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Addressing Peripherality in Italy: A Critical Comparison between Inner Areas and Territorial Capital-Based Evaluations

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Abstract: As highlighted by the UN 2030 Agenda, sustainable development is a complex and multidimensional issue that can be effectively implemented and reached at the local level. This implies the evaluation of differences and disparities between territories in order to define local priorities and support cohesion policy objectives. This need has been addressed by the Italian "National Strategy for Inner Areas", which aims to support the growth of territories with a continuous economic and population decline. However, Inner Areas are identified by a set of indicators related to the low accessibility to Services of General Interest, neglecting other important factors that contribute to this condition. This paper proposes a critical analysis of this measurement and of the related "territorialization" of Inner Areas, by introducing a more comprehensive assessment model based on the concept of Territorial Capital (TC), which highlights a more nuanced understanding of complexities and diversities related to the potential development of a territory. In particular, the proposed model evaluates eight TC dimensions (human, social, cognitive, infrastructural, productive, relational, environmental and settlement capital), which cover a broad spectrum of Sustainable Development Goals (SDGs). In order to accurately demonstrate the differences between the results of the two evaluation methods, this paper presents the results of a case study application concerning all 377 municipalities, which compose the Autonomous Region of Sardinia (Italy). The findings of this study confirm the potential of an approach based on the Territorial Capital for place-based policymaking. TC, in fact, can become relevant for defining local priorities and supporting complex decisions, allowing governments to better design and tailor interventions for the effective and efficient management of available resources. Furthermore, these results pose new questions for future research developments in the field of sustainable and equitable development.

Keywords: EU cohesion policy; territorial capital; multi-criteria spatial evaluation; inner peripheries; inner areas; Italian National Strategy for Inner Areas; Sardinia

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1. Introduction

It is widely recognized that the transition to sustainability is a global challenge that requires local government action to be effective. As highlighted by the United Nations, the global Sustainable Development Goals (SDGs) for the period 2016–2030 [1] must be achieved at the country, region, province and district levels, calling for place-based (or territorially sensitive) development strategies and spatial plans to progressively downscale sustainability issues in different territories [2–5]. In recent decades, the increase in territorial disparities has indicated that the EU Member States have different priorities and needs regarding different sustainability dimensions, due to their different geographical characteristics and socio-economic structures (e.g., [6]).

In response, one of the main aims of the EU governments and policymakers is to strength the territorial dimension of sector policies at all governance levels for ensuring

a balanced development of all territories. Within a common framework, specific operational programmes and development instruments dedicated for them are needed to correct imbalances between different Member States and to boost territorial development, with particular attention to urbanization processes and their effects upon the affected territories, [7–9]. The European Green Deal, with its Sustainable Europe Investment Plan and Just Transition Mechanism (2020), the Union Recovery Programme (2020) and the EU Territorial Agenda 2030 (2020), are among the most recent major European policies for local-oriented strategies at national, regional and local levels aimed at pursuing territorial equity through sustainable development [10]. In this respect, the new EU 2030 indicators and targets, especially regarding poverty and social exclusion, help candidate countries to align their policies toward EU requirements.

However, since the 1990s, efforts towards a balanced and harmonious territorial development local-based approach have been made by the European Community. The Treaty on European Union, which came into force in 1993, introduced the concept of Territorial Cohesion (Article 3, TEU) to strength the need to promote solidarity among Member States between and within countries, regions, cities and municipalities. Despite the controversial meaning of "territorial cohesion" related to a wide range of concerns [11], which still remains a goal to be achieved, there is a shared set of goals and commitments related to this concept. More specifically, cohesion policies are aimed at increasing investments to achieve higher growth in areas suffering "territorial imbalances", and to help all territories to perform as well as possible using their own assets through place-based strategies. The political and scientific debate highlighted that these territorial imbalances are the result of complex processes linked to multiple material and immaterial elements. Accordingly, a better evaluation of local characteristics—infrastructural, natural, social and economic features—is need to increase the effectiveness of development policies [12–15].

In this context, "Inner Peripheries" (IP), which emerged in the European regional policy discourse during the 1980s and 1990s, represent potential crucial test areas for European cohesion— "laboratories" that offer opportunities to test innovative strategies and cooperation patterns. The category of IP was included in the framework of the territorial policies about ten years ago through the innovative programs GEOSPECS (Geographic Specificities and Development Potentials in Europe) [16] and PROPHECY (Processes, Features and Cycles of Inner Peripheries in Europe) [17], led by the European Spatial Planning Observation Network (ESPON) [18]. In European policies, inner peripheral areas are conceived as territories where "general performance, levels of development, access to services of general interest, and quality of life of the population are relatively worse than those of their neighbouring territories" [19]. This concept encompasses the traditional core Inner Periphery discourse, to define "peripherality" as a complex phenomenon that is enacted by multiple combinations of processes, features and evolutionary dynamics affecting the development potential of all kinds of European territories. Thus, location disadvantages related to spatial characteristics (distance and accessibility) are strictly connected with multi-dimensional marginality dynamics (economic, social, cultural, political and historical) that can arise in a specific area [20–23].

Dealing with this condition is a challenge for the European Union and their Member States, especially due to the high impact of this topic [24]. Recent studies state that the Inner Peripheries spread over 45% of the European territory and 80% of rural areas [19,20,25]. Furthermore, more than 30% of the Inner Peripheries overlap the Lagging Regions [17], a condition that moves the Inner Peripheries from a disadvantaged condition to a more positive one due to the specific EU funds allocated for these areas [21]. Moreover, in recent years, additional property tax relief measures for residents to buy property and to renovate or redevelop older housing stock, and financial incentives for businesses to locate and invest in these areas, have been promoted to improve the attractivity of the investments in these territories. For example, in 2019, the "1000 Cafés" campaign in France—run by charity Groupe SOS, with funding from the French government—supported the development of 1000 coffees in 1000 small towns with less than 3500 inhabitants to contribute to

the commercial and social revitalization of small rural communities. These services are designed as regional resource environments that contribute to improving the daily lives of thousands of French people. In 2018, some Italian municipalities promoted the "Case a 1 euro" (1-euro houses) policy to combat depopulation in internal areas and to facilitate access to homes by young people. Owners are incentivized to sell their home free of charge to the municipality, which sells the property at the symbolic price of one euro, and buyers must renovate the properties within a certain time period [26].

Thus, one of the main fundamental problems is to identify these peripheral contexts through fine grain knowledge of the factors that negatively impact on territorial development. This is a starting point for accurately mapping territories and designing appropriate structural policies tailored to different local conditions [27].

Italy is one of the first European countries to have developed a specific strategy for mapping the "Inner Areas", a particular category of the Inner Peripheries. The 2014–2020 Italian National Strategy for Inner Areas (SNAI, Strategia Nazionale per le Aree Interne), which was adopted in 2012, is one of the 2014–2020 cohesion strategies [28]. This strategy aims at enhancing people's quality of life and economic well-being through the improvement of a range of selected Services of General Interest (SGIs) in these least-developed areas of Italy [29–32], in order to combat depopulation and socio-economic decline in these areas. Thus, the map construction of IA starts from the recognition of SGIs in different territories, as explained in the next section. However, this identification of Inner Areas does not consider other aspects that are relevant in the systemic perspective of sustainable development.

In this paper, we introduce the concept of Territorial Capital (TC), which allows for an integrated assessment of multiple localised assets—according to the four dimension of sustainability: environmental, social, economic and institutional—that affect the competitive potential of a given territory ([33], p. 1387) over time ([34], p. 19). Thus, TC can be introduced as a possible proxy to evaluate the peripherality of a territory. Accordingly, the Italian Inner Areas can be described in terms of "non valorised territorial capital", and, consequently, development policies must have as a main goal the activation of latent local capitals ([35], p. 15). To that end, in this paper we present a novel framework for mapping peripherality through the lack of Territorial Capital that leverages open data sources in a multi-criteria spatial evaluation procedure [36]. This evaluation offers an accurate modelling of the geographic distributions of different indicators of Territorial Capital, subdivided into eight sub-dimensions (human, social, cognitive, infrastructural, productive, relational, environmental and settlement capital) at the municipal scale. The high level of detail and the high number of indicators proposed for each sub-dimension allow for a better description and understanding of the multifaceted nature of Territorial Capital than a single dimension approach.

The comparison between these two classifications—Inner Areas and Territorial Capital—is the subject of this paper. To verify the differences between the results of the two assessment methods, we applied these models to a case study from Italy. In particular, we present the results of the evaluation carried out in the 377 municipalities that compose the Autonomous Region of Sardinia (Italy). The paper is structured as follows. After the Introduction that states the research problem, Section 2 briefly outlines the background to the research, presenting the Italian Strategy for Inner Areas; Section 3 describes the evaluation methodology based on the Territorial Capital, focusing on its structure and the data sources used for calculating the selected indicators; Section 4 presents the comparative analysis between the two different methodologies and the results of the case study application; Section 5 provides a discussion of the results; and the final section provides a commentary on the potential applications and limitations of the presented framework.

2. Towards a Map of Territorial Peripherality

From the previous considerations, it follows that identifying indicators and thresholds to clearly map the Inner Peripheries is one of the main research challenges.

Over the last three decades, many tools have been developed to understand, measure and spatialize the IP. The first maps are based on the Newtonian gravity model, which has been used to analyse the spatial interactions between places based on their "economic potential" [37–41]. It was widely believed that the physical distance from the main centres of economic activity could determine patterns of economic growth and prosperity. However, this model has proved inadequate for understanding the wide range of socio-economic and political relations that affect the potential development of a territory [42]. As Peter Nijkamp notes, despite the Newtonian distance-decay model effects and the population masses playing a major role, other types of relational proximity indicators play a role as well: from the perspective of digital connectivity, for example, the connectivity appears to be higher between neighbouring regions in terms of physical, technological, organizational and institutional distance [43]. Thus, according to Bock ([44], p. 5), IP can be explained as the result of a lack of 'relational remoteness' that is different from a 'geographical remoteness', and that is the result of different variables.

The increasing interest in citizens' well-being (or quality-of-life) in the least developed areas has become one of the major goals of EU Cohesion Policy [20,45] that requires «the provision of integrated bundles of public goods and services aimed at triggering institutional change, improving the well-being of people and the productivity of businesses and promoting innovation» ([46], p. XI). Contrary to the typical formulations of GDP per capita as a measure of disparity, the access to a minimum standard of "Services of General Interest" (SGIs) by citizens and economic stakeholders is introduced as "a vital precondition for balanced development" [47].

In this context, the Territorial Capital emerges as a promising approach for understanding and assessing the complexities that occur in the condition of peripherality, overcoming a purely economic perspective. Accordingly, territorial cohesion policies must improve public infrastructure goods and services—formally known as 'Services of General Interest' (SGIs)—tailored to places by focusing on local priorities and by taking account of functional interactions with other territories. However, although this concept is adopted in the last two of the EU's Territorial Agendas "Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions" [48] and "A future for all places" [49], Territorial Capital is still little used by policymakers and practitioners to inform their decision making. The Italian case study offers an interesting perspective on this topic.

The Italian Map of Inner Areas

The Italian settlement system is structured on a dense and differentiated polycentric network of towns and cities of various sizes of population and territory, and characteristics regarding environmental, social, economic and institutional aspects. In this context, strong imbalances and inequalities exist between cities and "minor centres" in terms of innovation processes and development dynamics, such as new services and product development based on digital technologies and information systems that require strong institutional capacity and multiple actors to be designed and implemented in urban life. In recent decades, structural transformations of the Italian economy have produced a phenomenon of the concentration and polarization of economic activity and services in big cities and large urban areas that have increased their role as an attractor of economic development and population growth [32]. These municipalities and aggregations of municipalities have become "service provision centres", around which gravitate areas marked by different degrees of distance. In general, a greater distance corresponds to a higher level of marginalization and peripherality that affects people's quality of life and wellbeing, leading to population decline and the abandonment of landscapes that increase the vulnerability and risk of territories.

Among the most fragile territories are the "Inner Areas", identified on the basis of their significant distance from essential services such as education, health, mobility and virtual connectivity (internet access), considered by European society as 'citizenship' constituents that can be a disincentive to live and work in these places. This condition is particularly critical because the Inner Areas comprise 53% of the Italian municipalities (4261), in which reside 23% of the total population, according to the 2011 census, which is equal to more than 13,540 inhabitants resident in over 60% of the national territory [35]. For this reason, in 2012, the Italian government launched the "National Strategy for Inner Areas" (SNAI), a place-based integrated strategy aimed at reducing marginalization and demographic decline by creating the pre-conditions for territorial development (adequate goods/essential services) and promoting local development projects concerning five main areas of intervention:

- Active territorial/environmental sustainability protection;
- The valorisation of natural/cultural capital and tourism;
- The valorisation of agriculture and food systems;
- The activation of renewable energy supply chains;
- Know-how and crafts.

In 2019, the SNAI was implemented in 72 project areas within 1,077 municipalities, in which reside 2,072,718 inhabitants, with a national investment of over EUR 590M, in addition to European Structural and Investment Funds (ESI funds) and other public-private financial resources [50]. In 2021, the SNAI became the backbone of the Italian National Recovery and Resilience Plan (PNRR), which allocated specific amounts of funding for interventions in these areas that suffered the greatest impact of the COVID-19 pandemic [18].

The classification of Inner Areas overcomes the traditionally used urban–rural dichotomy [51] to identify territories characterized by peripherality in functional–spatial terms (Nitz, 1997). The general definition of Inner Areas introduced by the SNAI is related to those territories with a "significant distance" from centres with "essential service" provision, two concepts that have only been deemed as such by the collective assessment of the communities living in these areas ([35], p. 23). In detail, the map of the Italian Inner Areas (2020) was obtained in two consecutive steps:

- The identification of a "service provision centre" (municipalities or a group of municipalities) that offers all three categories of essential services: a first-level emergency care hospital (health services), a secondary school, according to the Italian education system (education) and a regional category railway station (mobility);
- The evaluation of the average travel times from the nearest service provision centre for all the other municipalities, calculated with geographical information systems (GIS) software. The calculation was carried out by using the centroids of the census tracts that contains the town hall.

After the analysis based on these distances, all the municipalities were divided into five main categories (see Figure 1):

1. "Poles" and "Inter-municipal Poles" recognized as "service centres";
2. "Urban belts", within a distance of up to 27.7 min;
3. "Intermediate areas" within a distance between 27.7 and 40.9 min (1.928 municipalities);
4. "Peripheral areas" within a distance between 40.9 and 66.9 min (1.524 municipalities);
5. "Ultra-peripheral areas" within a distance over 66.9 min (382 municipalities).

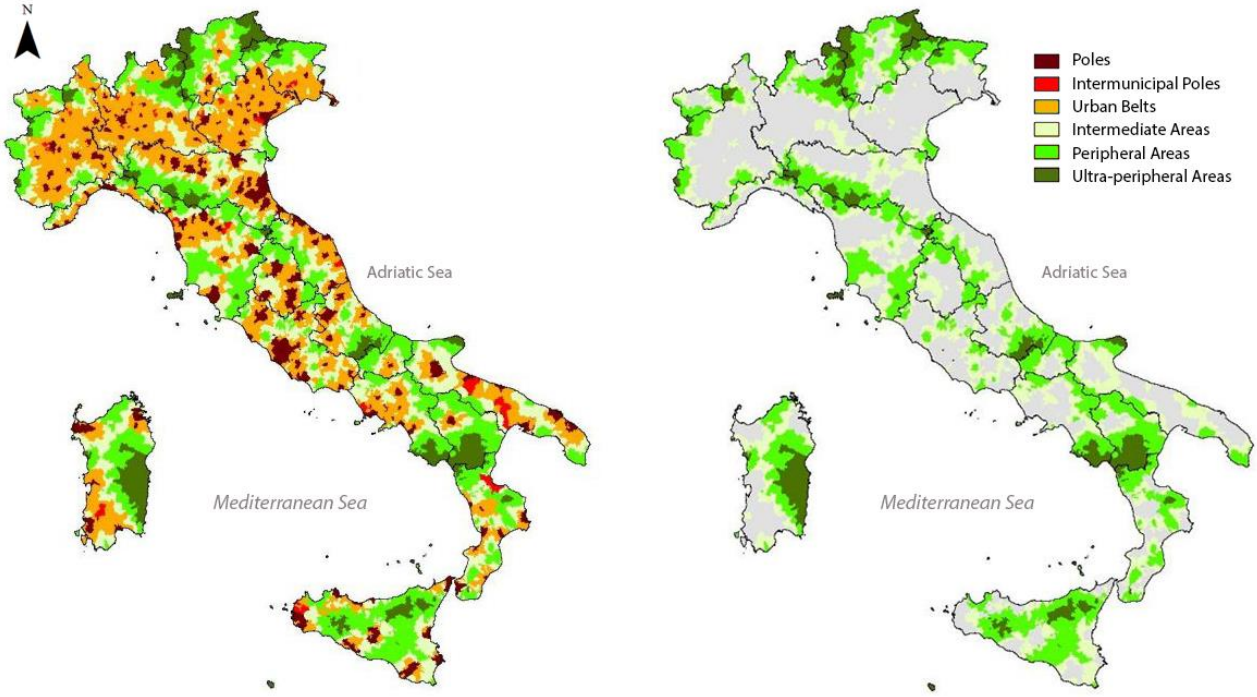

Figure 1. The Map of Strategy for Inner Areas (IA): general map (**left**) and the detail of inner areas (**right**) (Source: SNAI 2020).

3. The Territorial Capital Classification

Unlike the Inner Area classification, the proposed framework aggregates eight main dimensions of the Territorial Capital—human, social, cognitive, infrastructural, productive, relational, environmental and settlement capital (see Table 1)—identified on the basis of the literature review. In particular, we refer to those Italian studies that have developed a comprehensive set of criteria to describe and measure different material and immaterial aspects related to the concept of Territorial Capital [52–58]. Among these, we chose the eight dimensions proposed by Brasili in 2012 [58] and used by Amodio et al. in 2019 [57], but we propose different indicators according to our TC dimension definition and the data available for the Sardinian territory (see [36]).

The choice of indicators for the assessment of each of these eight capital dimensions derived from the need to use open data that can be updated easily. The set contains 33 indicators in total that are related to both material elements, such as the equipment of infrastructure and buildings, or natural resources and intangible assets such as wellbeing, knowledge and social cohesion that are drivers of innovation and economic growth, as detailed in Table 1.

This articulated structure allows for the integration of different levels of knowledge from different disciplines, institutions and sectors. Such an approach is defined to better support cross-sectoral policies, and multi-objective strategies and interventions, according to the 17 SDGs of the 2030 Agenda. Only four Goals (SDG 5, SDG 6 and SDG 14) are not included in the proposed model.

Furthermore, this structure simplifies the complexity of a territory with simple, understandable and communicable indicators that are easily calculable in different contexts. This allows the achievement of consistency and uniformity in reporting outcomes, in order to easily compare various territories, constituting a platform that enables dialogue and the exchange of best practices.

Table 1. The proposed "Territorial Capital Index", data from: the Italian Statistical Office (ISTAT), the Institute for Environmental Protection and Research (ISPRA), the Italian Ministry of Health, the Italian Ministry of the Interior, the Electrical Services Manager (GSE), the National Third Sector Register (RUNTS) and different Sardinian Regional Offices (revised from [36]).

Dimension	Description	Indicators	Related SDGs
Human Capital	HC evaluates the level of education, training and skills of the inhabitants. These attributes can be related to a major ability to perform labour and individual's productivity. We also measure two major demographic processes, the population ageing and population migration, to assess territorial attractiveness and vulnerability.	(1.1) Old-age Index; (1.2) Specific Employment Rate; (1.3) Education Index; (1.4) Migratory balance.	SDG4 SDG 8
Social Capital	SC evaluates the level of participation and co-operation within or among community groups and current endogenous bottom-up development processes. The main goal is to enhance solidarity and activism associated with a higher propensity to work together.	(2.1) Voting Population; (2.2) Voluntary Associations; (2.3) Expenditure for Social Services; (2.4) Socio-Educational Users.	SDG 10 SDG 11 SDG 17
Cognitive Capital	CC refers to knowledge and human intellectual activity that can be enhanced by new technologies and reinforced by cultural experiences. This includes infrastructures, services and funds for providing intellectual and cultural services.	(3.1) Cultural and Recreational services; (3.2) Expenditure for Culture; (3.3) Broadband Accessibility; (3.4) Social Promotion Associations.	SDG 9 SDG 10 SDG 17
Infrastructural Capital	IC includes infrastructural assets, such as transport, healthcare and public safety services, that allow connections, attract people and investments, and promote local economic growth and the competitiveness of the territory.	(4.1) Health Services; (4.2) Suburban Public Transport; (4.3) Postal Offices; (4.4) Police Stations.	SDG 3 SDG 9 SDG 11
Productive Capital	PC is typical of the classical "capital" theory and refers to both variable and constant capital. It is evaluated through local entrepreneurship and innovation. We consider business networks and incubators, and the economy of tourism potential that provide information about the territorial productivity.	(5.1) Entrepreneurship Index; (5.2) Tourism Accommodation Capacity; (5.3) Start-up Companies; (5.4) Average Income.	SDG 8
Relational Capital	RC evaluates the "relational goods" that depend on people's social interpersonal relationships. These goods are important to enhance co-operation and synergies between different territorial actors. We also evaluate services, funds and abilities that can improve the production and efficiency of public service delivery.	(6.1) Public Funding; (6.2) University Students; (6.3) Bank Branches; (6.4) Business Networks.	SDG 4 SDG 8 SDG 16
Environmental Capital	EC includes goods and services provided by natural environments: the endowment of renewable and non-renewable stocks of natural resources such as public green areas and the agricultural land. Furthermore, EC evaluates the exposure to environmental risks and the sustainable management of natural resources.	(7.1) Parks and Protected Areas; (7.2) Utilized Agricultural Area; (7.3) Areas at Risk; (7.4) Waste sorting; (7.5) Sustainable Energy.	SDG 2 SDG 7 SDG 11 SDG 12 SDG 13 SDG 15
Settlement Capital	SC refers to the human settlement quality. Thus, SC evaluates the elements that significatively affect people's lives, such as the housing structural conditions and the age of buildings that can be directly related to energy consumption and, consequently, to the housing costs. Furthermore, we consider the presence of uninhabited houses as a degradation factor and the average income from buildings as a proxy of housing quality.	(8.1) Uninhabited Housing; (8.2) Housing Quality; (8.3) Average age of buildings; (8.4) Average income from buildings.	SDG 1 SDG 10 SDG 11

Calculation Procedure

The calculation procedure is composed of three steps. In particular, for each municipality:

1. First, the eight categories of capital are calculated, using various sources of local data from national and regional authorities and statistical institutions such as the Italian National Institute of Statistics (ISTAT), the Italian Ministry of the Environment, the Institute for Environmental Protection and Research (ISPRA) and different regional geographic information systems.
2. Second, the aggregate index of each capital is calculated as a mean value of min-max scaled ([0,1]) sub-indicators respective to that category capital.
3. Third, the aggregate Territorial Capital Index (TCI) is calculated, as well as the average of the indices of each sub-capital. The TCI values range from: 0–0.14 (extremely low), 0.15–0.29 (very low), 0.30–0.44 (low), 0.45–0.59 (middle), 0.6–0.74 (high), 0.75–1 (very high). We consider peripheral areas as the municipalities with "extremely low" and "very low" scores.

A geographic system was constructed and used to collect all data and calculate all indicators, providing a platform that is useful to investigate the global performance and the specific values of the eight different categories of Territorial Capital. The user frontend of the software tool, deployed through web mapping platform Mango, further allows for manipulating the evaluation structure by modifying or adding indicators, weighing them, spatially aggregating the municipalities by proximity or by administrative division, and producing historical series and customisable maps.

4. Comparison between Inner Areas and Territorial Capital Classification

4.1. A Case Study Application: Sardinia Region (Italy)

To verify similarities and differences between the concept of peripherality in Inner Area and the Territorial Capital classifications, this paper presents the comparison between the results of these two models using a case study: the Sardinian Region (Italy). Sardinia is a relevant case study for our analysis because it is composed of 377 municipalities with different territory size and population densities, natural environments, facilities and infrastructures, local economies and labour markets.

For the IA classification, we extracted the data of Sardinia from the official documents of the SNAI, while for the TC classification we calculated the value of the TCI for each municipal unit, as explained in the previous section.

4.2. Results

According to the SNAI, in the Sardinia Region, over 43% (162) of the total municipalities and around 21% (337.073) of the total population live in areas classified as peripheral and ultra-peripheral (see Figure 2 and Table 2). The evaluation of the Territorial Capital offers a different scenario. In this model, we consider peripheral territories as those with very low and extremely low scores. In this case, over 27% (103) of the total municipalities and around 14.6% (232.693) of the total population live in these areas (see Figure 2 and Table 3).

A detailed analysis reveals that 21.5% (81) of the total municipalities classified as "central" (IA-A,B,C,D) in the IA model become "peripheral" in our model (TC-E,F) (Figure 3):

- One of the two municipalities classified as Intermunicipal poles (IA-B) in the IA model, have an Extremely Low (TC-E) Territorial Capital;
- Among the 104 municipalities classified as Urban Belts (IA-C) in the IA model, 30 have a Very Low (TC-E) Territorial Capital and another 12 municipalities have an Extremely Low (TC-E) Territorial Capital;
- Among the 103 municipalities classified as Intermediate (IA-D) in the IA model, 23 have a Very Low (TC-E) Territorial Capital and another 5 municipalities have an Extremely Low (TC-F) Territorial Capital;

- Four municipalities classified as Peripheral (IA-E) in the IA model have an Extremely Low (TC-F) Territorial Capital.

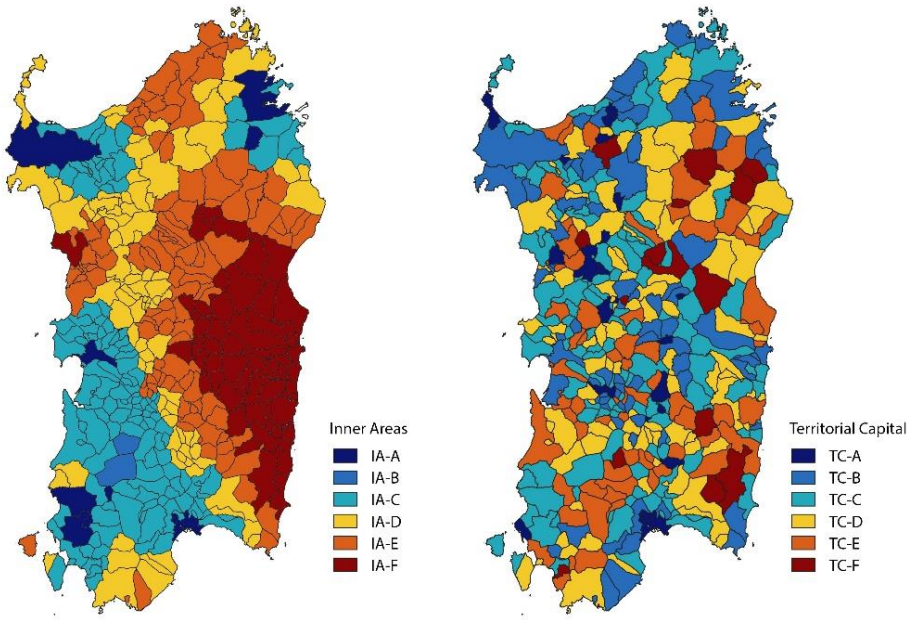

Figure 2. Comparison between the 2020 Strategy for Inner Areas (**left**) and the Territorial Capital (**right**) classifications.

Table 2. Classification of Sardinian municipalities based on the SNAI classification: categories IA-E and IA-F are associated to a peripheral condition (Source: SNAI 2020).

Classification of Municipalities	Code	Number of Municipalities	Percentage of Municipalities	Total Population (2020)
Poles	IA-A	6	2%	414,914
Intermunicipal poles	IA-B	2	1%	21,601
Urban Belts	IA-C	104	28%	571,447
Intermediate Areas	IA-D	103	27%	245,009
Peripheral Areas	IA-E	111	29%	214,299
Ultra-peripheral Areas	IA-F	51	14%	122,774
Total		377	100%	1,590,044

Table 3. Classification of Sardinian municipalities based on Territorial Capital (TC) scores: categories TC-E and TC-F are associated to a peripheral condition (elaborated by authors).

Classification of Municipalities	Code	Number of Municipalities	Percentage of Municipalities	Total Population
Very High (0.75–1.00)	TC-A	15	4%	181,720
High (0.60–0.74)	TC-B	52	14%	432,815
Middle (0.45–0.59)	TC-C	105	28%	491,512
Low (0.30–0.44)	TC-D	102	27%	251,304
Very Low (0.15–0.29)	TC-E	75	20%	182,802
Extremely Low (0.00–0.14)	TC-F	28	7%	49,891
Total		377	100%	1,590,044

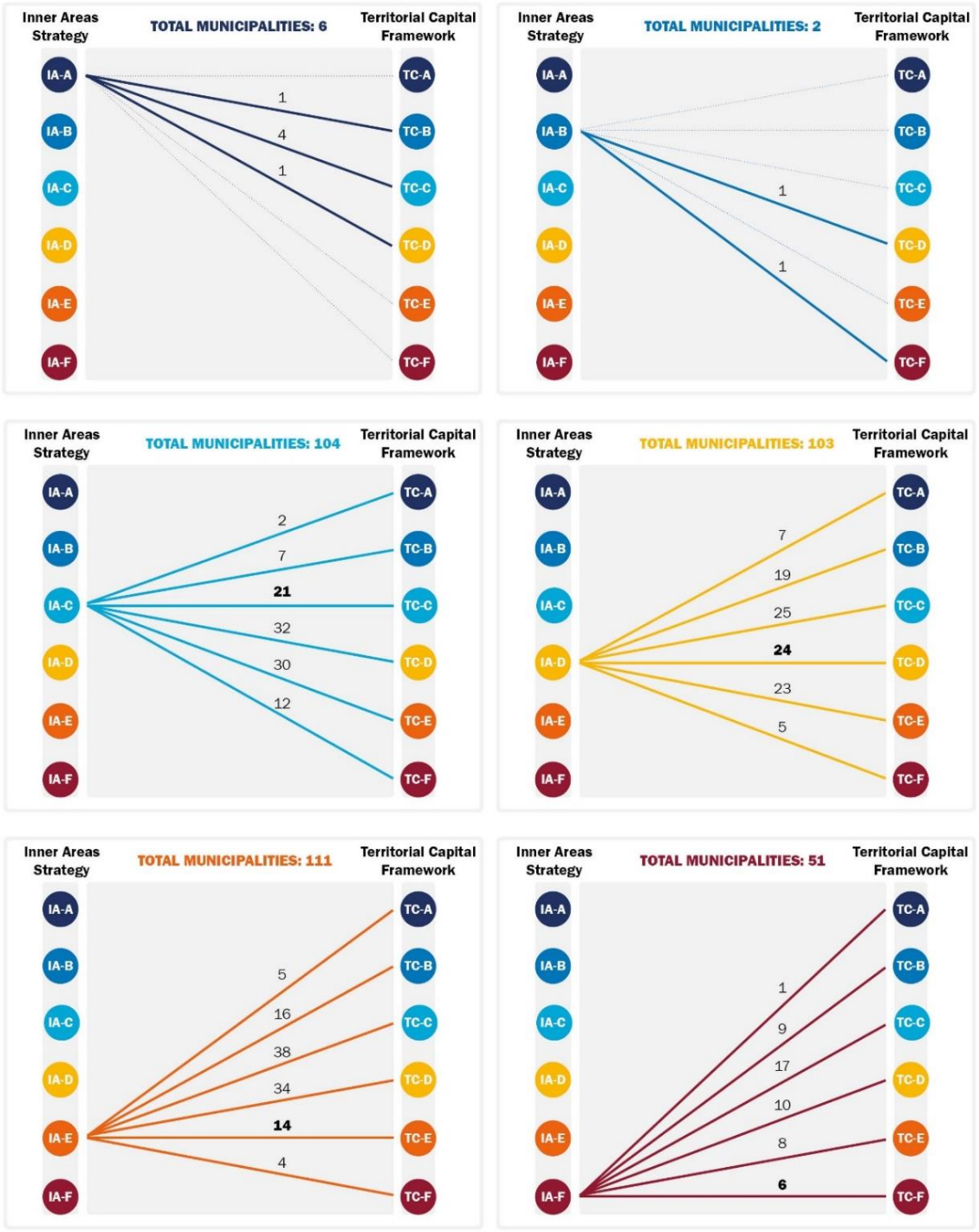

Figure 3. Correspondences between the Strategy for Inner Areas (IA) and Territorial Capital classification (TC).

On the contrary, 34.5% (130) of the total municipalities classified as "peripheral" (IA-E,F) in the IA model become "central" in our model (TC-A,B,C,D):

- Among the 111 municipalities classified as Peripheral (IA-E) in the IA model, 5 have a Very High (TC-A) Territorial Capital, 16 have a High (TC-B), 38 have a Medium (TC-C) Territorial Capital, and 34 have a Low (TC-D) Territorial Capital;

- Among the 51 municipalities classified as Ultra-Peripheral (IA-F) in the IA model, 1 has a Very High (TC-A) Territorial Capital, 9 have a High (TC-B), 17 have a Medium (TC-C), and 10 have a Low (TC-D) Territorial Capital.

  Only 45 municipalities have a similar evaluation (IA-E/TC-E and IA-F/TC-F).

5. Discussion and Conclusions

Inner Peripheries are fragile European territories characterized by both peripherality and marginality features (e.g., population decline, low levels of economic potential and weak territorial cohesion). Therefore, current policy making and planning, especially in these contexts, need to define tailored strategies by considering local resources. The Italian case study offers an exploratory case study to analyse the current methodology implemented by the National strategy (SNAI), in order to describe and map the Inner Peripheries.

For this purpose, we defined an alternative evaluation based on the concept of the Territorial Capital, which proposes an articulated set of local-specific indicators, allowing for a more detailed analysis. Both AI and TC assume the diversity and complexity of the Italian peripheral areas as a starting point for suggesting an overlap between a 'national outlook' and different 'local outlooks', in order to "avoid both the 'illusion of a local project'—believing that the areas are equipped with all the economic and cognitive resources needed to carry out efficacious development strategies—and the 'unreality of a national project'—believing that a national strategy is capable of achieving its objectives without the input of local communities" ([35], p. 18).

The findings of this study demonstrate the potential of TC for effective local policy making and planning. The observation of the results obtained using the two models reveals a significative difference in the geographic location of peripheral areas. The 162 municipalities classified as peripheral by the IA classification are mainly located in the eastern areas of the Region, while the TC classification displays a more articulated pattern. The higher set of indicators, in fact, determines a better understanding of different factors that affect peripherality, as defined in the TC evaluation. Thus, the TC classification is often sensibly different from the IA model, suggesting that better knowledge of local context enables local authorities to focus on appropriate issues and actions for the specific territorial context.

The TC offers an extensive and integrated framework that allows for a customizable evaluation that involves clues for decision making, regarding strategic decision making and the evaluation of the impacts of specific interventions. The TC evaluation "measures" the current performance in a particular area of analysis (sub-capitals), but also provides information about the potential of the development of a territory in this area. Thus, TC supports the development of integrated strategies incorporating different sustainability priorities, such as increased occupational performance (rif. Human Capital), social cohesion (rif. Social Capital), cultural richness (rif. Cognitive Capital), accessibility (rif. Infrastructural Capital), innovation (rif. Productive Capital), institutional capacities (rif. Relational Capital), competitiveness in agriculture (rif. Environmental Capital) and settlement viability (rif. Settlement Capital). It is evident that strategies with less consideration of these aspects may be less effective, especially for the development of peripheral areas.

One limit of the proposed TC evaluation is that it does not consider agglomeration factors. Some indicators also need to be investigated at a larger scale because they are related to processes that cross the municipal boundaries. In this regard, the findings of this study are useful to further understand these territorial functional relations that are crucial to enhancing integrated, multi-sectoral, collaborative and inclusive policies and interventions. From this information can be identified best policies and planning for the diffusive impacts of actions within these areas.

Finally, a possible extension of this model can be the incorporation of new indicators to also cover the four Sustainable Development Goals (SDG 5, SDG 6 and SDG 14) that are not included in the current version. This is due to the difficult collection of data at

the municipal scale for all 377 Sardinian municipalities included in this study. This aspect needs more attention from the regional authorities who are responsible for local statistics. The selection of a set of indicators useful for monitoring and evaluating the SDG 14 targets is relevant in an island context such as Sardinia, where to prevent and reduce marine pollution from land-based activities (target 14.1), manage and protect marine and coastal ecosystems (target 14.2), and conserve coastal and marine areas (target 14.5) are actions that directly affect most of the regional territory.

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References

1. United Nations. *Resolution A/RES/70/1. Transforming Our World: The 2030 Agenda for Sustainable Development*; United Nations: New York, NY, USA, 2015.
2. Saiu, V.; Blečić, I. Sustainable Development Goals (SDGs) Evaluation for Neighbourhood Planning and Design. In *International Symposium: New Metropolitan Perspectives, Part of the Lecture Notes in Networks and Systems*; Calabrò, F., Della Spina, L., Piñeira Mantiñán, M.J., Eds.; Springer: Cham, Switzerland, 2022; Volume 482. [CrossRef]
3. Saiu, V.; Blečić, I.; Meloni, I. Making sustainability development goals (SDGs) operational at suburban level: Potentials and limitations of neighbourhood sustainability assessment tools. *Environ. Impact Assess Rev.* **2022**, *96*, 106845. [CrossRef]
4. Saiu, V.; Blečić, I.; Meloni, I.; Piras, F.; Scappini, B. Towards a SDGs based Neighbourhood Sustainability Evaluation Framework: A tool for assessing sustainability at the urban micro-scale. In *Urban Regeneration Through Valuation Systems for Innovation*; Abastante, F., Botero, M., D'Alpaos, C., Ingaramo, L., Oppio, A., Rosato, P., Salvo, F., Eds.; Springer: Cham, Switzerland, 2022; pp. 195–215.
5. Saiu, V.; Blečić, I.; Cocco, G.; Meloni, I. Urban Sustainability and SDGs Implementation Between Regional Strategy and Local Practice: Case of Sardinia. In *SDGs Europe Regulation*; Leal Filho, W., Dinis, M.A.P., Moggi, S., Price, E., Hope, A., Eds.; Springer International Publishing: Cham, Switzerland, 2022; pp. 1–32. [CrossRef]
6. OECD. *A Territorial Approach to the Sustainable Development Goals: Synthesis Report*; OECD: Paris, France, 2020. [CrossRef]
7. Zeng, X.; Yu, Y.; Yang, S.; Lv, Y.; Sarker, M.N.I. Urban Resilience for Urban Sustainability: Concepts, Dimensions, and Perspectives. *Sustainability* **2022**, *14*, 2481. [CrossRef]
8. Tanguay, G.A.; Rajaonson, J.; Lefebvre, J.-F.; Lanoie, P. Measuring the sustainability of cities: An analysis of the use of local indicators. *Ecol. Indic.* **2010**, *10*, 407–418. [CrossRef]
9. Blečić, I.; Saiu, V. Assessing Urban Green Spaces Availability: A Comparison Between Planning Standards and a High-Fidelity Accessibility Evaluation. In *Innovation in Urban and Regional Planning*; Springer: Cham, Switzerland, 2021; Volume 146, pp. 339–347. [CrossRef]
10. Neto, P. EU Cohesion Policy post-2020, European Green Deal and Territorial Agenda 2030. The future of the place-based approach in the new EU policy framework in the context of COVID-19. *Eur. XXI* **2020**, *38*, 33–50. [CrossRef]
11. Ruidisch, R. Territorial Cohesion and Border Areas. In *Borders and Border Regions in Europe: Changes, Challenges and Chances*; Lechevalier, A., Wielgohs, J., Eds.; Transcript Verlag: Bielefeld, Germany, 2013; pp. 95–110.
12. Bertolini, P.; Pagliacci, F. Quality of life and territorial imbalances. A focus on italian inner and rural areas. *Bio-Based Appl. Econ. J.* **2017**, *6*, 183–208.
13. Oppido, S.; Ragozino, S.; De Vita, G.E. Exploring Territorial Imbalances: A Systematic Literature Review of Meanings and Terms. In *New Metropolitan Perspectives*; Bevilacqua, C., Calabrò, F., Della Spina, L., Eds.; Springer International Publishing: Cham, Switzerland, 2020; pp. 90–100. [CrossRef]
14. Eurofound. *Quality of Life in Urban and Rural Europe*; Publications Office of the European Union: Luxembourg, 2014. Available online: https://www.eurofound.europa.eu/nb/publications/foundation-findings/2014/quality-of-life-social-policies/foundation-findings-quality-of-life-in-urban-and-rural-europe (accessed on 29 December 2022).
15. Barca, F.; McCann, P.; Rodríguez-Pose, A. The case for Regional Development Intervention: Place-Based versus Place-Neutral Approaches. *J. Reg. Sci.* **2012**, *52*, 134–152. [CrossRef]

16. ESPON; GEOSPECS. European Perspective on Specific Types of Territories. 2012. Available online: https://www.espon.eu/sites/default/files/attachments/GEOSPECS_Final_Report_v8___revised_version.pdf (accessed on 1 April 2022).
17. Noguera, J.; Ortega-Reig, M.; del Alcàzar, H.; Copus, A.; Berlina, A.; Moodie, J.; Mantino, F.; Forcina, B.; Weck, S.; Beißwenger, S.; et al. PROPHECY—Processes, Features and Cycles of Inner Peripheries in Europe. Final Report: Executive Summary. December 2017. Available online: https://www.espon.eu/sites/default/files/attachments/D5%20Executive%20Summary%20PROFECY.pdf (accessed on 1 April 2022).
18. Favargiotti, S.; Pasquali, M.; Chioni, C.; Pianegonda, A. Water Resources and Health Tourism in Val di Sole: Key Elements for Innovating with Nature in the Italian Inner Territories. *Sustainability* **2022**, *14*, 11294. [CrossRef]
19. ESPON. Inner Peripheries in Europe. Possible Development Strategies to Overcome Their Marginalising Effects. 2018. Available online: https://www.espon.eu/sites/default/files/attachments/ESPON-Policy-Brief-Inner-Peripheries.pdf (accessed on 1 April 2022).
20. Copus, A.; Mantino, F.; Noguera, J. Inner Peripheries: An oxymoron or a real challenge for territorial cohesion? *Ital. J. Plan Pract.* **2017**, *7*, 24–49.
21. De Toni, A.; Vizzarri, M.; Lasserre, B.; Carrosio, G.; Sallustio, L.; Di Martino, P. Inner peripheries: Dealing with peripherality and marginality issues within the European policy framework. *TERRA Rev. Desarro. Local* **2020**, 24. [CrossRef]
22. Noguera, J.; Copus, A. Inner Peripheries: What are they? What policies do they need? *Agriregionieuropa* **2016**, *45*. Available online: https://agriregionieuropa.univpm.it/it/content/article/31/45/inner-peripherieswhat-are-they-what-policies-do-they-need (accessed on 1 December 2022).
23. Pileček, J.; Jančák, V. Theoretical and Methodological Aspects of the Identification and Delimitation of Peripheral Areas. *AUC Geogr.* **2011**, *46*, 43–52. [CrossRef]
24. Servillo, L.; Russo, A.P.; Barbera, F.; Carrosio, G. Inner Peripheries: Towards an EU place-based agenda on territorial peripherality. *Ital. J. Plan Pract.* **2016**, *6*, 42–75.
25. Schürmann, C.; Ortega-Reig, M.; Noguera, J.T. PROFECY—Processes, Features and Cycles of Inner Peripheries in Europe. Final Report: Executive Summary. 2017. Available online: https://www.espon.eu/sites/default/files/attachments/D5%20Final%20Report%20PROFECY.pdf (accessed on 10 January 2022).
26. Giuffrida, S.; Trovato, M.R.; Strigari, A.; Napoli, G. "Houses for One Euro" and the Territory. Some Estimation Issues for the "Geographic Debt" Reduction. In *New Metropolitan Perspectives*; Bevilacqua, C., Calabrò, F., Della Spina, L., Eds.; Springer International Publishing: Cham, Switzerland, 2021; pp. 1043–1052. [CrossRef]
27. Bachtler, J.; Martins, J.O.; Wostner, P.; Zuber, P. *Towards Cohesion Policy 4.0: Structural Transformation and Inclusive Growth*; Routledge: London, UK, 2019.
28. Italian Agency for Territorial Cohesion. OpenCoesione—Strategia Nazionale Aree Interne. 2021. Available online: https://opencoesione.gov.it/en/strategie/AI/ (accessed on 3 December 2022).
29. Carrosio, G. A place-based perspective for welfare recalibration in the italian inner peripheries: The case of the italian strategy for inner areas. In *Inner Peripheries and Peripheralization Processes in Europe*; Osti, G., Bock, B., Eds.; Franco Angeli: Milano, Italy, 2016; pp. 50–64.
30. De Toni, A.; Vizzarri, M.; Di Febbraro, M.; Lasserre, B.; Noguera, J.; Di Martino, P. Aligning Inner Peripheries with rural development in Italy: Territorial evidence to support policy contextualization. *Land Use Policy* **2021**, *100*, 104899. [CrossRef]
31. Romagnoli, L.; Di Renzo, P.; Mastronardi, L. Modelling Income Drivers in Peripheral Municipalities: The Case of Italian Inner Areas. *Sustainability* **2022**, *14*, 14754. [CrossRef]
32. Rossitti, M.; Torrieri, F. Circular economy as 'catalyst' for resilience in inner areas. *Sustain. Mediterr. Constr.* **2021**, *Special Issue 5*, 64–67.
33. Camagni, R.; Capello, R. Regional Competitiveness and Territorial Capital: A Conceptual Approach and Empirical Evidence from the European Union. *Reg. Stud.* **2013**, *47*, 1383–1402. [CrossRef]
34. Farrell, L.; Thirion, S.; Soto, P. Territorial Competitiveness: Creating a Territorial Development Strategy in Light of the LEADER Experience. "Rural Innovation", Dossier n. 6—Part1, Leader European Observatory. December 1999. Available online: http://www.esponinterstrat.eu/admin/attachments/ZLcompetitivity.pdf (accessed on 1 April 2022).
35. Barca, F.; Casavola, P.; Locatelli, S. A Strategy for Inner Areas in Italy: Definition, objectives, tools and governance. Public Invest. Eval. Unit (UVAL) 2014, Ser. 31. Available online: https://www.agenziacoesione.gov.it/wp-content/uploads/2020/07/MUVAL_31_Aree_interne_ENG.pdf (accessed on 1 January 2022).
36. Blečić, I.; Cecchini, A.; Saiu, V.; Trunfio, G.A. Evaluating Territorial Capital of Fragile Territories: The Case of Sardinia. In *Computational Science and Its Applications—ICCSA 2022 Workshops*; Gervasi, O., Murgante, B., Misra, S., Rocha, A.M.A.C., Garau, C., Eds.; Springer International Publishing: Cham, Switzerland, 2022; Volume 13379, pp. 531–545. [CrossRef]
37. Copus, A.K. From Core-periphery to Polycentric Development: Concepts of Spatial and Aspatial Peripherality. *Eur. Plan Stud.* **2001**, *9*, 539–552. [CrossRef]
38. ESPON. Transport Services and Networks: Territorial Trends and Basic Supply of Infrastructure for Territorial Cohesion, Final Report for Espon Project 1.2.1. 2004. Available online: https://www.espon.eu/sites/default/files/attachments/fr-1.2.1-full.pdf (accessed on 1 April 2022).

39. European Commission; Keeble, D.; Walker, S.; Offord, J. Peripheral regions in a Community of twelve Member States. *Publ. Off.* 1990. Available online: https://op.europa.eu/en/publication-detail/-/publication/ebec1d79-c745-4898-89e5-052d6ccd82da (accessed on 1 April 2022).
40. Schürmann, C.; Talaat, A. The European peripherality index. In Proceedings of the 42nd Congress of the European Regional Science Association: "From Industry to Advanced Services—Perspectives of European Metropolitan Regions", Dortmund, Germany, 27–31 August 2002; European Regional Science Association (ERSA), Louvain-la-Neuve. Available online: https://www.econstor.eu/handle/10419/115681 (accessed on 5 April 2022).
41. Wegener, M.; Eskelinnen, H.; Fürst, F.; Schürmann, C.; Spiekermann, K. *Indicators of Geographical Position. Final Report of the Working Group "Geographical Position" of the Study Programme on European Spatial Planning*; IRPUD: Dortmund, Germany, 2000.
42. Pérez-Soba, M.; van Eupen, M.; Roupioz, L.; Schuiling, R.; Gloersen, E.; Michelet, J.F.; Corbineau, C.; Giraut, F. *GEOSPECS: Inner Peripheries: A Socio-Economic Territorial Specificity*; ESPON Coordination Unit: Luxemburg, 2012.
43. Nijkamp, P. The universal law of gravitation and the death of distance. *Rom. J. Reg. Sci.* **2013**, *7*, 1–10.
44. Bock, B.B. Rural Marginalisation and the Role of Social Innovation; A Turn Towards Nexogenous Development and Rural Reconnection. *Sociol. Rural* **2016**, *56*, 552–573. [CrossRef]
45. Ferrara, A.R.; Dijkstra, L.; McCann, P.; Nisticó, R. The response of regional well-being to place-based policy interventions. *Reg. Sci. Urban Econ.* **2022**, *97*, 103830. [CrossRef]
46. Barca, F. *An Agenda for a Reformed Cohesion Policy. A Place-Based Approach to Meeting European Union Challenges and Expectations*; Independent Report prepared at the request of Danuta Hübner, Commissioner for Regional Policy; EU Commission: Brussels, Belgium, April 2009. Available online: https://www.europarl.europa.eu/meetdocs/2009_2014/documents/regi/dv/barca_report_/barca_report_en.pdf (accessed on 1 April 2022).
47. Akademie für Raumforschung und Landesplanung. The Territorial Cohesion Principles: Position Paper to the EU Green Paper on Territorial Cohesion. Position Paper from the ARL, No. 78. 2008. Available online: https://www.econstor.eu/bitstream/10419/102791/1/pospaper_78.pdf (accessed on 1 December 2021).
48. European Commission. Territorial Agenda of the European Union 2020: Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions. Agreed at the Informal Ministerial Meeting of Ministers Responsible for Spatial Planning and Territorial Development on 19th May 2011 Gödöllő, Hungary 2011. Available online: http://www.eu2011.hu/files/bveu/documents/ta2020.pdf (accessed on 6 May 2022).
49. European Commission. Territorial Agenda 2030. "A future for all places". Adopted at Informal meeting of Ministers responsible for Spatial Planning and Territorial Development and/or Territorial Cohesion 1 December 2020, Germany 2020. Available online: https://territorialagenda.eu:443/ta2030/ (accessed on 7 May 2022).
50. Rolando, D.; Rebaudengo, M.; Barreca, A. Exploring the Resilience of Inner Areas: A Cross-Dimensional Approach to Bring Out Territorial Potentials. In *New Metropolitan Perspectives*; Bevilacqua, C., Calabrò, F., Della Spina, L., Eds.; Springer International Publishing: Cham, Switzerland, 2022; pp. 182–190. [CrossRef]
51. Silva, B. Italian Policies on Marginal Territories: An Overview. In *Cycling & Walking for Regional Development*; Pileri, P., Moscarelli, R., Eds.; Springer International Publishing: Cham, Switzerland, 2021; pp. 49–60. [CrossRef]
52. Dematteis, G.; Governa, F. (Eds.) *Territorialità, Sviluppo Locale, Sostenibilità: Il Modello SLoT.*; Franco Angeli: Milano, Italy, 2005.
53. Camagni, R. Regional Competitiveness: Towards a Concept of Territorial Capital. In *Modelling Regional Scenarios for the Enlarged Europe*; Capello, R., Camagni, R., Chizzolini, B., Fratesi, U., Eds.; Springer: Berlin/Heidelberg, Germany, 2008; pp. 33–47. [CrossRef]
54. Camagni, R. Territorial Capital and Regional Development. In *Handbook of Regional Growth and Development Theories*; Capello, R., Nijkamp, P., Eds.; Edward Elgar: Cheltenham, UK, 2009; pp. 118–132.
55. Franzato, C. Il capitale territoriale come porta d'accesso al progetto e al design del territorio. *Glob. Manag.* **2009**, *16*, 19–30.
56. De Rubertis, S.; Mastromarco, C.; Labianca, M. Una Proposta per la Definizione e Rilevazione del Capitale Territoriale in Italia. *Bollettino della Associazione Italiana di Cartografia* **2019**, *165*, 24–44. [CrossRef]
57. Amodio, T.; Bencardino, M.; Iovino, G. Emerging Topics in Italy: The Territorial Capital Value. *Boll. Della Soc. Geogr. Ital.* **2019**, *14*, 75–89. [CrossRef]
58. Brasili, C. (Ed.) *Gli Indicatori per la Misura del Capitale Territoriale*; Rapporto di ricerca Regio Cycles & Trends: Bologna, Italy, 2012.