see Chapter 7.3) have been overlaid with the urban-rural typology jointly developed by DG AGRI, DG REGIO and JRC (Map 7.7).

Inner peripheries may represent intermediate and predominantly rural regions. IPs occur in all countries in Europe, whether central or peripheral. What inner peripheries in Delineation 1 have in common is a relative lack of access to regional centres. Depending on the individual IP region, this lack may be an “absolute” lack of access, or a “relative” lack in relation to the surrounding regions. The overlay of inner peripheries with the urban-rural typology of NUTS-3 regions illustrates that there is no direct relationship between regions identified as inner peripheries and regions classified as intermediate regions or predominantly rural regions. In fact most of the inner peripheries identified represent intermediate and rural regions (although some of them are also predominantly urban regions). Reversely only few intermediate or rural regions are also inner peripheries.

IP regions and urban-rural typology:

Areas with poor access to regional centres cover intermediate regions (mostly close to a city) and also predominantly rural regions (mostly close to a city). In turn, inner peripheries do not represent predominantly urban regions (only few exceptions can be observed). There is no direct rule that intermediate regions automatically represent inner peripheries, and vice versa. Inner peripheries thus appear to be a new “type of area” that only partly overlap with the traditional urban-rural dichotomy.

Map 7.7. Delineation 1 - Inner peripheries and urban-rural typology of regons.



7.8 Combining Results of the four Delineations

Even though the four developed delineations look at the phenomenon of inner peripheries from different perspectives, by using different approaches and variables, it is important to highlight that the four types are not mutually exclusive. That is, most territories identified as inner peripheries in one delineation may also share characteristics of any of the other ones.

Since each delineation has its own thematic focus (see Chapter 7.2), or perspective, the individual results need to be compared and in the best case integrated respecting the different categories, with the aim being to assess differences and overlaps of the different delineations.

One way of combining the results is to superimpose them and map the resulting combinations. For the sake of clarity, it is recommended not to have too many categories. A maximum number of 8 categories/combinations seem reasonable (Figure 7.2).

Figure 7.2. Possible combinations of integrating different delineations into a limited number of categories.

	D1	D2	D3	D4
1	+	+	+	+
2	+	+	+	-
3	+/-	+	-	-
4	+/-	-	+	-
5	+/-	+	-	+
6	+/-	-	+	+
7	-	-	-	+
8	-	+	+	-
9	-	+	+	+
10	-	-	-	-

+ = positive value, low travel time, high accessibility, high access to SGIs, not depleting

- = negative value, High travel time, low accessibility, low access to SGIs, depleting

The difference between such a categorization of delineation results, and the generation of a typology of inner peripheries is that the former one is derived just by superimposing the individual results, while the latter one will be the result of a statistical analysis of different variables. Table 7.3 illustrates possible combinations of the different delineation results.

Table 7.3: Possible combinations of delineation results.

Combinations		Delineation				Categorization name
		D1	D2	D3	D4	
1	./.	+	+	+	+	No IP
2	D4(1)	+	+	+	-	Depleting - accessible
3	D4(-)&D3(-)orD1(+)orD1(-)	+/-	+	-	-	Depleting - low access to SGIs
4	D4(-)&D2(-)orD1(+)orD1(-)	+/-	-	+	-	Depleting - low access to economic potential
5	D3(-)orD1(+)orD1(-)	+/-	+	-	+	Low Access to SGIs – not depleting
6	D2(-)orD1(+)orD1(-)	+/-	-	+	+	Low access to economic potential – not depleting
7	D4(-)&D3(-)&D1(-)	-	-	-	+	Remote - not depleting
8	D4(-)&D1(-)	-	+	+	-	Low access to regional centres - depleting
9	D1(1)	-	+	+	+	Low access to regional centres – not depleting
10	D4(1)&D3(1)&D2(1)&D1(1)	-	-	-	-	Depleting – remote, low access to regional centres
	No coherence					
	Contradiction: assuming SGIs and economic potential are in centres	+	-	-	-/+	Not coherent

Table key:
+ above average performance (good performance, comparably high accessibility)
- below average performance (poor performance, comparably low accessibility)

Following descriptions describe the conceptual meanings of the different combinations. In fact, some of these combinations may not appear, or they may not be fully coherent.

- **Combination 1 - Non-IP:** These areas should not be considered as IP because they perform good in all four delineations.
- **Combination 2 - Depleting –accessible.** These areas are identified in Delineation 4 as depleting or lagging areas according to their socio-economic situation, although they appear to enjoy good accessibility in the three other delineations. However, depleting status is not a sufficient condition alone to become IP. Thus, these distinction needs to be dealt with at case study level.
- **Combination 3 - Depleting- low Access to SGIs.** These areas are identified as depleting areas in Delineation 4, and suffer from poor accessibility to SGIs (not necessarily as a consequence of geographic remoteness). These areas should be considered as IP.
- **Combination 4 - Depleting - low access to economic potential.** These areas are characterized by depleting socio-economic situation, and low access to economic potential, while they still have good access to SGIs and to services. Although accessibility is performing well these areas should be considered inner peripheries due to a low connection to 'economic' centres that is not hindering the development of SGIs importantly but could be linked to depleting processes.

- **Combination 5 - Low Access to SGIs – not depleting.** This combination may correspond to areas that even though access to economic potential is not as poor as in the neighbouring areas, they have received less attention for service provision or they have been affected by reductions in access to services. These areas are experiencing problems of IPs from the point of view of service provision.
- **Combination 6 - Low access to economic potential – not depleting.** This combination will respond to areas where the low access to economic potential is not having an important impact in the service coverage or in the socio-economic processes of change. However, due to their lower connection to the economic potential they are experiencing problems of inner peripherality.
- **Combination 7 - Remote - not depleting.** These areas severely suffer from poor access to centres, SGIs and to economic potentials, but still they perform quite well in socio-economic variables. Such areas may be located in geographically remote areas, but still attract people and enterprises maybe due to their natural resources and despite their bad access situation.
- **Combination 8 and 9 - Low access to regional centres – depleting (8) and not depleting (9). C**ombinations 8 and 9, will respond to areas where although there is low access to regional centres, there is a good access to economic potential and to SGIs. This combination may be found in areas with no regional centres nearby but with individual SGIs within reach (for instance, larger NUTS-3 regions). However, combination 8, will include areas where access to regional centres may be linked to depletion processes.
- **Combination 10 - Depleting – remote.** These areas suffer from below average (poor) performance in all four delineations, and should be considered as inner peripheries.

While technically the above combinations are meaningful and unambiguous, their implementation faces some challenges:

(i) **NUTS classification**: Delineation 2 uses 2010 NUTS classification, compared to the 2013 classification used in the other three delineations.

(ii) **Usefulness of NUTS-3 level**: The aggregation of grid level results to NUTS-3 level in Delineations 1 and 3 results, partly, in a loss of information and in counter-intuitive assignments of NUTS-3 areas as being inner peripheries. A further aggregation of results by combining them with the other delineations may result in even more counter-intuitive results.

(iii) **Delineations 3 and 4**: Both Delineations 3 and 4 already use a set of different variables each, providing individual delineation results for each variable. That is that Delineation 3 and Delineation 4 are not just one delineation, but consist of several ones itself. This means, that in order to derive one Delineation 3 assignment, and one Delineation 4 assignment, different variables have to be combined.

(iv) **Theoretical considerations**: As each delineation looks at the phenomenon of inner peripheries from different perspectives, focussing on different aspects, by implementing different variables and approaches, it may be questionable whether from theoretical considerations it is possible to combine the four different delineations in order to derive one overall delineation of inner peripheries.

Once all four delineations are implemented, further analyses and explorations in the coming weeks, accounting for the above remarks, will reveal which of these combinations occur, and where.

7.9 Identifying Areas of Risk

In addition to the delineation of present inner peripheries, the identification of areas of risk to become inner peripheries in future is interesting as well. Based upon theoretical considerations, and the ways the four delineation approaches were implemented, four options for this identification will be tested, reflecting the rationales of the four delineation approaches:

(i) *Standardized access times:* Here, areas of risk will be defined at grid level for Delineation 1 and 3 individually for each variable by selecting those grid cells that have standardized access times between 100 and 150% of the average. The different areas of risk will then be combined the same way as the inner peripheries are combined (see Chapter 7.8). In this option, areas-of-risk represent some kind of *transition area* or *buffer area* between non-IP areas and IP areas. Their access to services is below-average, but not as poor as those for the IPs. Map 7.8 exemplifies this option based upon results for Delineation 1. This option was the one proposed in the PROFECY Inception Report.

(ii) *Comparison of results of all four delineations:* Depending on the way the results of the four delineations are combined, areas of risk may be those areas that are considered inner periphery only due to one of the delineations, while overall IP regions are those that are considered IPs in two or more delineations. Here, areas of risk will be identified at NUTS-3 level.

(iii) *Dependency on one facility:* This approach is based on the idea that areas which today have (good/fair) access to services may lose this good accessibility, if the next facility closes[13], and if no other facility of that SGI type is within reach. Thus areas, who have access to only one facility of each SGI type (such as bank, supermarket, cinema, doctor or hospital or train station) in a certain travel time are at higher risk to become inner peripheries in future, compared to areas, who have access to several of these facilities. This approach thus counts the number of facilities that can be reached from each grid cell within a reasonable travel time; areas that have access to none or only to one facility, which are not considered inner peripheries, will then be identified as areas of risk. Here, areas of risk are then only identified based on the results of Delineation 3. Table 7.4 suggests travel time thresholds for selected SGIs to calculate the number of facilities within reach. An example on pharmacies is given in Map 7.9.

[13] Whatever the reason for such a closure may be, such as decisions to privatise and concentrate facilities, changing service delivery technologies (such as replacement of office by internet services), or austerity policies, or just a lack of demand.

Map 7.8. Identification of areas-of-risk according to option 1.

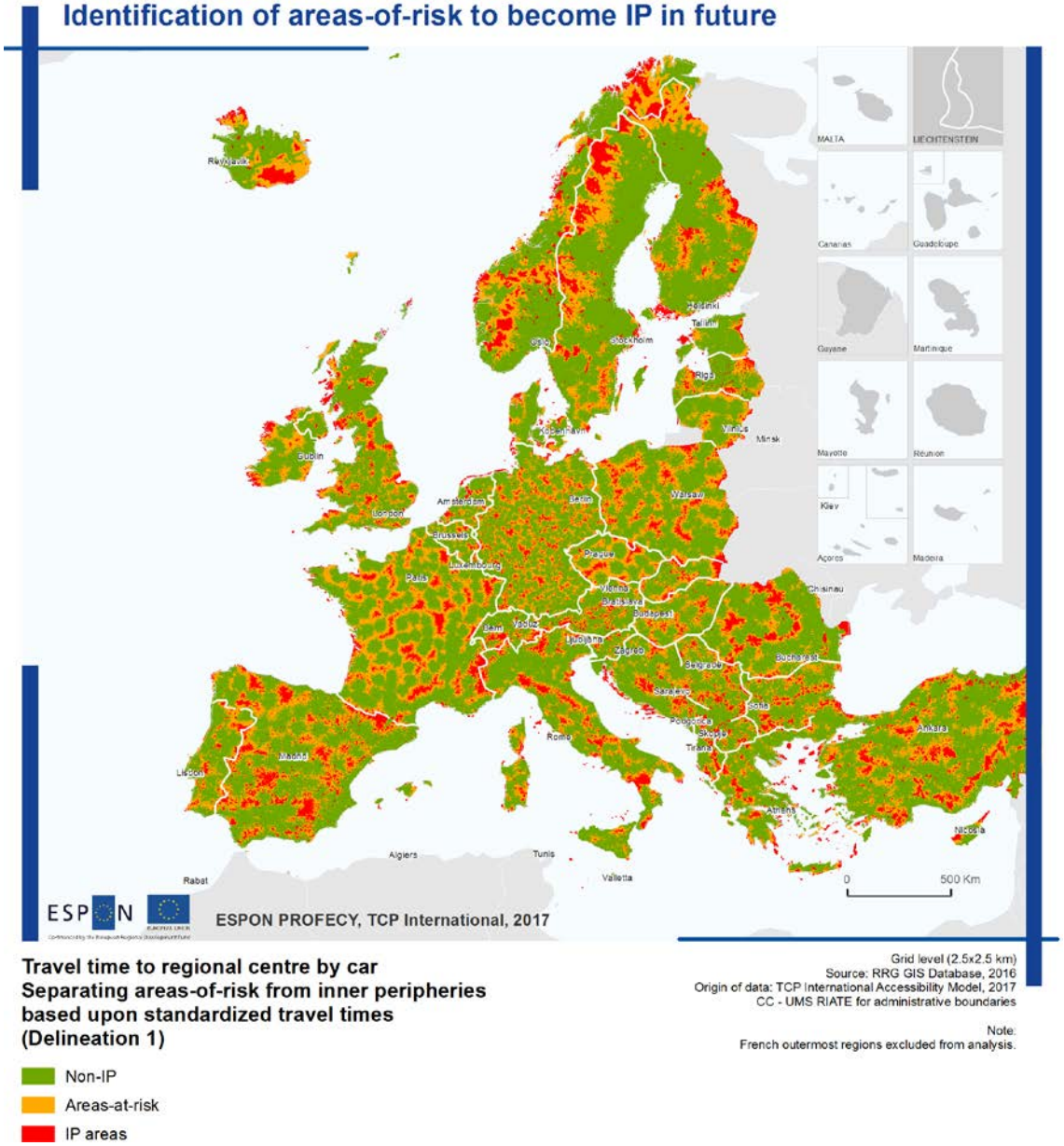
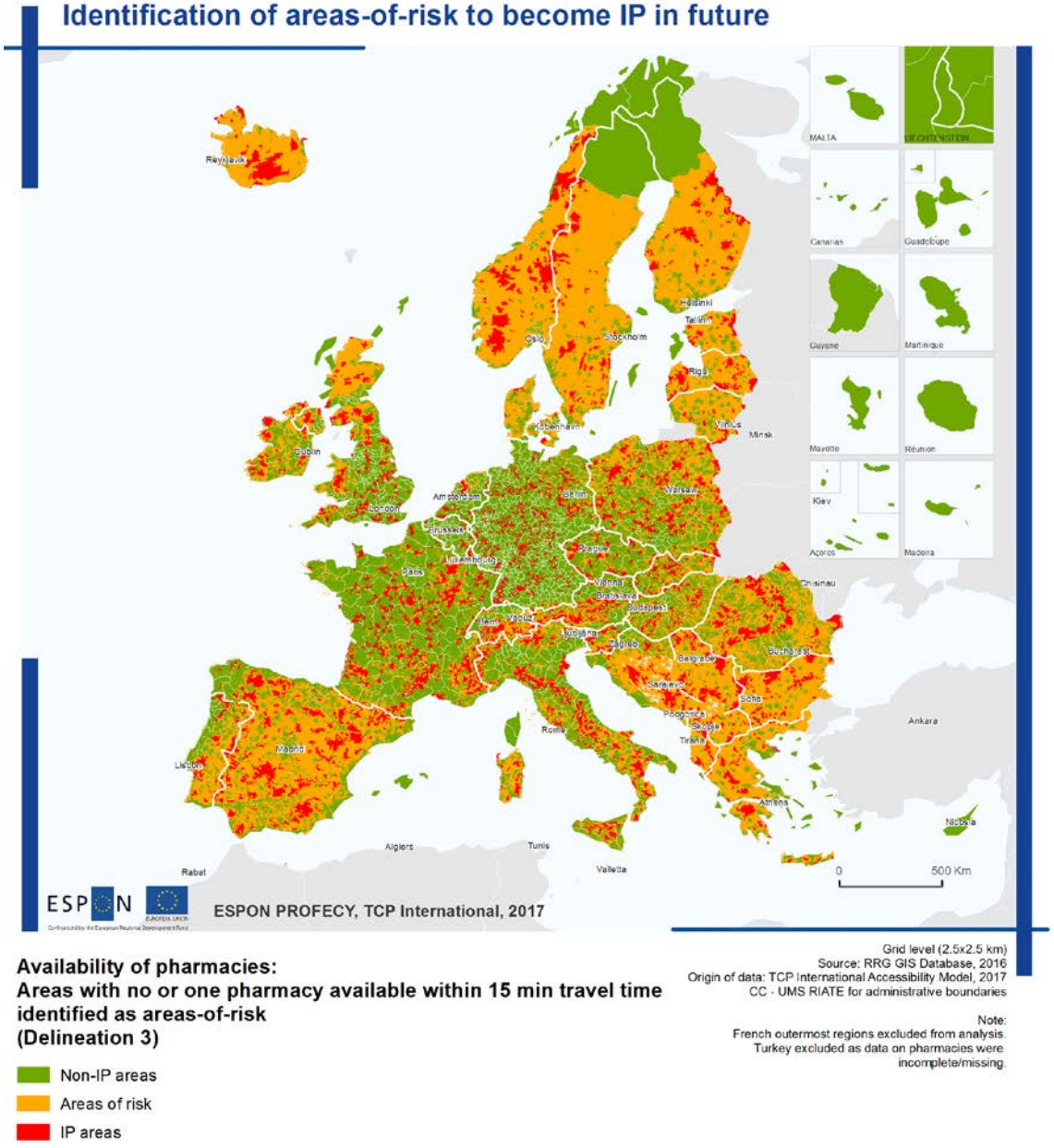


Table 7.4: Suggestions for travel time thresholds for selected SGI.

SGI	Travel time (min)	SGI	Travel time (min)
Banks	30	Pharmacies	15
Cinemas	45	Retail	15
Doctors	30	Secondary stations	20
Hospitals	60	Main stations	30

Map 7.9. Identification of areas of risk according to option 3 (example Delineatio 3 on pharmacies).



(iv) *Process of peripheralization:* Following the rationale of Delineation 4, areas of risk will be identified by looking at recent development trends of key statistical variables such as population development or development of unemployment rates. Areas of risk are then those NUTS-3 regions which have experienced a negative trend over the last decade, but which have not been identified as inner peripheries so far.

The different options presented here will be further explored in the coming weeks, and results compared.

7.10 Conclusions and Next Steps

PROFECY is the first project of its kind trying to delineate inner peripheries for the whole Europe, following unified approaches. Therefore, the results presented in Chapter 7 have, to a large degree, explorative character, by testing different approaches, methods, variables, and thresholds. As so far there has not been a generally accepted definition of the concept of inner peripheries, nor a generally and widely used methodology for their delineation, PROFECY has entered new territories in many different ways. Thus, apart from the actual delineation and identification of IP areas in Europe, PROFECY has also a strong conceptual component contributing to the development of a sound method for their identification.

The four delineation approaches try to capture the phenomenon of inner peripheries from different perspectives, by implementing four different approaches with different variables. Two of them utilizing grid-level approaches (Delineation 1 an 3), two by utilizing approaches based upon NUTS-3 regions (Delineations 2 and 4). Three delineations use different types of accessibility indicators as key variables, while the fourth one uses statistical variables (Delineation 4).

Not surprisingly, these four delineations provide a rich basket of, in spatial terms, very detailed results. Still, further analyses and comparison of these results is one of the key tasks in the coming weeks. In detail, the next steps for finalization of delineation works are as follows:

- **Finalization of Delineation 4**: As soon as we received all missing input data, we will finalize Delineation 4.
- **Delineation 3**: The different options we identified to combine individual delineations for SGI will be further explored, in order to come up with one unified delineation.
- **Combination of all delineations**: The results of the four delineations need to be compared in detail, and as far as possible a combination of them will be explored.
- **Methodological recommendations**: Based on the experiences gained with the four delineation approaches, methodological recommendations will be developed for the delineation of inner peripheries at European scale. Recommendations refer to the pros/cons of each approach, refer to variables and data issues, and refer to ways of standardization, thresholds and combination of results.

8 State of affairs for the ‘status’ of the inner peripheries identified

8.1 Introduction

The ultimate goal of Work Package 4 is to place inner peripheries delineated in WP2 in the socio-economic space of Europe, and characterize their status compared to other regions. Analyses should not only focus on positioning between IP and other areas in the ESPON space, but on exploring similarities and differences within the groups (types) of inner peripheries too. WP4 is essentially input dependent within the project, but it also provides important evidences for other research tasks. WP2 feeds units of analysis (IP regions) into WP4 tasks, and data provided by WP3 is used in analyses of the entire work package. While the timing of implementation of WP4 tasks is nearly parallel with that of WP5 and WP6, analysing the status of IP is closely related to these activities. WP4 tests hypotheses on appearance of inner peripherality, while WP5 explains processes and drivers behind the phenomena, and case study analyses can also use these evidences. As WP7 and WP8 build upon precedent results of the project, inputs from this actual work package are also important from that aspect.

This section on WP4 activities contains a synthesis of the detailed methodological proposal for analysing the status of IP, available in full version in Annex 7 of the Interim Report. It deals with the general role of the work package from the aspect of its connection with the conceptual framework of the project. It also summarizes the operationalization of research tasks by introducing goals, basic questions and challenges related to them, and by providing methodological tools for implementation. Next steps for the accomplishment of objectives of the work package are also indicated here.

8.2 Link with the conceptual framework

From the aspect of WP4 tasks the main question is what makes these territories differentiable from other areas in terms of various socio-economic characteristics. If these particularities could be revealed, one might come closer to answer what are the driving forces of peripheralization, and what are the required domains of interventions which need targeted actions the most to reverse processes associated with IP.

WP4 analyses should also make an attempt to identify whether different delineations of IP types share similarities, or not. It might help to resolve if inner peripheries form a group with common characteristics or they are rather different, with having different reasons to be peripheral. As a main output of tasks in WP4, reflections should be made on the definition of on IP: whether inner peripheries are framed by a multidimensional idea or a unity concept of IP could be produced from the analysis of characteristics identified.

The Inception Report of PROFECY project already formulated some hypotheses about this issue as a part of key messages based on theories of change by the explanation of a narrative of cause and effect (ESPON, 2016). Basic types of inner peripherality (economic potential interstitial areas, areas of poor SGI, areas suffering from peripheralization) were identified by

the conceptual framework of the project, and potential drivers, impacts and interventions associated with them were also outlined. Hypotheses formulated by the conceptual framework of PROFECY will be tested during analyses, and results of WP4 tasks might confirm or shade these images, and they should help to understand the nature of the IP concept, its unity or multidimensionality, similarities and differences between different inner peripheries and other types of areas.

8.3 Methodological approach

The proposed operationalization of WP4 tasks is deduced from basic research questions of the project. Methodological tools have been carefully chosen, in order to fulfil the objectives of the research. The provided research tasks and methods of analyses ensure to gain adequate information on the status of inner peripheries compared to other types of regions (based on various socio-economic characteristics) and on similarities and differences among IP regions. Furthermore, the proposal leave space to be flexible when finalizing the implementation of tasks to be accomplished, since some issues of IP delineation and data gathering are still pending in the current state of the project.

8.3.1 Identification of regional typologies to compare with the status of inner peripheries

In the analyses of several tasks of WP4, an important aspect of comparison reflects on typology systems widely used in European policy discourse. These cover classifications of European regions based on different kinds of geographical specificities related to location conditions or on the level of urbanization (including remoteness), and they also take into account economic performance of regions, in order to support the comparison of IP and lagging regions.

ESPON EGTC has already provided a set of regional typologies at NUTS 3 level (NUTS 2010 and 2013 classification), including: urban–(intermediate)–rural regions, metropolitan areas, mountainous regions and islands. Besides, further typologies might also have potential relevance from the aspect of IP, like border regions, coastal areas, sparsely populated areas. If available, these typologies are also intended to be used in analyses.

Another aspect of analyses might be positioning investigated IP areas in the range of development typologies (comparison with lagging regions). ESPON EGTC has not determined the aspects of defining lagging areas, therefore, PROFECY project group intends to rely on available classifications.

Instead of the adaptation of performance typologies from other researches (e.g. ESPON EDORA performance typology [ESPON, 2010] or the classification of DG Internal Policies analysis [EP, 2007]), the project group supports to use the EU subsidy eligibility criteria used in current EU policy practice. This classification ranks regions by comparing their GDP/capita (PPS) values to the EU average, and forms three classes: less developed, transition and more developed areas. Nevertheless, some drawbacks of this methodology (out-of-date data, notable differentiation between EU15 and NMS13 countries and projection of NUTS 2 values to NUTS 3 level) need to be overcome in order to adapt it in an adequate way for WP4 analyses.

8.3.2 Status of IP in relation to selected regional typologies

The general aim of this task is to investigate the relationship between the status and characteristics of different regional typologies (EC, ESPON, Eurostat, OECD) used in European policy discourse and inner peripheries (and regions at risk of becoming IP). The analysis aims at defining similarities and differences among territories with geographical specificities, regional performance categorizations based on socio-economic indicators and inner peripheries by regarding their geographical location and socio-economic characteristics.

The first part of the task serves the comparison of deviations and overlaps between geographies of IPs and other regional typologies in Europe by using cross-table analysis and overlaid maps.

Cross-tables might be set up by based on IP typology and the emphasized classifications to be used (e.g. one in comparison with ESPON and Eurostat typologies, another one in comparison with the range of regional performance). On the axis of IP delineation, inner peripheries and at risk regions should be represented, in a separated way or by regrouping them (potential differentiation of certain IP types and distinction of IPs from multiple aspects). The other axis of the cross-tables should illustrate elements of the regional performance typology and selected classes of typologies on geographical specificities.

In cells of the cross-table, the number or frequencies of regions included should be represented along with typical geographical location (countries, European macro regions), which helps to understand patterns and interpret key messages of this comparison. Apart from the tables, 'main cells' of the tables or a certain selection of categories from the two axes is intended to be mapped by overlaying geographies of inner peripheries and other regional typologies to explore patterns with significance from the aspect of the phenomena.

As a second part of these analyses, socio-economic characteristics of inner peripheries and regions at risk of becoming IP in comparison with lagging areas and elements of different typologies frequently used in EU policy discourse are planned to be investigated by analysing the distributions of indicators to be used. Analysing the distribution of a dataset could illustrate different characteristics of the set (e.g. the degree of internal inequalities), moreover, it could also represent the whole group (of data) itself. In the comparison of different groups or categories this might be rich in information, because besides comparing single or average values of data, it might also give the opportunity for analysing differences of distribution patterns.

As basic tools for this comparison, standardized histograms or box plots will be used. Histograms represent frequency values (and distribution) of datasets, while box plots illustrate characteristics of a dataset through their range and quartiles, but different special values of datasets (e.g. average, median, outliers) could also be read off the diagram. In the analysis, series of histograms or sets of box plots will be analysed by using different socio-economic indicators for comparing specificities of different groups (IP delineations, regional typologies).

In the third part of analyses, the position of IP regions in the cross-section of socio-economic characteristics and relative location is intended to be investigated. In this case, the connection between the spatial dimension of centrality–peripherality at the European scale and different features reflecting on the social characteristics or economic performance of regions are in the focus of analysis. In order to conduct bidimensional analyses, scatter plots comparing two variables will be introduced (e.g. crossing socio-economic indicators with proximity to centres or the economic potential of those centres).

8.3.3 Classification of inner peripheries: characterizing the regional and socio-economic profiles of IP

This analysis focuses on making a common socio-economic classification of the range of inner peripheries delineated by different methods. Here, inner peripheries are not delineated from the pool of different kind of regions, as it is done by WP2, but they are intended to be regrouped by only based on their socio-economic attributes, and it makes the opportunity to outline their 'profiles' associated with processes of marginalisation.

This investigation builds upon a two-stage mixed model of analysis (Haynes, 2014). At the first stage, a cluster analysis is performed to accomplish an exploratory analysis of the characteristics of the IP's and the likely groupings of the delineated NUTS 3 regions into socio-economically 'homogenous' classes (clusters).

At the second stage, a qualitative comparative analysis (QCA) is applied, providing a transparent and robust method for the construction and labelling of homogenous groupings of inner peripheries (based on their socio-economic features). This method promotes a systematic comparison of cases to identify set relations between conditions and outcomes (Ragin, 1987).

8.3.4 Following changes of IP characteristics over time

The task aims to reflect on the dynamic nature of the IP concept and explore changes of socio-economic status of today's IP in the recent past, since IP delineations of WP2 will provide an actual snapshot of geographies of European inner peripheries (exc. Type 2 and 4). Evidences from the analysis of the changing status of IPs could help the identification of processes and drivers playing key role in the marginalisation of inner peripheries and at risk areas.

The investigation of tendencies representing changes of status and socio-economic positions of inner peripheries will primarily be based upon time-series analyses. From the pool of indicators used in other tasks of WP4, a set of key variables will be chosen (good temporal coverage, importance from the aspect of factors and processes related to marginalization). For representing changes over time, the comparison of sets of line charts – illustrating socio-economic characteristics of IPs in different countries – is intended to be accomplished. In this analysis, data series of inner peripheries would be represented on a common axis of values, where the point of reference should be marked out by the EU average of the variable under analysis, but national averages could also be represented on these sets of graphs. It might ensure that line charts of different countries and groups of countries remain comparable, and evidences also become interpretable in the context of EU and national levels.

In the case of insufficient temporal coverage for time-series analysis, periodical conventional surveys of data (e.g. censuses) might also be used in this task. In this case, shifts of socio-economic status of inner peripheries within a period of time could be traced by using scatter plots. The two axes of a scatter plot should represent distributions of a given variable in two snapshots of time, and fields outlined by the coordinate system might illustrate directions of shifts in the status, by visualizing generalized tendencies (advancement, deterioration etc.).

8.3.5 Combination of the delineations

Besides perspectives of the detailed methodological considerations of different WP4 tasks, another issue of operationalization is still a question: how could the four different types of inner peripheries (and at risk regions) be made enter common analyses. WP2 will deliver lists of NUTS 3 units where IP regions are labelled in separate columns by different types of inner peripherality. Although most of the presented methods are suitable to represent different types of inner peripheries separately, it might multiply elements of tools of visualisation and analysis.

Because of that, in some cases it is proposed to make the 'union' of different types of IP enter the analyses. In this way, the project group could work with the widest range of IP regions, while the differentiation between IP types should be taken into account when choosing the focus of interpretation of results. This could be adequate in those cases, where individual NUTS 3 units are basic elements of analysis (e.g. comparing the overlap between IP and other regions, cluster analysis-based socio-economic classification of IP, time-series analysis, and scatter plot analyses). Where these basic elements are groups of regions (e.g. in the tasks using histograms and box plots), keeping the separation of different IP types seems to be more adequate.

This issue is also related to the purpose of PROFECY project to provide a single, basic definition of IP, which might be used by ESPON and policy makers as a reference for this territorial phenomenon. If results of the work package show that the 'unity' concept if inner peripherality cannot be justified by socio-economic characteristics of IP, it might refer to the multidimensional nature of the phenomena, nevertheless it also makes the explanation of these phenomena difficult in one common concept.

8.3.6 Final comments and next steps

The implementation of Work Package 4 starts after finalizing ongoing tasks of IP delineation (WP2) and data gathering (WP3). The preliminary data support of WP4 is not discussed in details by the methodological proposal. Intentions of PROFECY project group are focused on providing a comprehensive socio-economic analysis on inner peripheries by using a balanced set of indicators, which adequately illustrate the status of inner peripheries compared to other areas, and give an established explanation on these differences and similarities even within the groups of IP. Beyond data topics mentioned by the ToR of the project call (demographic and labour market characteristics), a wider range of data representing the socio-economic status of areas is planned to be involved in analyses (economic performance, qualification, SGI density

etc.). Nevertheless, the final set of indicators to be used will be chosen by considering data availability and opportunity of utilization based on evidences from WP3.

Final results of IP delineation from WP2 will have an essential influence on methodological choices mentioned in the proposal. Recording and representation of IP, number of units and types of inner peripheries all have a crucial impact on how to make them enter the planned analyses. Thus, next steps should focus on harmonizing proposed methodological tools with actual opportunities offered by inputs for WP4 (IP delineation results). After clarifying these issues, analyses in different subtasks will be accomplished, and results of activities of this work package will be provided in the Draft Final Report of the project.

9 Processes and drivers identified

9.1 Introduction

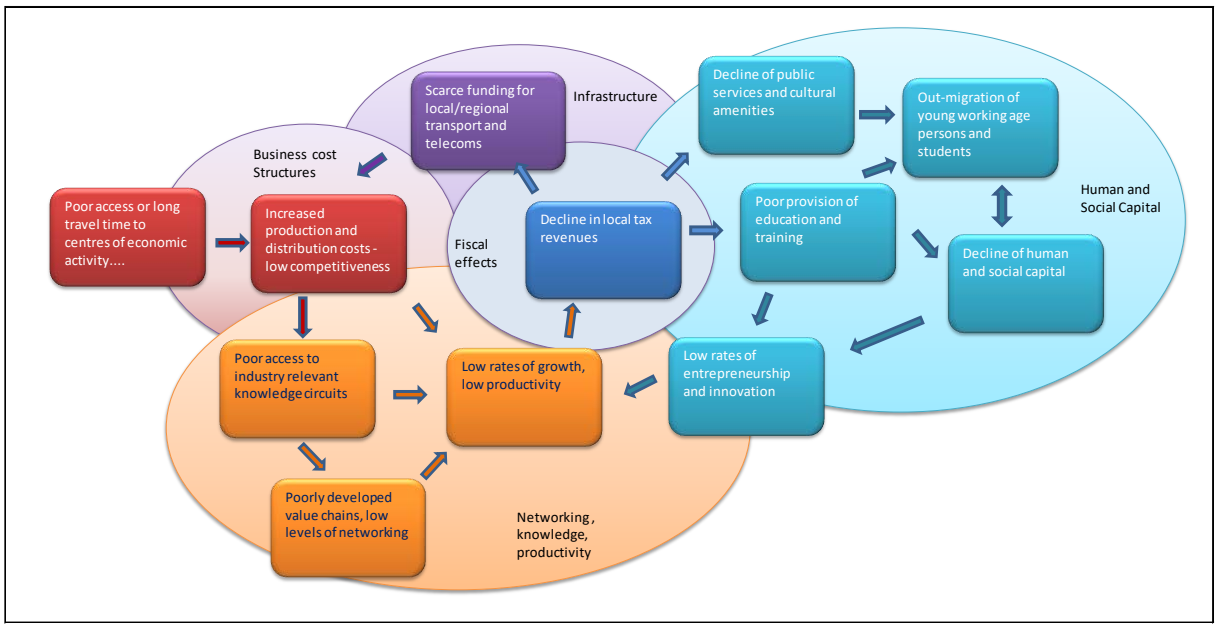
The task of Work Package 5 is to distil the conceptual framework (WP2), as developed and modified by the cartographic analysis of WP3, the analysis of secondary data (WP4) and the case studies (WP6), into simple and accessible "interpretive models" which can encapsulate and communicate the "theories of change" associated with the three types of Inner Peripheries. Clarity and disambiguation are key objectives, as a basis for appropriate intervention logics, and for this reason the interpretive models will take the form of relatively simple graphics. The versions presented in this report are initial drafts, illustrating the overall layouts and highlighting the key differences between the three types of Inner Periphery which were identified in the initial review of the academic and policy literature.

9.2 Three Interpretive Models for the Three Conceptual Types of Inner Periphery

As shown in Section 5 above, the three types of Inner Periphery are quite distinct in terms of both the processes which are thought to create them, the outcomes, and the nature of their "peripherality". The first two types are driven by "conventional" or geographical distance. Type 1 is manifest primarily through exclusion from the agglomeration benefits for economic activity, and assessed in terms of "economic potential". Type 2 is expressed in terms of social wellbeing, and is driven by poor accessibility to services of general interest. The third (peripheralization) is more complex, driven by both geographical distance and the implications of "relational space" or "organised proximity" (see Section 9.5).

9.2.1 Type 1 - Enclaves of low economic potential

Figure 9.1: Descriptive Model of Type 1 Inner Periphery Processes



The identification of the first type of inner periphery uses the same kind of measurement employed in the "classic" studies of the outer periphery of the 1980s and 1990s, usually based

upon a Newtonian gravity analogy and “measured” by economic potential. It is distinguished from “external” peripherality simply by being an enclave, surrounded by less peripheral areas.

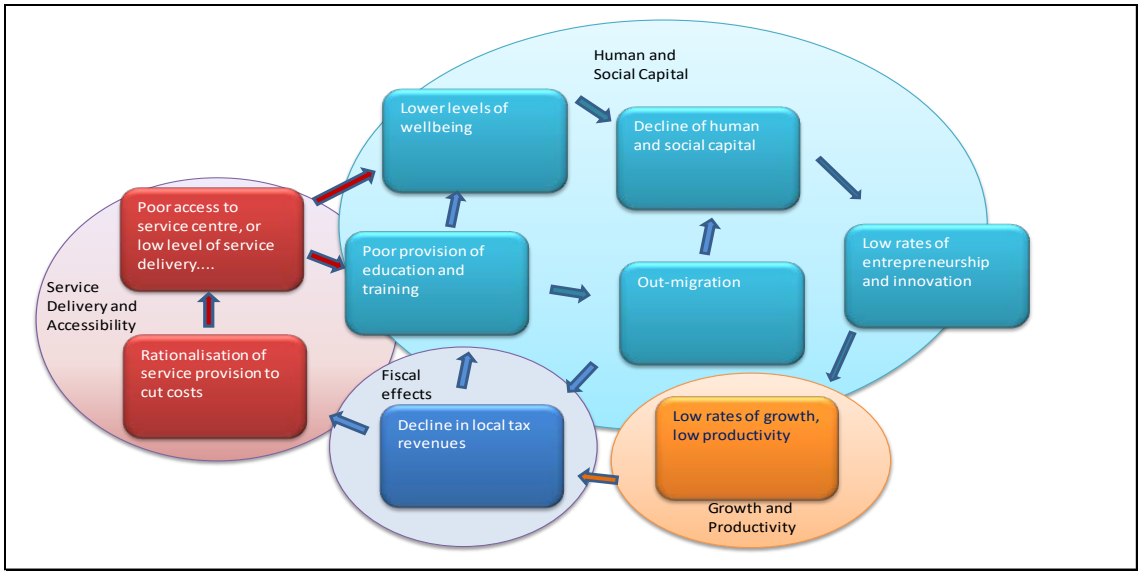
Clearly the initial “trigger” of this kind of peripheralization process is poor access or a long travel time to centres of economic activity. ”Economic potential” calculations take account of all centres of economic activity across Europe, according weights to them according to their size and (inversely) according to their distance away. An area which is remote from centres of economic activity is excluded from agglomerative advantages, and local businesses have to pay high transport costs for non-local raw materials, and (on average) higher costs to reach distant markets. These basic disadvantages are represented by the two red text boxes within the ellipse labelled “Business cost structures”.

A secondary effect which derives from the basic cost of doing business is summarised by the orange ellipse labelled “Networking, knowledge and productivity”, and the text boxes relating to access to knowledge, value chain development and productivity. Low levels of economic activity and growth have an impact on tax revenues, which results in a shortage of finance for regional infrastructure development, which may potentially exacerbate the basic accessibility problem of the region. It may also affect provision of research, education, and cultural infrastructure, which contributes to the “Human and Social Capital” loop, ultimately further depressing levels of entrepreneurship and innovation, and feeding back into the productivity circuit.

These multiple “feedback” loops explain the difficulty of reversing the trend in this kind of “inner periphery, once the cycle has been triggered. The other thing to notice about the Type 1 Inner Periphery interpretive model is that the drivers and outcomes are defined in terms of economic activity and economic disadvantages, whilst human and social capital effects have a background role.

9.2.2 Type 2 – Areas with poor access to or provision of Services of General Interest

Figure 9.2. Descriptive model of Type 2 Inner Periphery Processes

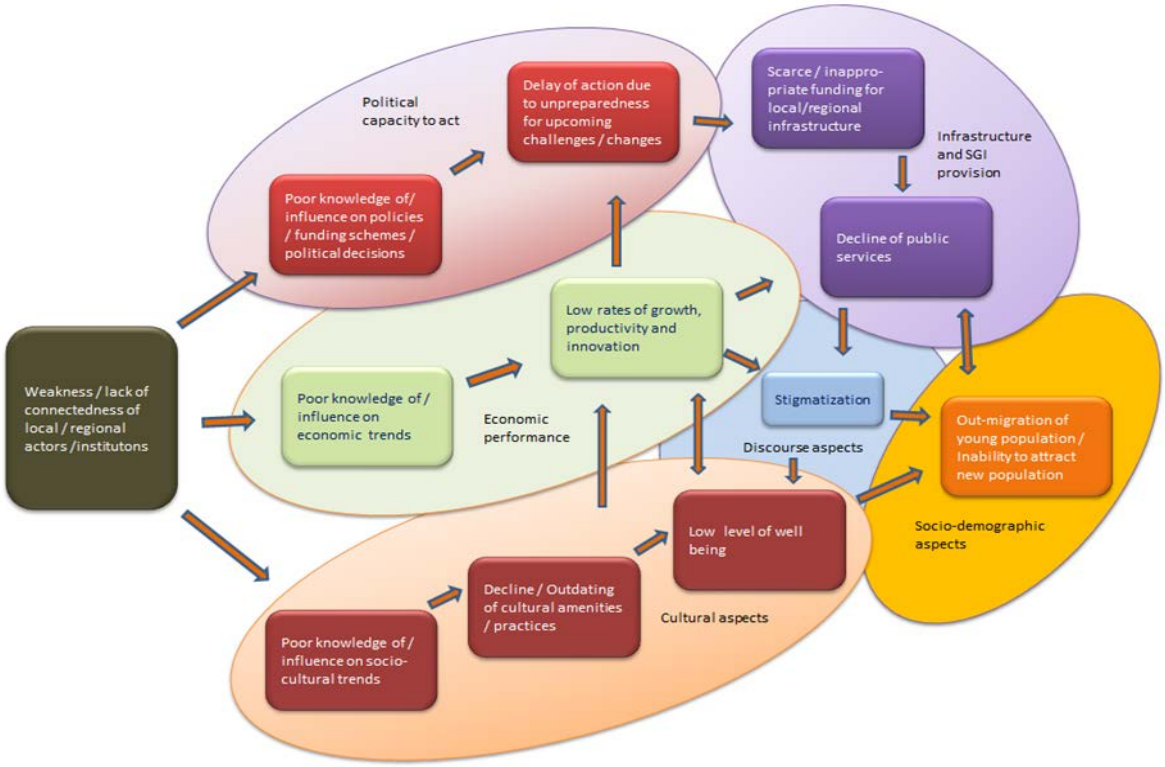


The interpretive model of Type 2 inner peripheries (Figure 9.2) has some features in common with the Type 1 model. Fundamentally, it is also driven by geographic distance. However this time the effect of distance is played out in terms of access to or delivery of services of general interest. In this case it is only the nearest access point or source for delivery which should be taken account of.

Unlike the Type 1 model access to SGI has a direct impact upon the human and social capital cycle, and thence an indirect effect upon the productivity of economic activity, which feeds back into regional tax-raising capacity. Lean public finances feeds back into capacity to deliver SGI, including education and training – the latter have a secondary impact upon human and social capital.

9.2.3 Type 3 – Areas showing complex negative processes due to low levels of interaction

Figure 9.3. Descriptive Model of Type 3 Inner Periphery Processes



The interpretive model of Type 3 inner peripheries (Figure 9.3) comprises some features driven by geographical distance but stresses features driven by the implications of “relational space” or “organised proximity”.

The main “trigger” of this type of inner periphery is a weakness of interaction / a lack of connectedness of IP stakeholders and institutions related to wider networks. This is associated with a lack of influence on the centres of power and in governance arrangements, and can be framed as experiencing processes of “peripheralization”. These processes can affect a single or more than one field such as policy networks, economic actors’ networks and / or socio-cultural

networks. In contrast to the IP types which are triggered by geographical distance, in this type the effects arise mainly from a lack of information flow or a lack of steering capacity on the basis of insufficient or one-sided network building in a vertical as well as in a horizontal direction. There is a similarity to discourses on institutional “lock-in” and path dependency, where the main actors might rely too long on the continuation of trends that made the region successful in the past. Primary effects become visible in form of delay in taking action for locally, regionally, nationally or globally triggered changes, problematic situations or crisis, in the form of decline or stagnation of economic growth and innovation, and of a decline in wellbeing within the population.

Secondary effects are visualised for the fields of infrastructure and SGI provision and for socio-demographic aspects. Acknowledging that not only physical and network dispositions but also discourses can have noticeable impact on IP development, the process of stigmatization is reflected and shown in relation to primary and secondary effects.

9.3 Some Reflections

In this section we have tried to provide simple and memorable representations of processes which lead to the three types of Inner Periphery which we have devised from our review of the academic literature. These are intended to provide much-needed clarification as heuristic devices for the development (later in the project) of policy principles and appropriate intervention logics.

Since the three types are, by their nature, abstractions, “idealised” or simplified, real world examples will of course often take hybrid forms, combining elements of more than one type. This is especially true of the third type, in which it is difficult to distinguish the role of spatial and relational processes.

However one aspect which the models clearly imply is the distinction between Type 1 as primarily an economic process, (but with important human and social capital feedback effects), and Type 2 in which well-being and inclusion aspects come to the fore, with economic activity aspects contributing in the background. In Type 3, the relative inability of local stakeholders to connect to wider trends is seen as a main trigger, with a wide range of primary and secondary effects emerging from this primarily cultural and institutional “lock-in” process. These are hypotheses which should be tested by analysis of secondary data, and through case studies.

Another distinction which seems to emerge is between Type 2 inner peripheries, which may be viewed as consequences of changes in policy (austerity) and the other two forms, which are primarily the consequence of either spatial or social processes which are likely to occur independently of changes in the policy environment. From a different perspective, Type 2 inner peripheries may well be the most amenable to intervention, the easiest to remedy.

9.4 Next Steps

These interpretive models are very much initial drafts, which will be revisited and refined once the findings of secondary data analysis and case studies are available. One development in particular will be to include some representation of the ways in which policy may intervene to break the negative cycles, and to initiate more positive pathways.

10 Case Study approach and methodology

10.1 Introductory paragraphs

A review of the literature on case study research in general provides useful guidance on how a case study research might be conducted. Yin (2009: 21) suggests that case study as a research method, “offers a way of investigating an empirical topic by following a set of prescribed procedures.” It is also widely claimed that case study research aims to understand a case in depth in its natural setting, and recognize its complexity in the context. Since the case study approach allows to study complex phenomena within their contexts, it has a long history of use and account for a large portion of articles and books in various disciplines, such as psychology, sociology, anthropology, history, political science, education, economics, medical science, biology, and management, as well as earth sciences and regional planning. (Rifkin & Fulop 1997; Matlay 2000; Baxter & Jack 2008; Flyvbjerg 2011).

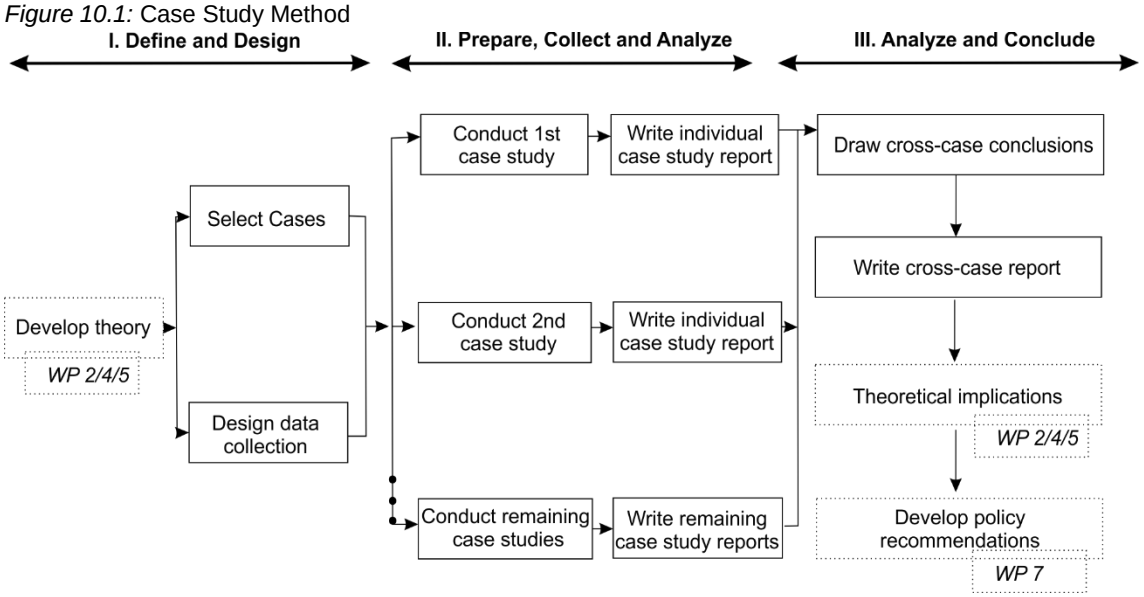
In the PROFECY project case studies, as expected to capture in details the complexity of multidimensional nature of IPs phenomenon in the context of their evolution, components and scale (see page 18 of the proposal) within single, specific locations, should be considered as a nexus between research questions and predominantly quantitative empirical analysis in preceding work packages (WPs 2-5) with an exploring and expanding focus towards policy debates for Inner Peripheries (WP7).

Developing the problem of inner peripheries the PROFECY Team has so far operated on geo-statistical data in European scale. Case studies are a well suited and complementary approach to the current stage of the research project as they enable to further address and explore inner peripheries in Europe which manifest in a variety of contexts or situations.

10.2 Case study approach

The PROFECY project applies a holistic multiple-case study approach to produce both on the one hand, regional- or case-specific research results, and on the other hand, messages that bear relevance to general theories and higher, European level policy making. The case study approach in the PROFECY project includes a typical three-step process as shown in Figure 10.1. It has to be stressed that it overlaps with other activities of the project (especially WP 2 and WP 7). The first step has been developed below as the case studies’ selection process has been already completed and the design of data collection is currently being developed. The secon and third step have been presented as next steps of the case study approach in the PROFECY project (point 10.5).

Figure 10.1: Case Study Method



Source: own elaboration based on Yin 2009.

10.2.1 Define and design case studies

According to the PROFECY project proposal, we have selected 7 regions out of all IPs delineated in the European space. The procedure conducted in order to select case studies in the PROFECY project implementd three criteria:

1) Location in European Space
2) Results of four IPs delineations delivered by WP 2.
3) Coping strategies – from community-centred, more bottom-up, endogenous, to a state-centred, more top-down approach.

The PROFECY team agreed to select regions for case study approach within seven countries: Spain and Italy (representing EU-15 countries from the South), Germany and Austria (representing EU-15 countries from the Center of Europe), Sweden (representing EU-15 countries from the North), Poland and Hungary (representing EU-13 countries).

As it was pointed in the Cohesion Report (Deliverable 2) of the PROFECY project, NUTS-3 level appears not to be the most suitable level for the delineation of inner peripheries as IPs often cover only a certain part of a bigger administrative unit. Moreover, European countries have various administrative structure and NUTS-3 not necessarily are administrative units responsible for regional development planning. Therefore, the process of selecting case studies representing IPs in Europe has been designed to be conducted also on the LAU-1/LAU-2 level.

For each country, all available data from WP 2 focused on four delineations of IPs in Europe, has been collected and four case study candidates have been presented and briefly described by factors and drivers of inner peripherality as well as coping strategies undertaken by regional and local authorities as well as the society (Annex 10.1). The final seven case study regions have been selected in order to produce both: on the one hand regional or case-specific

research results, and on the other hand, messages that bear relevance to general theories and higher, European level policy making.

10.3 Selected cases study areas

Table 10.1: country, administrative structure, IP sub-category according to 4 provisional delineations, area (in km²)

	IP candidates	Administrative structure	D1	D2	D3	D4	Area [km²]
SE1	Hultsfred; Vimmerby	Group of LAU2	■		■		2406
SE2	Bengtsfors; Dals-Ed	Group of LAU2			■		1884
SE3	Uppvidinge	LAU-2			■		1227
DE1	Landkreis Siegen-Wittgenstein	NUTS-3	■				1131
DE2	Landkreis Holzminden	NUTS-3			■	■	692
DE3	former Landkreis Osterode am Harz now part of Landkreis Göttingen	LAU-2	■				636
DE4	Landkreis Calw	NUTS-3	■		■	■	798
DE5	Landkreis Elbe-Elster	NUTS-3	■	■		■	1889
AT1	Liezen (Eastern part - region Hieflau)	LAU-1 (equivalent)	■		■	■	3459
AT2	Wolfsberg	part of NUTS_3			■	■	974
AT3	Östliche Obersteiermark (part: district Mürzzuschlag)	LAU 1 (similar)	■		■	■	849
AT4	Osttirol	NUTS-3			■	■	
PL1	Powiat Wieruszowski	LAU-1		■	■	■	576
PL2	Powiat Chojnicki	LAU-1	■	■	■		1364
PL3	Powiat Jedrzejowski	LAU-1	■	■	■	■	1257
PL4	Powiat Kluczborski	LAU-1	■	■	■	■	852
HU 1	Tamási járás	LAU-1			■		1020
HU 2	Kunhegyesi járás	LAU-1	■		■	■	465
HU 3	Tabi járás	LAU-1	■	■	■		427
HU 4	Pápai járás	LAU-1	■	■	■		1022
ES1	Montsià	LAU-1				■	736
ES2	Marina Alta	LAU-1		■			758
ES3	Valle de Ayora-Cofrentes	LAU-1	■		■		1141
ES4	Comarca de Arnedo-Cervera de Río Alhama	Two LAU-1 units	■		■		743
IT1	Area Grecanica-Calabria	Group of LAU2	■		■		435
IT2	Monti Dauni-Puglia	Group of LAU2				■	1947
IT3	Monti Reatini-lazio	Group of LAU2	■		■		1520
IT4	Appennino Emiliano- Emilia Romagna	Group of LAU2	■		■		797

10.3.1 Overview of the selected regions

Sweden

Hultsfred; Vimmerby - The adjacent municipalities of Hultsfred and Vimmerby are located in the Southeastern part of Sweden in Kalmar region. The total area of both municipalities is 2,400 km^2 and the population is 30,250. **The municipalities represent inner peripherality according to D1 (access to RC) and D3 delineations (access to SGI: cinemas, hospitals, jobs).** Connectivity and transport infrastructure are in the need for improvement. Lack of coherent regional planning and cooperation between municipalities influence the rather low accessibility and lack of infrastructure. In recent years, however, the participation of local actors (incl.municipalities) in design of bottom-up regional development programs has been supported and synergies between the different policies and actors involved in the regional development have been promoted. Cross-sectoral inter-municipal cooperation has been particularly supported among the small municipalities like Hulsfred and Vimmerby in order to achieve economies of scale. Particular fields emphasized are municipal service provision, spatial planning and public transport infrastructure (OECD Territorial Reviews: Småland-Blekinge, Sweden 2012).

Germany

Landkreis Siegen-Wittgenstein - The district is located in the south-eastern part of the state North Rhine-Westphalia in Germany and borders with the states Hesse and Rhineland-Palatinate. It has a total area of 1,131 km^2 and a population of 280,800 people. The district covers a mountainous region south-east of the Sauerland hills. 70% of the district are covered by forest and the population density is relatively low (243 people per km^2) in comparison to the state average (524 people per km^2). Nevertheless the region is characterized by a high level of socioeconomic development (being home to manufacturing and production industries, as well as two larger breweries) with a relatively low unemployment rate (5.8%) in comparison with the whole state North Rhine-Westphalia (8.3%). **The district represents the problem of inner peripherality especially according to criteria concerning D1 and challenging access conditions regarding retail, banks, school and doctors.** Siegen-Wittgenstein and several other districts in the Sauerland region are aware about these challenges and are taking measures, e.g. by creating a regional umbrella organization (“Südwestfalen”) consisting of local administrative units and local authorities. With their regional concept they have won a competition in 2007 called REGIONALE, which is a structural funding programme for regional development by the state of North-Rhine Westphalia. The region Südwestfalen just wrote a new regional strategy for all relevant stakeholders called “Vision Südwestfalen 2030” with the main topics digitization, health care, mobility and new working conditions.

Austria

Wolfsberg - Located in the Eastern Alps this region is plaaced in the middle of Austria. As the NUTS-3 region is covering a wide range of different regional sub-parts, we suggest to concentrate on a small section, the Eastern part of the NUTS-3 area, disposing most clearly of

Inner Peripheries characteristics, i.e. the "region Hieflau" (similar LAU-1). This area comprises four municipalities (LAU-2). Total area of municipalities is 630 km^2 and population of 6,000 inhabitants. **The region represents an IP according to three delineations.** There are many natural assets (nationalpark "Gesäuse" and nature park "Steirische Eisenwurzen").

Poland

Powiat wieruszowski - Located in the south western part of the lodzkie voivodeship, borders with opolskie and wielkopolskie voivodeships. Total area of 577 km^2 and population of 42,000 people. **The province represents inner peripherality according to three delineations.** The accessibility of the province has improved recently thanks to an express way S8 Bialystok-Duszniki Zdroj. Regional and local authhorities do respond to problems of the province through integrated aproach to regional development and promotion plans.

Hungary

Tamási járás - Located in the western part of Tolna county in Hungary, borders with inner periperal areas of Fejér and Somogy counties. Total area of 1,020 km^2. Total population of 38,000 people, severe shrinkage (13%) in the past 15 years. Centre is Tamási, small-sized rural town with 8,000 inhabitants (and more severe population loss in the past decade, than in the district itself). **From the aspect of inner peripherality, Tamási district is only included among areas vulnerable to SGI access, but it is one of the the most disadvantaged districts in Hungary in this sense.** Access to regional centres from the district is also poor. Tamási district is among the beneficiaries of the complex development programme for the most disadvantaged districts**.** This Programme run in the 2007-2013 programming period and was considered as innovative for the model of planning and cross-financing from a number of EU operational programmes. Moreover, the villages of the district extended with some neighbouring municipalities were part of another innovative development program targeting mainly so called human capacity building and the promotion of social inclusion through community development. In terms of coping strategies, the main goal of the Centre, Tamási is to build its development strategy mainly on endogenous resources, like geothermal energy as a main potential for food and tourism industries as well as health-care services. Despite efforts Tamási district and the surrounding four districts - all along the border-lines between the three relevant neighbouring counties - are parts of a larger IP region constituted by 4-5 LAU-1 units.

Spain

The Montsià area is located in southernmost part of Catalunya (NUTS 2), in the border with Valencia NUTS-2 region, and covers an area of 735 km^2. According to several parameters (weaknesses of the local labour market due to lack of business networks and the failure of some previously driving ativities, border effect due to the territorial configuration of the surrounding areas, etc.), **Montsià county responds to a type 4 Inner periphery.** The total population is 68,000 inhabitants, with a density of population of 92 inhab./ km^2 (well below the average of Catalunya Region, 234 inhab./km^2). The GDP is the area is 43% lower than the

average in Catalunya, and it is the second top county in terms of unemployment (30% for 2011). In 2014, the service sector represented 66% of the produced addedd value, industry 19%, agriculture 8% and building sector, the remaining 6%. The dependence on traditional industries is limiting the access to the labour market. In addition, the proximity to the so called "valencian territorial fracture" results in a worse access to services than in other areas of the region (the NUTS-2 border acts a as a limit for several important SGI provision). There is a bottom-up development program in the form of a public-private partnership. There is, therefore, awareness of the condition of lagginess and peripherality, although the geographic accessibility is reasonably good. There partnership "Montsià Actiu" has started already several programs to adress some of these issues associated to peripherality and marginalisation."

Italy

Area Grecanica-Calabria - This area includes 11 muncipalities and a population of 18,546 inhabitants. Territorial surface is 435 km^2. Between 2001 and 2011 the rate of de-population was -15.3%. Now population density is 42.7 inhabitants per km^2. The share of population above 65 years is relatively high (25.7%). **According to the classification this area is IP for low access to jobs and doctors.** But this is the result at NUTS-3 level, when we consider the socio-economic conditions at LAU2 the characteristics of this area are much worse: the conditions for the provision of educational services and local transports are very scarce. This area is characterised by the presence of some very typical agricultural products (bergamot, wine) and by the recent development of naturalistic tourism. It has developed several strategies to improve its conditions: it has been beneficiary of Cohesion policies and rural development policies. There is a very active and dynamic Local Action Group financed by the LEADER programme. This area takes also part of the national Strategy for Inner Areas. In conclusion, despite the low level of economic development, this area presents very good examples of strategies for local development and with very good innovative approaches.

10.4 Final comments

The aim of implementing the standardised method for selecting Case Studies was to ensure comparability and validity of latter cross-country analysis. However, it has to be stressed that on top of the selection according to results of IPs delineations carried within WP2, the PROFECY Team has added personal, expert knowledge on the territorial dynamics of particular European countries. This expert knowledge played a key role in the selection process in the sense that it provided interpretation to data or maps emerging from the harmonised procedure proposed.

While selecting the final seven examples of IPs in Europe for the further analysis, we had in mind that the main purpose of Case Studies in the PROFECY project is to provide qualitative evidence on the sort of processes, features and drivers that are keeping a particular area from achieving relative good performance in terms of SGI provision, employment, population increase, etc., and that this is not only subject to geographic location and accessibility but also to issues of connectedness, governance, networks and social capital.

Due to various administrative structures across European Countries and the scale of administrative units, it has also been agreed to carry case studies in different scales: NUTS-3 in Germany and LAU-1/LAU-2 in other countries.

10.5 Next steps

10.5.1 Prepare, collect and analyse data in case study research

In the PROFECY project, research conducted within seven selected locations which represent inner peripheries in Europe will include the mix of quantitative and qualitative methods to analyse different sources of evidence using a set of tools to investigate the complexity of the problem – its historical and contemporary drivers, consequences and possible changes in the future (Table 10.2).

Table 10.2: Sources of evidence, methods and tools for data collection in the PROFECY project case study approach

Sources of evidence	**Methods**	**Tools**	***Diagnosis***	***Prognosis***	***Quantit.***	***Qualitat.***
Statistical records	Multi-thematic analysis	Case study protocol	✓✓		✓✓	
Statistical records, Direct observation, Physical artefacts Literature, archives	Structural analysis Literature review		✓✓		✓	✓
Policies, plans – documentation	Review of documents of local strategies, plans etc.; Impact analysis of EU, national and regional programmes		✓	✓	✓	✓
Experts and stakeholders	Structured interviews	Interview guidelines	✓✓	✓		✓✓
Experts and stakeholders	Scenario building	Guidelines for scenarios	✓	✓✓	✓	✓

Source: own elaboration

The partner leading work package on Case Studies in the PROFECY project prepared common case study protocol – a guiding tool consisting of a set of questions to be addressed when collecting the individual case study data in the first phase of the research (annex 10.2). Each team conducting single cases will make a use of national, regional and local statistical datasets on demographic, economic (labour market, functions), spatial and functional features of chosen localities, as well as of formal documents on development strategies of chosen IP regions, literature review and direct observation investigating site-specific factors, conditions and both past and present outcomes of peripherialisation process. For the second phase of the case study research, which assumes involving experts, a common interview guideline with a common template for interview transcription and a common template for drawing scenarios will be developed.

As discussed by the consortium during the second meeting in Vienna, due to the time efficiency, both methods might be performed among the same experts over one meeting. In each case

study location 8-12 interviews will be carried with experts to learn about their perceptions and interpretations of problems in the chosen IP regions and to formulate alternative scenarios for their future. We expect to interview two groups of experts among whom there will be:

1) Groups of local and regional stakeholders responsible for local and regional strategies and planning, as well as members of NGOs interested in these issues:
   - local and regional policy-makers (mayors, sectoral policy makers)
   - local and regional economic stakeholders as present and potential investors, domestic and/or transnational companies
   - representatives of NGOs (e.g. regional branch of urban planners' association
   - Leaders of higher education units
   - Strategic planners
2) Journalists, scientists.

During the recorded interview, experts will be asked about their awareness of the situation of the region as IP, its main challenges, relative position to other regions, evaluation of coping strategies. As interviews will be conducted in national languages of project partners, a common template for their transcript will be developed to present only the summary of key findings with main quotes. Early draft of the common interview guideline is presented as the annex 10.3.

Scenario method might be associated with the forecasting Delphi methods. The Delphi method is a structured communication technique, originally developed as a systematic, interactive forecasting method relying on a panel of experts. The technique can also be adapted for use in face-to-face meetings, and is then called mini-Delphi. From the 1970s, the Delphi technique was widely used in public policy-making introducing different evaluation scales which include: desirability, feasibility and probability, which the analysts can use to outline different scenarios: the desired scenario (from desirability), the potential scenario (from feasibility) and the expected scenario (from probability) (Rowe and Wright 1999).

Scenario methods are mainly used in development strategies and planning of enterprises, organizations and various business ventures. However, they became popular also in drawing prospects for different territorial units on local and regional level (Coates 2000, Westhoek et al. 2006, Dammers 2010). Several research projects involving scenario methods have been carried, for example VISIONS focusing on the relationship between the processes of socio-economic and environmental factors and their implications for the development of Europe (Gough 1999) or PRELUDE analysing alternative scenarios for the use of land and landscape (Volkery et al. 2008).

In the PROFECY project, experts will be asked to fill a table specifying on the scale -5 (strong negative impact) to 5 (strong positive impact) and 0 for no impact for a set of factors and drivers of peripherialisation process and the probability of its impact in the chosen IP region with the indicated power on a possible uptrend, sideways and downtrend. Identification of the dimensions and specific factors shaping IPs in Europe will be based on the results of previously conducted analysis an discussions among all partners in the PROFECY project. Opinions of all experts in each case study region will reflect the most important factors and their role in the

peripherialisation process, as well as the probability of three scenarios. Early draft of the common template for drawing scenarios is presented as the annex 10.4.

In the next step, step all the collected data should be organized for an effective analysis strategy. The type of data (i.e. quantitative data versus qualitative data) will determine the best way to analyse the data. Throughout the analysis, it is important to ask the following questions: What patterns and themes emerged from the data and how do these themes relate to the study questions? Are there any deviations from these patterns and if so how they are explained?

The framework for individual analysis of seven chosen IP regions consists of 5 main activities:

1) Quantitative analysis of the difference between chosen IP regions and average situation in the regional, national and European scale [positioning of case studies according to these socio-economic components of regional development which are the subject of analysis in WP2, i.e.: demographic, economic (labour market, functions), access to SGI, spatial and functional connections];
2) Quantitative and qualitative analysis of internal diversity with the special attention to socio-economic and spatial disparities (disproportions) in the local scale;
3) Qualitative analysis of current and previous formal documents on development strategies of chosen IP regions (i.e.: regional development strategies and programmes – do they point these locations as problematic? what solutions for these locations they present?) *[Notes: common time framework should cover programming periods of 2007-2013 and 2014-2020; as there are differences among administrative and institutional structure of European countries, we will compile national, regional and local policy documents according to common viewpoints.]*
4) Qualitative analysis of the impact of existing policies of EU level (including Cohesion policies and Rural Development policies) and the type of multi-level governance arrangements that influence the use and the effectiveness of policies adopted;
5) Drawing scenarios based on interviews with experts. *[Note: Interviews will be carried by all partners according to instructions provided by leading partners; leading partners will prepare summary report on future scenarios for selected IP regions].*

10.5.2 Analyse and conclude case studies

The end goal of the final step is to synthesize all data collected and draw conclusions based on the evidence available. A standardized report template will be developed as all case studies will be studied using the same methodology and framework.

Case studies' findings will be presented as a story or narrative that will capture the complexity and contradictions of the study, and the phenomenon in question (Baxter & Jack 2008). Typically, case studies are extensively descriptive since the goal of the written report is to present a complex issue into one that can be understood in a meaningful way. For the purpose of the PROFECY project, we plan a following template structure of the individual report (approx.40 pages):

1. Executive summary – should be written last to focus on key points/findings presenting in brief the analysed case (1p)
2. Introduction or the case study background (2p)
3. Body of the analysis
   3.1. The evolution of IP case study region (6p)
   3.2. The case study against the region, country and Europe (5p)

3.3. Internal structure and disparities inside selected cases (5p)
3.4. The case study as a subject of local, regional and state coping strategies (5p)
3.5. Future scenarios (6p)

4. Lessons learned about inner peripheries in Europe
   4.1. From a local and national perspective (4p)
   4.2. From a European perspective (4p)
5. Conclusions (2p)
6. Appendices.

Individual analysis of seven chosen IP regions will lead towards cross-comparative studies based on dimensions of IP, as detailed in the proposal (see page 18), that is the (1) evolution of IP, ranging from the past to alternate development options for the near future, (2) components which drive the evolution of IP, ranging from socio-economic processes and governance factors to the provision of services of general interest. In addition, (3) there is a cross-comparative analysis of local or regional coping strategies and their embeddedness into policy frameworks at higher policy levels.

Final Report on Case Studies based on cross-comparative analysis of chosen IP regions will be a direct input for the formulation of policy recommendations (WP7), as well as feedback to conceptual work on the drivers and processes of IP regions (WP5).

Final Report on Case Studies can take the form of a chapter in the (Draft) Final Report, or a single-standing document which is attached as an annex to the (Draft) Final Report of approximately 40 pages. It is planned that the report is structured as follows:

1. Executive Summary / Introduction (3p)
2. Presentation of the seven individual cases in their characteristics and main findings, and the IP types they represent (7p)
3. Analysis of findings across cases, according to the above-mentioned different dimensions, regarding evolution and characteristics (10p)
4. Local and regional coping strategies, and their embeddedness into higher policy level framework (8p)
5. Conclusions regarding causal mechanisms and key drivers, as well as the previously defined project typologies (WP2, WP4) (7p)
6. Conclusions regarding further development of policy framework (WP7) and conceptual thinking (WP5) (5p)

11 Initial thoughts on strategies for inner peripheries

11.1 Introduction

Following the in-depth analysis of the project to define and assess the occurrence and relevance of Inner Peripheralities, the identification of key processes and drivers towards marginalisation of IP and the analysis of selected cases of IP across Europe, the final task of the project aims at developing appropriate strategies for IPs. These should include among other cooperation activities between territories to cope with threats of marginalisation processes. As a number of diverse “drivers” and development needs impact upon regional development, it will be important to address the various aspects and elaborate integrated approaches that address the variety of influencing factors. Moreover, it seems particularly important to pay attention to the different territorial scales and the time dimension of the emergence of IP.

Starting from the descriptive models it will be important that strategy development takes up those “intervention logics” and refers to the specifically strong links and influences analyzed in previous activities of the project. Main sub-divisions in the formulation of strategies for inner peripheries will be the clarification of the available territorial assets and potentials (of the respective area (on the defined local/regional scale), the aspect of policy coherence between different policy areas relevant for IP (integration aspect), the assessment of the potential contribution of current EU policy, and finally drawing together conclusions and recommendations in terms of the future analysis and impact on IP development.

In this work on strategy development main priorities will be on governance and institutional aspects, raising understanding of the emergence and types of IPs, and the specification of policy impact and need for policy coherence (understood as integrated strategies). The elaboration of strategies will depend therefore strongly on previous work packages of the project and be informed by the findings of the case studies.

Within strategy building it will be important to differentiate according to the involved regional scale and administrative levels. Simultaneously, external influences on IP situation and development are expected to emerge from Case study analysis and will constitute a further focus of action. The complex set of policy arrangements and interrelated effects will require a differentiated perspective on individual policies and coherence aspects. In particular, it will be crucial to explore and disclose variance in the potential of local development action versus objectives and approaches of horizontal policies.

11.2 Strategies to overcome challenges of IPs

11.2.1 Identification of development potentials and definition of strategies for IP

The narrative approach (like applied in the EDORA-project of ESPON 2013; Copus et al. 2010) will be used to explore ‘grand-narratives’ which affect all the case studies and hence be considered of specific insight for general effects on IP processes. This might be relevant for

social and economic trends that affect the whole of Europe, i.e. public expenditure across Europe, or gradual spatial shifts from the importance of distance based agglomeration processes to organized proximity.

While grand-narratives are expected to be of large scale and general influence, local context and processes might provide interesting alteration from the general rule. This could imply effects for the contents of development potential and also to the identification process of local assets. The CS analysis will be specifically relevant to address the various influence streams, and to address also the place-specificity of impacts as well as their complex interrelations.

11.2.2 Elaborating a design for integrated approaches

The project concept is based on the assumption of emerging IPs at different scales and at different geographical areas across Europe, in addition to large-scale "peripheral" situations of more "traditional" nature. Following the conceptualization, definition and delimitation of (different types of) IPs the PROFECY project engages in identifying the most relevant policies for IPs. This task will be supported by the prior analysis of case studies in the project partners' countries that aim to observe the specificities of IP processes (in various types of IPs) and to highlight the respective case-specific institutional approaches to understand and cope the challenges and options of the regional contexts and institutional setting dealing with IP processes. In elaborating a design for integrated approaches the work of previous WPs with regard to policy implications will be important. The procedure to elaborate strategic concepts for IPs will address the following main elements:

- Build on the descriptive "models" for the different types of IPs;
- Good practice examples of policies on addressing IP processes;
- Concluding learning lessons from case studies on IPs across various countries and institutional contexts;
- Assessing issues of scale, heterogeneity and variance of development performance and options within IPs;
- Analyzing institutional frameworks as supportive or restrictive to appropriate policy development and implementation;
- Analyzing the existing policy contributions, and assessing their specific impact and gaps in policy provision, aiming at addressing all complementary policy contributions in order to achieve integrated approaches.

One of the major obstacle in designing strategies for integrated approaches will be to find drivers that can make a change at an early stage, respectively that turn around "spiraling-down" processes of inner peripheries.

The methodology in this task will be based upon the descriptive model, plus good practice observed in the case studies. It is crucial that case studies report and conclude on the role of actors, institutions and networks in taking account of the needs of IP and addressing an integrated approach. Aspects of policy coherence will have to be set against the assessment of developments, institutional framework and networks, and a comprehensive analysis of the contribution of different policy areas and their combined effects on IPs performance. Geographical scale (measured through area covered and population in the area) will be

decisive. In a period of changing overall policy goals from a predominant “growth” orientation of the economy and society towards more encompassing perspectives of “well-being” and societal advancement, IPs might face particular opportunities to overcome stereotypes and misleading societal orientations. This aspect might add to the attractiveness of these regions and represent a specific role in strategy development.

The focus on policy coherence (Copus et al. 2015) is targeted at studying the coordination aspects and aiming at overcoming fragmentation of diverse actors in IP. In placing specific attention on a viewing effects of all policies impacting on IP mechanisms in addition to Cohesion Policy the whole set of ESI-funds (in particular EAFRD and ESF programmes) will be of interest. Also territorial implications of other general policies and relevant national (and regional) support will be explored and checked for policy coherence. Lessons on difficulties of applying integrated approaches and new ideas for “intervention logics” that overcome weak coherence will be useful input for dissemination activities.

11.2.3 Assessment of contribution of current EU policy

Different types of processes of peripheralisation have already taken place in all countries and are still taking place as a consequence of different socio-economic and political drivers. In all these situations diverse kinds of policies have been implemented, but not necessarily with the aim of modifying the main factors impacting on the process of peripheralisation. In our analysis there are at least four main hypotheses of work concerning the role of current EU policies:

The first hypothesis concerns the mix of policy instruments that have been used in the area, their coherence and interactions over time, their financial adequateness in comparison to local needs. This first line of work has to be explored through a careful analysis of the most relevant policies implemented at a given scale;

The second hypothesis concerns the interplay between ordinary national/regional policies and EU policies. In fact, the effectiveness of EU policies strongly depends on how much the needs of a peripheral area have been also taken as a policy priority by national ordinary policies. This is the case where EU policy has to complement ordinary national policies, in order to be efficient and effective. In this regard, for example, Cohesion policy in Italy is complementing the national Strategy for Inner peripheries characterised by the poor access to services of general interest (medical care, local mobility and primary and secondary education). This means considering IPs within the main territorial priorities of the National Partnership Agreement 2014-20 and earmarking national funds targeted to these priorities, national co-financing and European Structural and Investment Funds;

The third hypothesis has to do with the effectiveness of territorial integrated approaches as they have been conceived in the two more recent programming periods (2007-13 and 2014-20). Territorial approaches have been implemented through different tools in the evolution of the Cohesion and Rural Development policy. They were all designed to take into

consideration local needs and potentials and were carried out through multi-sector and area-based local development strategies. The most recent ones are operating within the 2014-20 programming system: 1) the Community-led Local Development (CLLD), derived from the LEADER local development experience of the past decades; 2) the Integrated Territorial Investment (ITI), combining one or more priority axes of different programmes; 3) territorial projects funded by inter-territorial and transnational cooperation programmes. These three approach need to be studied at the territorial level in different socio-economic situations and in different governance settings at EU level;

Finally, we consider as relevant hypothesis also that the definition of a proper scale of intervention has a crucial role in policy effectiveness. The notion of the most appropriate geographical scale for IPs does not coincide with a pre-defined administrative border. Geographical scale is essentially linked to the size and the nature of the territorial processes causing “peripheralisation”. Geographical scale can be variable: it can include either a small number of municipalities below the NUTS-3 level or a set of areas crossing the regional or national administrative borders. The definition of the scale for the purpose of policy strategy at local level should deserve a sufficient space for manoeuvre, depending from the size of collective action and type of partnership.

Based on these hypotheses we need to develop a method of surveying the mix of policy instruments and their financial relevance, the type of linkage between EU policies and national policies, the type of territorial approaches implemented and their effectiveness, the type of scale that are considered as more appropriate. Case studies will provide most of materials which are necessary for this work.

11.2.4 Preliminary considerations in strategy building

At this point of the research project the orientation and content of strategies for IP cannot be properly discussed, but relevant factors and methodological considerations which to take into consideration are as follows:

a) Strategies related to the different initial triggers of IP conceptual types

Strategies targeting IPs should consider the following *three types of IPs* defined in earlier stages of the project – representing either a single type in a pure form or representing *distinctive combinations* of these three types according to the most dominant triggers of becoming IP:

- Strategies for IP Type 1 - Enclaves of low economic potential surrounded by less “peripheral” areas
- Strategies for IP Type 2 - Areas with poor access to or provision of Services of General Interest
- Strategies for IP Type 3 - Areas lacking organised connectedness

b) Strategies drawn up through relating to specific constraints and/or opportunities of distinctive types in development over time

Strategies would aim at including *all relevant administrative levels concerned with development processes and capital budgets* related to the formation of IPs:

A set of different triggers: Supra-regional (national, European, global) processes that cannot be determined at regional / local scale; divided into development processes of ‚Sudden discontinuity' and ‚Slow & continuous decline' / ‚stagnation with simultaneous ascent of the surrounding regions'

Drivers: Local / regional processes caused by the triggers against the background of the regional development path → temporal perspective

Defining features: Dominant local processes in relation to IP-Status

Intermediating processes: Processes that can be influenced on / directly target the local / regional scale

Territorial capitals: Local potentials in the field of governance actors / spatial embeddedness / cultural heritage etc.

Opportunities: Positive process options that seem realistic on the basis of the aforementioned aspects

c) Key Issues for Policy Making and the European Policy Context

Policies need to take account of IP processes at higher levels. Strategies concerning relevant funding schemes and programs for IP would address therefore the following aspects:

- Screening of programs for applicability for IPs
- or for necessary adjustments, or
- creation of new specialised programs:

Are the existing programmes also suitable for IPs if stakeholders are made aware of their situation and the possibilities available?

IP strategies shall focus on building up relationships: strategies that focus on "organised" kinds of proximity" (Copus 2014), involving (for instance) social interaction and trust, or shared knowledge and information, or reflecting institutional or governance structures, are increasingly important (Torre and Rallet, 2005)

Outcomes of strategies shall focus on social inclusion and well-being

11.3 Next steps

The elaboration of strategies for inner peripheries is based on the theoretical concept, the analysis of the occurrence and types of inner peripheries, as well as on the assessment and observation of processes of IPs emergence and changes over time through case study

analysis. As addressed above, strategies will have to refer to that analysis and hence recommendations from other work packages at an earlier stage on methodological issues and contents will be important. A particular focus will be in the next months to highlight relevance for policy implications and future strategy considerations already in carrying out the case studies. Summaries of both, the delineation work on IPs and case studies will provide practical input to strategy elaboration according to the project's schedule (Sept-Nov. 2017).

12 Handbook and Learning Package

12.1 Handbook

The handbook is a tool address to policy makers at different geographical levels with the aim of describing strategies for inner peripheries using an integrated approach. It will contain the main outputs of WP7 (Development of Strategies for IP) with all the needed information, produced during the implementation of the project, in order to produce relevant and useful strategies in the context of each inner periphery. To achieve this goal, them main concepts and results behind the different activities need to be included in order to facilitate an adequate interpretation of the background behind the main outputs of WP7. These outputs are proposals, mechanisms and methodologies for action on various dimensions of IPs.

The Handbook is meant to be a synthetic tool (maximum of 20 pages according to ToR) and needs to be attractive and innovative in order to effectively capture the attention of the target audience. Therefore, it should be very visual, using maps, diagrams, statistics and/or other similar sources of information emerging from the project.

12.1.1 Structure of Handbook

The document will be structured in two main parts:

- Main outputs of the research on the concept of Inner Peripheries (WP2-WP6):
    - Conceptual introduction with the strictly necessary background for a correct understanding of the subject. It needs answering what IPs are, how do they evolve, where they are, which are the main causing factors, how does the "downward spiral move, etc. (Act. 2.1 and 4.1).
    - Reflection on policy implications of the existence of IP. Needs to answer how IP affects sustainable development, territories and citizens (Acts. 2.2)
    - Relevant facts about IP in Europe. Needs containing numbers, statistics and maps showing the reality of the concept across Europe (Acts. 2.3, 2.4, 3.4 and WP6)
    - Processes and drivers of an IP. Needs to answer how does an area at risk become an IP, is it possible to stop and reverse this situation, how can it be done (WP4 and WP5).

- Main outputs of Strategies for Inner Peripheries (WP7):
    - Analysis of strategies to avoid further deprivation in IP. Needs to present strategies to deal with IP and lessons learned from Case Studies (Acts. 7.1 and 7.2)
    - Policy needs in terms of Cohesion Policy for dealing with an IP. Needs to answer which multi-level governance models are convenient and useful in the different institutional and territorial contexts, what can be done to support them from EU and national policies, what policies can be updated in order to be more effective at regional level, etc. (Act. 7.3).
    - Policy recommendations on IP. They will be address to deal with the characteristics of IP which product marginalization on different levels (local, regional, national and EU), and the processes driving that marginalization (Act. 7.4).

12.2 Learning Package

The Learning Package is understood as a lifelong learning tool which should share all the knowledge and material created during the project, in an attractive and visual way (through graphics, illustrations, tables and maps). It has two main objectives:

a) Raising awareness at local level (decision makers, stakeholders and general public) about the processes and features of Inner Peripherality which can be present in a territory;

b) Presenting stakeholders and decision-makers with solutions which reflect good and bad results, in order to give information on the consequences of taking specific decisions particularly linked to the constituent elements of Inner Peripherality.

The tool's main goal is to contribute to determine in a clear and concise way, where a region is in terms of inner peripherality to allow public and private stakeholders at the local and regional levels to determine the best strategy to stop deprivation or disconnection from the processes and paths that favour sustainable development.

12.2.1 Structure of Learning Package

The Learning Package is structured in three parts:

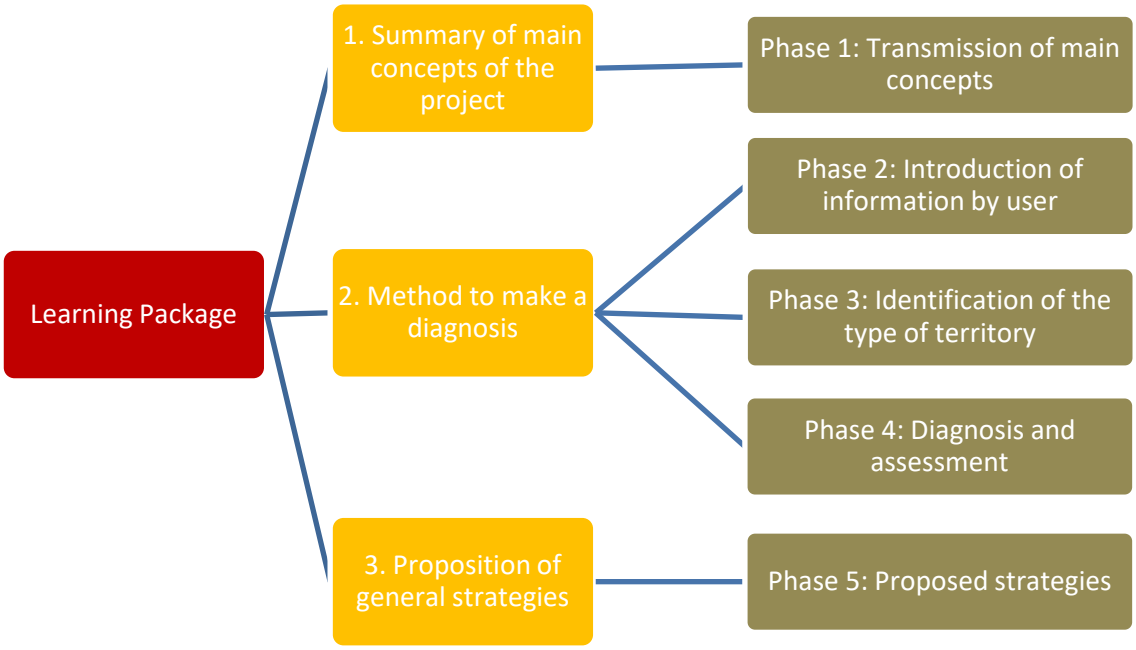
- Needed Information. Summary of main concepts of the project. It is an adaptation of the first part of the Handbook, but having in mind that it is not only addressed to policy makers but being divulgated to stakeholders and general public too.
- The Tool.
    - Method to identify the situation of a region under analysis in relation to the process of Inner Peripherality (type of IP, No IP, Area at risk or IP). In order to build this tool, it will be necessary to have: i) a list of indicators and variables; ii) tables that relate indicators with concepts; iii) tables that relate ranges of variables with concepts; and iv) identifying various types of situation after the diagnosis.
    - Proposal of strategies or public policies to overcome the weaknesses that maintain a particular region under the condition of IP or at risk of becoming IP. The results depend on the assessment obtained during the previous parts (the method). It will be fed by the second part of the Handbook. For building it, it will be necessary to: i) create a list of strategies and their consequences and ii) link strategies with the diagnosis.

Therefore, the first part is a static one and it is not needed any interaction with the user, who only takes information. However, second and third part are dynamic ones where the user needs to select options and/or provide requested information. In this second case, the requested information should be easy to get.

In order to develop the tool, a document must be developed containing all concepts, indicators, variables, descriptions of types of IP, strategies and consequences. All this information must be related in different tables. In a second step, the user goes from the selection of a particular region to a proposed "output" in the form of one or several strategies or ways of action that can be implemented to counteract or reverse the negative effects of inner peripherality.

The process requieres: 1) Transmission of main concepts; 2) Introduction of information by the user; 3) Identification of the type of territory (No IP, Area at risk and IP); 4) Diagnosis and assessment and 5) Proposed Strategies.

Figure 12.1:Phases of the learning package.



Once all the information is integrated, there are two possible options to deliver the Learning Package:

- Through analogical means, presenting a paper (or .pdf) document in an attractive and visual way. No interactivity with the potential user is possible in this case

- Using digital technologies, by transforming the base of information and the initial "analogical" document into an interactive tool in the form of a dedicated website, or through the design and implementation of an smartphone, tablet, etc. –based App.

Depending on the quality of the information obtained during the project (statistical databases, GIS datasets, procedures for the analysis of inner peripherality, models and narratives of inner peripherality, the results and informations arsing from the case studies, etc.), it may be worthy to think about the development of a dedicated App, considering the extra costs that this development could mean for the project.

12.3 Presentation of strategies

The third part of the learning package, that one related to the proposed strategies to deal with the diagnosis and assessment, will be presented in a common template. The following items can be used as a guideline to present them:

- Description,
- Scale of influence (local, regional or national),
- Challenges to deal with,
- Results expected after the implementation of the proposed strategies and/or policies,
- Actors that need to be involved and/or take the lead to achieve expected results (institutions, stakeholders,…)
- Resources needed
- Main field of the strategy (territorial, social, economic,…)
- Difficulty to make it running (high, medium, low)
- Problems to be reduced or deleted
- Situation when it is recommended to carry it out
- Situation when it is NOT recommended to carry it out

13 Outlook of Future Work Towards the Draft Final Report

The development of the project is being carried out in an appropriate way. All members of the Consortium respond quickly and diligently to the tasks set out in the work plan, and there is fluid communication that even becomes excessive at times of maximum workload. There is a clear willingness from all partners to contribute to the success of the project and, in most cases, a proactive and participatory attitude in providing comments and solutions to the challenges posed by the research.

The last months have been intense because of the difficulties encountered in obtaining the information and data necessary to carry out the delineations of inner peripherality in Europe. Three major obstacles have arise: firstly, problems concerning the availability of valid data; Second, the problem of the scale of analysis; finally, the characteristics of the third theoretical concept (Operational Type 4) of inner peripherality and the emerging doubts about the possibility of properly mapping this type of IP.

The combination of these three problems has caused a significant delay in the availability of the four Delineations presented in the Interim Report. Even at this stage, some delineations presented can not be considered optimal or definitive, and should therefore continue to be drawn from the collection of new information and / or by reconsideration of some elements of the methodological process. This recognition does not avoid stating conclusively that there are some limitations that can not be overcome in the scope of this project and that make it impossible a more exact approximation to the effective delineation of the concept. Some necessary data are not available for the European space as a whole, the absence of data chronological series is more than evident, and some environments (the Balkan countries, some of the other non-EU ESPON territories show significant deficiencies in the availability of harmonized data). On the other hand, it is necessary to integrate the delineations into a single concept of "inner peripherality", an approach that is part of the work to be done in WP4, supported by the results obtained in WP2 and WP3.

Despite the problems described, the difficulty of delineating inner peripherality has been partially overcome and, in fact, chapter 7 and its annexes show in detail all the work done in this regard. Delineations are the starting point for the development of a large part of the remaining Working Packages (4, 5, 6 and 7) and, in particular, help determine the location of Case Studies. We can therefore affirm that the structural (related to the availability of data) and methodological difficulties (challenges derived from the proposed approaches for the development of delineations) have conditioned the project times, preventing the development of most of the works according to schedule. It is, therefore, for a few weeks now, that the project activity has diversified and intensified even more, since there are now 5 WPs progressing in parallel, which also require a powerful interaction and coordination to ensure the achievement of the full research potential of PROFECY.

13.1 Next steps in the works of the project

In the period between the beginning of March 2017 (delivery of the Interim Report) and the beginning of August 2017 (delivery of the Draft Final Report), the project will exhibit intense activity associated with the development of most WPs of the project.

Briefly, the sequence of activities planned for the March-August reference period is:

1. Develop the analyses leading to the characterization of the status of the inner peripheries in Europe (WP4) from the information obtained in WP3 (data gathering and analysis at European level) and the identification of the 4 operational models of inner peripherality. This activity should propose a unified concept of inner peripherality and a typology of inner peripheries, taking as reference the information previously developed within the framework of the project.

2. Develop the interpretive models created to identify the processes and drivers that play a key role in the phenomenon of marginalization that can affect inner peripheries (WP5). The knowledge obtained through the analyses carried out in previous tasks of the project allowed for the identification of three interpretive models. In the coming months, these models will be further developed thanks to new outputs obtained under other project activities. In this case, the priority is to be able to communicate in a simple way the theories of change that explain the three theoretical concepts of inner peripherality identified in the conceptual framework of the project.

3. Determine the methodology for carrying out the 7 case studies of IPs contemplated by the project. The Interim Report contains the basic elements of the methodology to be used in the development of the case studies. It is a comprehensive approach that includes documentary analysis, the design and use of social research tools (interviews, working groups, etc.) that allows answering the questions that the research tries to answer. The case studies will be carried out through the use of a standard methodological guide that will serve to guarantee the validity of the work done and the elements of comparability necessary to be able to carry out subsequent comparative analysis from which it is hoped to extract new knowledge about the nature of the phenomenon of inner peripherality in Europe.

4. Identification of the 7 case studies areas through the application of a combination of delineation results and expert local knowledge, to determine the optimal layout of the territories of analysis. A good part of the selection process has already been carried out and is included in the Interim Report, but it is possible that there is some modification in the selected study areas based on the comments of the PST and ESPON EGTC, or on the basis of complementary information obtained in the new developments of the project.

5. Carrying out the case studies according to a standardised methodological proposal agreed upon by partners.

6. Development of a Case Study Report for each of the 7 IPs, and Cross-Country Case Study Report. Each case study will be analysed following an standardised format to ensure

comparability. Then, a cross-country, comparative analysis of all 7 case studies will be carried out on the basis of the individual reports. The comparative report will illustrate and explore commonalities and specificities across the different territorial contexts and understand the factors and drivers influencing patterns and processes of peripherality. Particular attention will be paid to the scope of variations found across the case studies with regard to: (i) the indicators of IPs; (ii) the processes and drivers of marginalization; (iii) the causal mechanisms in different time frames; (iv) the multilevel policy frameworks embedding the case studies; (v) the coping strategies identified in the case studies; (vi) the policy recommendations developed for single case studies. The interlinkages of these variations will be discussed and placed into a detailed explanatory framework. Through this framework, the adequacy and soundness of the statistical indicator bundle for delimiting IPs can be re-evaluated.

7. The WP 7 "development of strategies for inner peripheries using integrated approach" contains activities oriented to the elaboration of "intervention logics" for the decision making at different scales within the framework of inner peripherality. The activities included in this WP refer to the results of the analyses carried out in the project. For this reason, their development depends on the completion of previous activities and, in particular, the analyses on the status of inner peripherality (WP4), and the results of the case studies and their interpretation through the comparative report (WP6). The Draft Final Report requires the “description of strategies for inner peripheries” and, therefore, particular attention will be paid to the proper development of the work calendar to avoid delays as much as possible.

8. Third Consortium Meeting and organisation of an Special Session at the RSA Conference 2017 in Dublin. In order to fulfill the commitment to disseminate internationally the results of the project, ESPON EGTC and the Coordinator of the PROFECY Consortium agreed to jointly organize a Special Session at the 2014 RSA Conference in Dublin "the Great Regional Awakening: New Directions". The Special Session will be entitled "Spatial Reorganization Trends & the Rising Importance of Relational Proximity" and the majority of PROFECY partners will be involved. In order to save costs and take advantage of participation in the event, the third meeting of the PROFECY Consortium was organized in the framework of the RSA event. Thus, the third PROFECY meeting will take place on 8 and 9 June, just after the RSA conference (4-7 June). From the point of view of the project execution timetable the dates are appropriate since the meeting will take place almost 6 months after the previous one and only 2 months after the delivery of the DFR, which allows an excellent framework for the discussion, planning nd organization of the project.

Figure 13.1. Synergies and relations among WP and Activities in PROFECY

- Outputs from WP2 essential to WP4 and WP6. Important for the rest of WP
- Outputs from WP3 essential to WP4 and important for the rest of WP
- Outputs from WP4 essential to WP5 and WP7, important for the rest of WP
- Outputs from WP5, essential to WP6, WP7 and WP8
- Outputs from WP6, essential to WP5, WP7 and WP8
- Outputs from WP7, essential to WP8

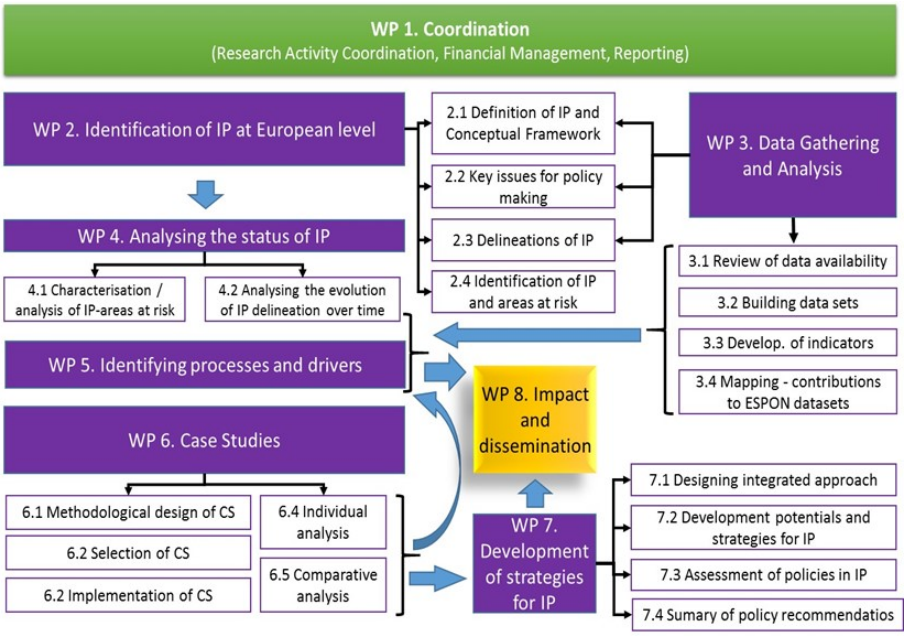
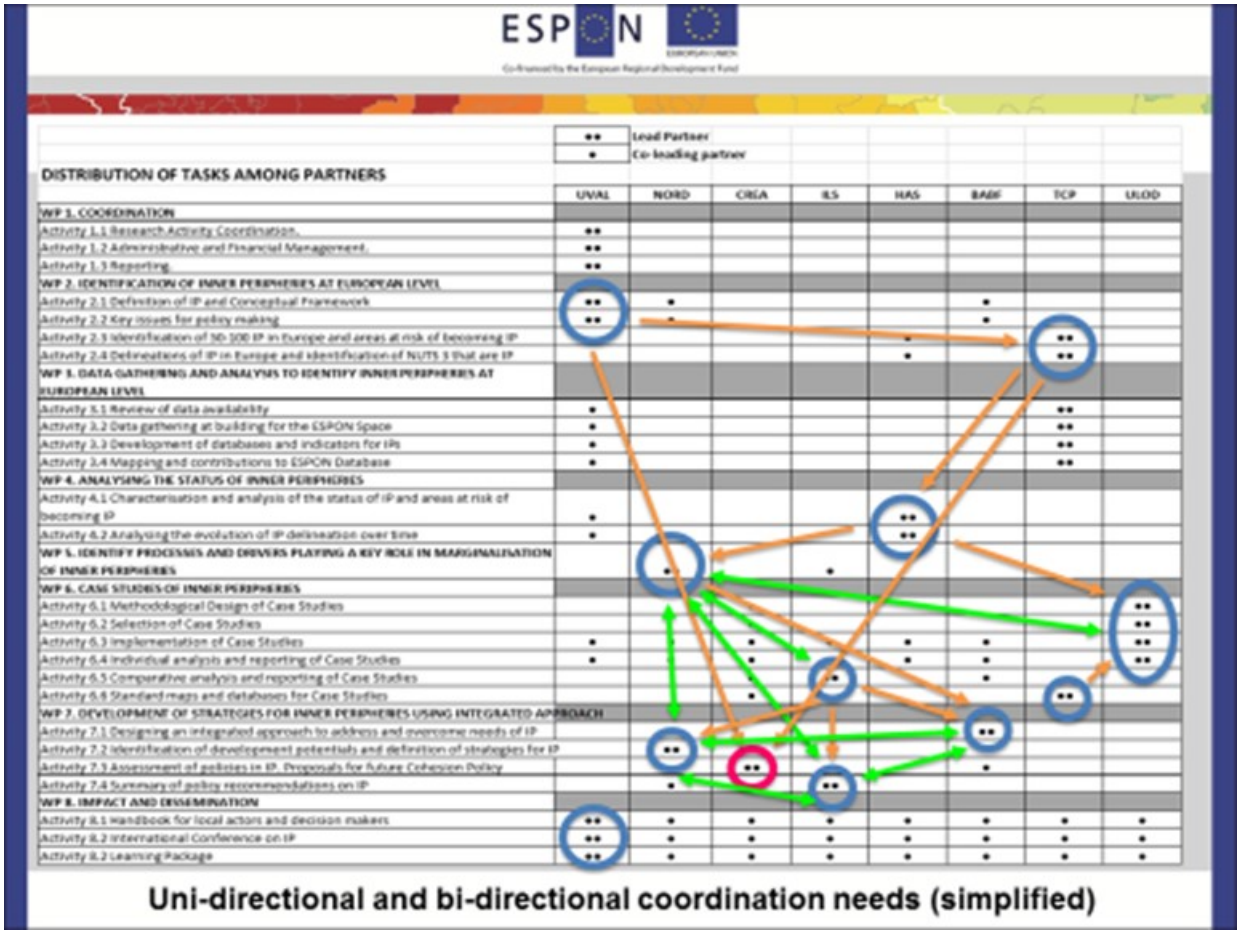


Figure 13.2.Specific feedback and types of relationships among activities in PROFECY



References

Baxter, P. & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. The Qualitative Report 13(4): 544-559.

Coates, J.F. (2000) Scenario Planning, Technological Forecasting and Social Change, 65, p. 115–123.

Copus A.K., Dax, T. and De Lima, P. (2015), "Epilogue: Rural Cohesion Policy as the appropriate response to current rural trends", chapter 12, in: Copus, A.K. and De Lima, P. (eds.), Territorial Cohesion in Rural Europe, The relational turn in rural development, Series Regions and Cities 76, Abingdon: Routledge, 236-248.

Copus, A. (2014) 'Local buzz' or 'organised proximity' – getting the balance right in community-led rural development. Paper presented at the Conference: Agrarian Perspectives XXIII, Czech University of Life Sciences Prague, 16th September 2014.

Copus, A., Courtney, P., Dax, T., Meredith, D., Noguera, J., Talbot, H. and Shucksmith, M. (2011), European Development Opportunities for Rural Areas (EDORA), Final Report, Applied Research 2013/1/2, ESPON & UHI Millenium Institute, 2nd revised version, August 2011, Luxembourg. 101pp.

Dammers, E. (2010) Making territorial scenarios for Europe, Futures, 42, p. 785–793.

EP [European Parliament Directorate General Internal Policies of the Union] (2007) Regional disparities and Cohesion: What strategies for the future. Report, Brussels. Available at:

ESPON (2010) A Typology of Intermediate and Predominantly Rural NUTS 3 Regions (by Copus A and Noguera J). European Development Opportunities for Rural Areas (EDORA). Final Report, Annex 1, Part 24., Luxembourg. 732–778. Available at:

ESPON (2016) Inner peripheries: National territories facing challenges of access to basic services of general interest (PROFECY). Inception Report, Luxembourg. Available at:

Flyvbjerg, B. (2011). Case study. The Sage Handbook of Qualitative Research. N. K. Denzin and Y. S. Lincoln. Thousand Oaks, Sage: 301-316.

Gough C., et al. (1999), VISONS for the NW, Interim report, UMIST and Manchester.

Haynes P (2014) Combining the Strengths of Qualitative Comparative Analysis with Cluster Analysis for Comparative Public Policy Research: With Reference to the Policy of Economic Convergence in the Euro Currency Area. International Journal of Public Administration 37(9): 581–590.

http://www.europarl.europa.eu/hearings/20070625/regi/study_en.pdf (accessed 17 November 2016)

https://www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/EDORA/EDORA_Final_ReportPart_C_WP23-28.pdf (accessed 24 January 2017)

https://www.espon.eu/export/sites/default/Documents/Projects/ESPON2020/01.AppliedResearch/05-Inner_Peripheries-Final_Inception_Report.pdf (accessed 27 January 2017)

Matlay, H. (2000). Organisational learning in small learning organisations: An empirical overview. Education and Learning 42(4/5): 202-210.

Ragin C (1987) The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies. Berkeley: The University of California Press.

Rifkin, W. & Fulop, L. (1997). A review and case study on learning organisations. The Learning Organization 4(4): 135-148.

Rowe, G. & Wright, G. (1999). The Delphi technique as a forecasting tool: issues and analysis. International Journal of Forecasting, Volume 15, Issue 4, October 1999.

Torre, A., and Rallet, A. (2005) Proximity and localisation, Regional Studies, 39:1, 47–59.

Volkery, A. Rireiro, T. Henrichs, T. Hoodeveen, Y. (2008) Your vision or My Model? Lesson from Participatory Land Use Scenario Development on a European Scale, Systematic Practice and Action Research, 21, p. 459–477.

Westhoek, H.J., van den Berg, M. Bakkes, J.A. (2006), Scenario development to explore the future of Europe's rural areas, Agriculture, Ecosystems and Environment p. 114, 7–20.

Yin, R. K. (2009). Case Study Research: Design and Methods. Thousand Oaks, SAGE

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ESPON 2020 – More information

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