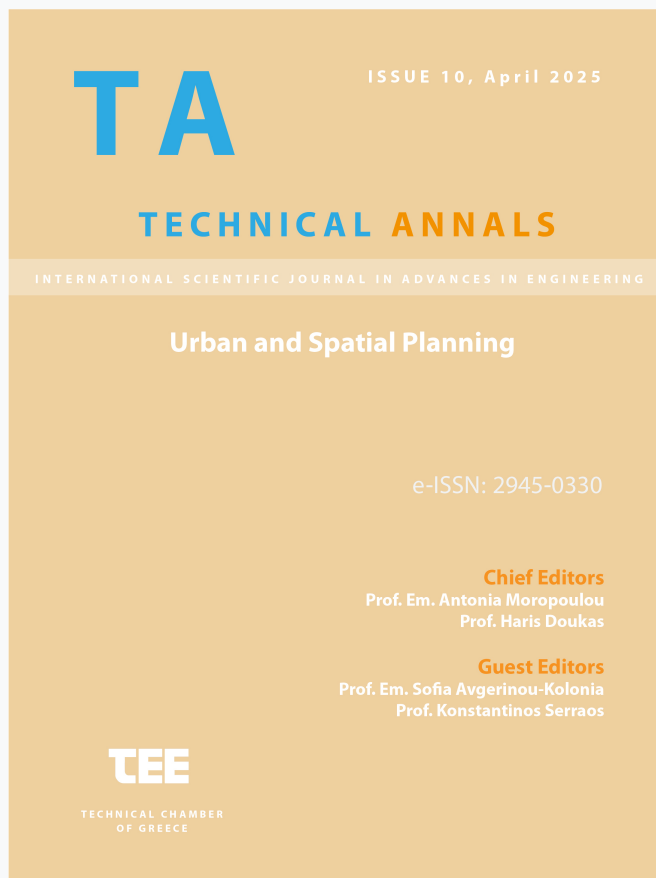


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Athanasios Voulgaris, Anastasia Tasopoulou, Dimitris Kallioras, Evangelos Asprogerakas

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Synergies between spatial and development planning in Greece. The case of industry

Voulgaris Athanasios^[0009-0007-9413-3435], Tasopoulou Anastasia^[0000-0002-6367-215X],
Kallioras Dimitris^[0000-0003-3060-3745] and Asprogerakas Evangelos^[0000-0002-9709-1708]

Department of Planning and Regional Development, University of Thessaly,
Pedion Areos, 38334, Volos, Greece
atasopoulou@uth.gr

Abstract. This study examines the interplay between spatial and development planning systems, emphasizing its critical role in shaping spatial development and implementing policy objectives. The interaction between these systems significantly impacts planning effectiveness, with optimal integration being a key concern of the European Union's development strategy. Greece encounters persistent challenges in linking these systems, which hinders sustainable development opportunities and the advancement of critical sectors like industry, resulting in multifaceted side-effects. This paper seeks to uncover synergies and propose solutions to enhance integration, using the sector of industry as a case study to illustrate the consequences of insufficient integration. It employs an approach that analyzes these matters at all tiers of spatial and developmental planning, ranging from the national to the local level. Stronger cooperation between planning authorities, better alignment of industrial investment initiatives with spatial policies, effective decentralization to redistribute industrial activity, and the promotion of organized industrial zones constitute some policy recommendations aimed at addressing weak synergy, inconsistency, and insufficient coordination of development options with spatial arrangements.

Keywords: spatial planning, development planning, system, industry, Informal Industrial Concentrations, Greece

1 Introduction

Spatial planning is a fundamental responsibility of the state apparatus and serves as a crucial component for the spatial development and evolutionary growth of a territorial area. The concept is complex and multifaceted, serving as an intervention process that affects the future spatial distribution of activities and their interconnections. It aims to fulfill specific policy objectives directly related to the respective spatial system [1,2]. In contemporary literature, spatial planning encompasses far more than mere land use planning and regulatory action [3]. Its role fluctuates based on the level of reference: it acts as a guide for spatial development and a mechanism for the allocation of economic activity and social welfare at the national level, as a tool that shapes development at the regional level, and as an instrument for regulating land use and property at the local

level [3,4]. While primarily a public sector activity involving various levels (central, regional, local), its successful conception and implementation necessitate an understanding of private sector processes and market dynamics. It includes measures that aim to coordinate the spatial impacts of various sectoral policies, striving to reconcile frequently conflicting policy objectives. This specific “quality” of spatial planning often leads to a recurring issue of insufficient cooperation among different policies and their wider spatial implications [4-7].

According to Boudeville [8], spatial planning evolves over time through the interplay of two systems: the spatial planning system and the development planning system [as cited in 9]. A planning system constitutes “the combination of legal, institutional and other arrangements in place in a country or region for undertaking spatial planning” [6]. Spatial planning systems demonstrate a dynamic interaction of stability and change. They provide planning experts with consistent and reliable principles for spatial planning based on organizational and judicial settings at a certain time and place [10 as cited in 11]. They comprise three essential elements: central-local interactions, the importance of the institutional framework in the political-administrative process, and state-citizen relations [12].

Development planning systems focus on the economic dimension of planning, namely on the arrangement and organization of space, mainly through the enhancement of the quality and adequacy of production systems, at various scales. In particular, development planning systems refer to a combination of actions by which the government seeks to shape, direct, and control the structure and allocation of its economic resources and activities [13 as cited in 14]. Its primary objective is to address social, economic, and spatial issues while simultaneously leveraging the inherent traits and assets of each region for its continued development. Development planning is fundamentally regulated by essential principles and conditions, including its long-term orientation, the involvement of organizations responsible for executing the planning programs, and its holistic nature, as it encompasses dimensions beyond the economic sphere [9,15–18].

The degree of interaction between the two systems substantially influences the effectiveness of planning and specific policies. Wassenhoven et al. [19] indicate that the relationship between the two systems exemplifies a State's long-term vision to influence its future identity through planning. Nevertheless, their optimal integration can be achieved based on the way in which spatial and development policies are intertwined, the planning tools used, and the actors involved. This is a principal concern of the EU's development strategy, articulated within the framework of broader initiatives aimed at ensuring economic, social, and territorial cohesion. The necessity to integrate spatial and development planning resulted in a succession of institutional actions that peaked in the mid-1980s and the 1990s.

The enactment of the Single European Act (SEA) (year 1986) set the programming framework for European integration and a strategic plan for the integration of the European space [18,20]. Actually, with the enactment of the SEA, Cohesion Policy is institutionalized as an official policy of the EU. The implementation of Cohesion Policy is directly linked to the achievement of economic and social cohesion between EU regions, as a necessary condition for achieving the goal of the Single European Market (SEM). The SEA highlights the notion that the SEM can bring about differentiated

spatial effects [21,22], as a result of the inability of the market to create optimal economic space conditions [79]. Since then, the EU has made efforts to broaden the issue of spatial policy in the light of regional development, either institutionally (e.g. Maastricht Treaty in 1992, Amsterdam Treaty in 1997) or at a programmatic level (e.g. Europe 2000 report, Europe 2000+ report) [23–25]. The above efforts culminated in the approval of the European Spatial Development Perspective in 1999, a plan which, in the context of ensuring the sustainable operation, organization and development of the EU's spatial network, established the first common framework of institutions, objectives and political directions of the Union's spatial policy and contributed to the gradual change in the design of regional policy [19,26,27].

During the 2000s, the EU was also significantly strengthened in the field of "monitoring", through the launching of new bodies that would ensure the necessary spatial information for the formulation and coordination of sectoral program policies (e.g. the European Spatial Planning Observatory Network – ESPON, and the Subcommittee for the Spatial and Urban Development) [28,29]. The Cohesion Reports that followed emphasized the need for institutional (and especially constitutional) enshrining of the spatial dimension of regional development, so that EU member states could adapt their national and regional planning to a common framework of development and spatial strategies [30]. Under this perspective, the EU proceeded with its constitutional revision with the Treaty of Lisbon (year 2007), in which the territorial dimension of development policies was enshrined and summarized in the concept of "territorial cohesion" [25,28,31]. On the basis of the Treaty of Lisbon, the EU also promoted programmatic interventions that directly addressed the issue of territorial cohesion, such as the preparation of the "Leipzig Charter" (year 2007), the adoption of the "Territorial Agenda for the European Union" (year 2007) and the introduction of the "Green Paper on Territorial Cohesion" (year 2008). At the same time, a significant contribution to strengthening the "place-based approach" of the Cohesion Policy was the "Barca report" (year 2009) [32-35] which, among other things, emphasizes the need for the member-States to review their national strategies, so as to form an integrated system of spatial and development planning. Thus, the interplay between spatial and development planning has been a focus of concern in numerous European countries.

In Portugal, where the spatial planning system has been profoundly shaped by the "Napoleonic" framework [36 as cited in 37], policies for the integrated territorial development of important country's development sectors (infrastructure, transport, energy, industry, industry, tourism, agriculture, etc.) are defined by the Sectoral Programmes (*Programas Setoriais* – PS). The Specific Programmes (*Programas Especiais* – PE) contain the guidelines for the sustainable management and protection of natural resources of national importance (coasts, rivers, archaeological sites, etc.) and, together with the PS, complete the National Programme of Territorial Planning Policies (*Programa Nacional da Política de Ordenamento do Território* – PNPOT). At the regional level, the Regional Programmes (*Programa Regional de Ordenamento do Território* – PROT) specify the PNPOT guidelines in each regional unit and are directly linked to the framework of the Regional Operational Programmes (POR), in order to ensure the optimal adaptation of investments in the Portuguese territory. At the local level, the strategic directives established by the national and regional programmes are executed

through Master Plans (*Plano Director* – PD), Urban Development Plans (*Plano de Urbanização* – PU) and Detailed Local Plans (*Plano de Pormenor* – PP). PD serve as strategic spatial and development policy frameworks, shaping the territorial and development model of each municipality according to their specific characteristics. PUs and PPs focus on the organisation of land use, providing specific guidelines for certain areas (urban, rural, tourist, etc.) [38].

In Ireland, where the spatial planning system was based on the principles of the Anglo-Saxon model [39,40], significant efforts have been made in recent years to improve the degree of integration of spatial policies with development choices. These efforts concerned the alignment of the proposed investments of the National Development Plan (NDP) for the balanced regional development of the country's urban centres with the basic principles and proposals of the National Spatial Strategy (NSS) [41]. Currently, the National Planning Framework (NPF) governs the country's spatial policy, and its strategies determine the content of the development and spatial plans at the underlying planning levels. The Regional Spatial and Economic Strategies (RSES) attempt to distribute and organise economic development fairly and evenly across Ireland's three regions, as well as define each region's long-term economic and spatial pattern. Finally, Development and Local Area Plans (LAPs) define the structure and organization of space at the local level, as well as each municipality's development priorities in accordance with national and regional policies [42,43].

The Danish spatial planning system is based on the principles of decentralization, framework control and public participation [44]. The National Planning Report (NPR) serves as the primary spatial policy framework delineating the vision and thematic priorities for the country's spatial development. The NPR is accompanied by the Overview of National Interests in Municipal Planning (*Oversigt over Ænationale Interesser i Kommuneplanlægning*), a binding framework of principles and objectives that safeguards Denmark's national interests, to which the corresponding municipal plans must conform. The local government is paramount in the Danish spatial planning framework, formulating three categories of plans: Strategies for Planning (SP – *Planstrategi*), Municipal Plans (MP – *Kommuneplan*), and Local Plans (LP – *Lokalplan*). The SP and MP establish objectives and strategies for the economic, social and developmental advancement of the Municipalities, encompassing precise directives for the organization of land use. Conversely, the LP are regulatory frameworks that furnish comprehensive regulations for land utilization, infrastructure, housing, and other aspects, enabling the pertinent municipal authority to delineate the urban planning paradigm of each locality. At the regional level, regions formulate Regional Development Strategies (*Regional Udviklingsstrategi*), which are strategically oriented and concentrate on development planning and regional development [45,46].

Greece has historically experienced a deficiency in the connection between spatial and development planning, a challenge that persists despite recent programmatic and institutional efforts. The inadequate horizontal linkage between spatial planning and development programs at each spatial level severely influenced the advancement of essential productive activities, such as the industry sector.

This paper aims to explore potential synergies between spatial and development planning in Greece, identify the key elements contributing to the enduring distance

between the two systems, and propose possible ways to address the issue. The paper employs an approach that examines these issues across all levels of spatial and development planning, from the national to the local level. The industry sector serves as the case study for this research, owing to its persistent failure in achieving rational and integrated spatial organization and development over time. The presentation of the Kalochori Informal Industrial Concentration in northern Greece highlights the spatial ramifications of inadequate integration within spatial planning policy and the disjunction between the two systems.

2 Spatial and development planning in Greece: A brief overview of two parallel systems

In Greece the concurrent development of the two systems, spatial and development planning, has been, diachronically, observed [8 as cited in 9]. Spatial planning system and development planning system were formulated very recently as integrated policies, and to this day, each system has forged its own distinct path.

The first integrated spatial planning "system" at the institutional level was established in the late 1990s (L. 2508/1997 and L. 2742/1999), providing a systematic and formal hierarchy of plans from the national to the local level [11]. According to this system, the first national and regional spatial plans, referred to as "Frameworks", were put into effect as well as several local urban plans that covered approximately 20% of Greek territory, defining land uses and building regulations (former Deputy Minister of the Environment and Energy, statement June 2018, 2020). The majority of these local urban plans were drawn up before the issuance of the Frameworks, rendering the need for lower tiers to conform to higher tiers effectively obsolete [11]. The low level of integration might be also attributed to the "polyphony" in the theory and methodology of planning practice [47].

Over the following decade, a series of legislations were issued that aimed at either reforming the country's administrative structure (L. 3852/2010) or aligning with EU directives (such as L. 3827/2010 which incorporated the European Commission's guidelines for the integrated and sustainable development and conservation of each country's natural and productive resources) [2,48]. Simultaneously, the memorandum obligations to tackle the economic crisis which arose in 2008-2009 were coupled with the introduction of various laws regarding the restructuring of procedures for sectoral activities, particularly in the industrial and business sectors. These new provisions increased the reliance of spatial planning on private sector resources and development activities [49] and created a parallel planning framework that bypassed the current official planning system [3,50,51 as cited in 11]. The above developments necessitated a recalibration of the spatial planning system, in accordance with a "liberalizing" trend [52].

The current version of L. 4447/2016, entitled "Spatial and Urban Planning Reform - Sustainable Development" (GG 241A/23.12.2016, it replaced L. 4269/2014), exemplifies the efforts during the crisis and post-crisis period to address past problems, including the alignment of planning levels with the implementation of development planning

and the improvement of coordination among development, sectoral, and spatial policies (Explanatory Report on L. 4447/2016). According to this law as in force, *“the main spatial planning system includes all spatial planning frameworks and urban plans..., as they are systematically structured and hierarchically arranged in levels, based on the geographical scale to which they refer, their mission and content. The broader spatial planning system includes all legislative and regulatory acts of spatial and urban planning”*. This planning system provides two levels: (a) National and regional spatial plans are strategic and include medium-term or long-term objectives, guidelines for spatial development and economic activities, and provisions for the protection of sensitive areas; and (b) Urban plans at the local level are regulatory, governing land uses, plot ratios, etc. bi) Local Urban Plans (LUPs) (formerly General Urban Plans (GUPs)) regulate the sustainable spatial organization and development of municipalities, bii) Special Urban Plans (SUPs) cover spatial interventions and strategic investment projects (of public and private interest) regardless of administrative boundaries, and biii) street layout Implementation Plans delineate, at the scale of a city, settlement, or specific zones, the regulations of the LUPs and SUPs concerning land uses and building conditions. All the upper tier frameworks are binding for the lower tier urban and local plans [53,54].

At the end of the previous decade, the Regional Spatial Planning Frameworks were modified, while the Special (national sectoral) Spatial Planning Frameworks are presently undergoing revision. The recent initiation of an Urban Planning Reform Program, named "Konstantinos Doxiadis," financed by the Recovery and Resilience Fund (RRF), aims to achieve urban planning coverage for 80% of the Greek territory by the end of 2025. The implementation of integrated planning has been claimed to address the necessity for fostering investments and initiatives capable of revitalizing the national economy and growth rates, which are presently hindered by disorganized construction, inadequate planning, outdated plans, and legal ambiguity [55,56].

Regarding the development planning system, EU regional policy (i.e., Cohesion Policy) complements and coordinates – without replacing – national regional policies. This means that EU regional policy is a subset of regional policy in the EU, as the latter also includes national regional policies. This refers to the possibility for each EU Member State to pursue its national regional policy towards achieving development objectives that do not fall within the scope of EU regional policy and are therefore not (co)financed by it. Of course, concerning Greece the structure and the evolution of the national development policy shows absolute identification with the European one. Such a situation had a solid foundation already from the late 1980s and the early 1990s. During the period 1989-2019, the European regional policy is organically linked to the regional policies of the EU countries, and, in particular, to the regional policy of Greece, and regional development planning is part of the wider development framework of the European space. In this direction, multi-year planning (i.e., Programming Periods) is introduced and corresponding multi-year regional development programs are formulated. These programs refer to the Programming Periods 1989-93, 1994-99, 2000-06, 2007-13, 2014-20, and 2021-27. Within each Programming Period, the resources of the European Structural and Investment Funds (ESIFs) are distributed, and the regional development policy is formulated based on the strategic objective that has been set.

In the direction of the more effective implementation of the EU Cohesion Policy, starting from the Programming Period 2014-20, the approach of implementing place-based development policies [32–35] is gaining ground. The implementation of regional policy in the light of the place-based approach is based on the one hand on the recognition of the importance of the geographical context, and especially of its social, cultural and institutional manifestations, and on the other hand on the admission of the lack of sufficient knowledge about the spatially localized development issues on behalf of the superior planning bodies due to the lack of (sufficient) engagement with the relevant underlying actors and institutions. The place-based approach to the implementation of regional policy advocates addressing development obstacles and exploring the development potential of individual spatial entities (sub-regional, inter-regional, urban, rural, urban-rural) on the basis of a combination of interventions and at the initiative of local development bodies [18]. The EU Cohesion Policy provides the possibility of utilizing (new) tools which transform the theoretical construct of the place-based approach into real actions of ISD. The tools of ISD are summarized in ITI, SUD, and CLLD and define a number of parameters (types and selection criteria of spatial entities, content and evaluation criteria of policies, objectives, priorities and funding of actions) as well as the synergies with the actions of the relevant regional development programs.

The sub-period from 2020 onwards is marked by the establishment of the RRF. This is the central pillar of the financial instrument NGEU which was created in response to the need to deal with the effects of the COVID-19 pandemic [57–60]. Being an indirect “confession” of the inadequacies of the market – which had already been demonstrated during the period of the economic crisis (period 2008–2015) [61] – and the weaknesses of the EU Cohesion Policy until then, the establishment of the RRF may signal the evolution of the EU Cohesion Policy and constitutes a leap in the direction of the fiscal integration of the EU. The RRF can develop into an established practice to the extent that the absorption of its resources occurs in a smooth manner and brings multiplier benefits to their recipients.

Concerning the national aspect of the development policy in Greece, probably the most important element is the enactment of the so-called Development and Investment Laws (L. 3299/2004, L. 3908/2011, L. 4399/2016, L. 4635/2019, and L. 4887/2022 the most recent ones). The latter are commonly used regional policy means of reducing unemployment and stimulating economic growth in peripheral and lagging regions (with positive implications for the national economy). Their enactment aimed at increasing the supply of new businesses (both domestic and foreign) as well as their survival and growth at the early stages of their existence [62–64].

3 The sector of industry as a case of synergy between spatial planning system and development planning system

By studying the structural composition and evolution of the spatial planning system and the development planning system in Greece, one can easily identify the inadequacy or, at the very least, the challenges in linking spatial and development planning [15].

This issue becomes even more apparent when analyzing specific activities or sectors whose organization and development are shaped by the country's spatial and development policies. One such case – the most prominent one – is the sector of industry.

Industrial development in Greece first emerged in the early 1920s, and until today, its spatial structure and evolution are governed by two key characteristics. The first concerns the "ad hoc" location logic of industrial units across the Greek territory, either through the decisions of industrial investors or, in many cases, through the institutional encouragement of government policies [65,66]. The second characteristic relates to the "decentralization" policy, which was particularly promoted in the 1980s and was institutionally reinforced through frameworks that provided incentives for the deindustrialization of major urban centers such as Athens (the capital and the most populated city) and Thessaloniki (the second most populated city).

However, the lack of coherence and coordination between the tools of development and spatial planning, along with the governments' inertia in implementing spatial policies due to the absence of spatial plans, resulted in the uncontrolled spread of industrial units, leading to severe environmental and developmental issues in various areas of the country (such as Kalohori, Schimatari, and Corinth) [9].

In the field of spatial planning, the National Spatial Planning Framework (GG 128/A/2008, corresponding today to the National Spatial Strategy according to the current institutional planning framework) sets as a directive (Article 7) the coordination of institutional provisions of various spatial policies to better promote entrepreneurship and ensure transparency and legal certainty in the location of industrial units. In the implementation mechanisms (Article 12), it is stated as a prerequisite to strengthen cooperation between national spatial planning and development programming through the operation of a network of collaboration among the services of the relevant ministries. The main objective is to recognize the spatial dimension of development planning, which requires linking economic incentive legislation with specific geographic areas and goals set in the Spatial Planning Frameworks. Moreover, revising spatial and urban planning legislation to achieve a meaningful connection between spatial and development planning is needed.

In the Special Spatial Planning Framework for Industry (GG 151/2009), the disparity in development rates among the country's regions is attributed, among other factors, to the inability of regional development policies to mobilize private and direct investments that could help address structural weaknesses in the productive model. The guidelines for development planning (Article 10) call for Operational Plans to ensure adequate funding for new industrial zones and relocation incentives for industrial units. Additionally, project selection criteria should explicitly require alignment with the directions set by the Special Spatial Framework for Industry. Finally, the Action Program (Article 11) provides for the financing of measures and initiatives through the Operational Programs of the National Strategic Reference Framework (NSRF).

The key pillars of the legislative reforms promoted during the 2010s included strengthening the coordination between development, sectoral, and spatial policies. For example, Explanatory Report to Parliament on L. 4447/2016 highlights that the National Spatial Strategy serves as the foundation for coordinating spatial and regional

plans, investment strategies, as well as state and local government programs that influence national development and territorial cohesion [54].

As an example of the provisions of spatial planning on the regional level, the recently revised Regional Spatial Planning Framework (RSPF) for Central Macedonia (GG 485D/20.08.2020) includes guidelines that clearly demonstrate the integration of regional and spatial development dimensions and objectives into a unified strategy, linking the spatial component of planning with development priorities. This is particularly evident in Article 3, which defines the region's development model by incorporating proposals for spatial development and organization aligned with strategic development priorities, within a broader environment of interregional competition and the liberalization of international flows of goods and capital. The need to enhance competitiveness and the significance of new investments are emphasized. Additionally, the active involvement of the Ministry of Environment in the planning of the NSRF is deemed necessary to ensure compliance with the provisions of L. 4447/2016, which mandates the prioritization of projects and actions that promote the implementation of the RSPF for Central Macedonia within the region's development program.

At the local level, the technical specifications of the LUPs (GG 3545/B/2021, they have replaced the general urban plans) emphasize the need to establish a strong and balanced productive base, in accordance with the directions of development planning. This includes ensuring sufficient land allocation for the siting of necessary economic activities, particularly those that align with the comparative advantages of each region. However, no further guidelines are provided.

Concerning development planning, its interplay with the spatial planning system is examined at both the institutional and the programmatic dimension [9,17] The institutional dimension concerns the Development and Investment Laws. L. 3299/2004, in particular, contributes to the configuration of the investment landscape of the country through the increase of financial aid to businesses, the promotion of investments in new fields, and the strengthening of the technological development of SME. The national territory is divided into 3 zones, on the basis of developmental characteristics, and special incentives are provided for each zone. Law 3908/2011 sought to simplify the approval procedures for investment projects, while strengthening the audit controls and evaluation mechanisms of investment programs, thus increasing transparency and reducing bureaucracy. Law 4399/2016 sought to create new jobs and increase investment activity by setting the minimum amount of investment plans and restructuring tax incentives. Its most important innovations were the readjustment of the method by which investments were spatially distributed and the increase in investments related to the "Integrated Spatial and Sectoral Plans". Particularly, special reference is made to the spatial and sectoral approach of investment programs, which will contribute to the development of additional benefits for the region where they are developed. Perhaps the most decisive intervention in the development planning system was achieved with Law 4635/2019, which sought to attract strategic investment programs that contribute to the development of innovation, the increase in employment, the improvement of social services and the implementation of smart and green development projects. The most important aspect, however, is that it constituted an important chapter for the institutional arrangement of the National Development Planning and the National Policy of the

Public Investment Program (PIP). The Law is distinguished by its enhanced spatial character as provisions with a direct or indirect spatial footprint were included that concerned industrial activities, organized receptors and business parks (Articles 13, 11 and 12), as well as the single digital map (Article 4). The existing Law 4887/2022 added no new mechanisms towards strengthening the spatial dimension of development planning. It includes (article 7) specific provisions aimed at promoting investments in the field of the 4th industrial revolution by supporting investment projects that promote the adoption of advanced technologies (such as artificial intelligence, robotics and the Internet of Things). A particular spatial dimension is the strengthening of the areas included in the Just Development Transition Plan.

The programming dimension, mainly, concerns the “Competitiveness and Entrepreneurship” Operational Program that focuses on the sectoral development of industrial activity. Given its horizontal, sectoral, character, the aforementioned Operational Program for the Programming Period 2007-2013 does not adequately deal with the issue of the interplay of the two systems. However, the aforementioned Operational Program predicts that the institutional and programmatic integration of the National and Special Spatial Planning Frameworks for key development sectors (RES, Aquaculture, Tourism, Manufacturing) will play a decisive role in resolving the problems of locating business activities and in increasing the pace of investment implementation in special categories of activities. During the Programming Period 2007-2013 there is also the Regional Operational Program of Kentriki Makedonia that a special section (Section 2.10) in which development actions are analyzed for specific axes that have spatial characteristics (development poles, urban areas, mountainous areas, coastal areas, island areas, rural areas, areas related to fishing activity). During the period 2014-2020, both the “Competitiveness and Entrepreneurship” Operational Program and the Operational Program for Central Macedonia contain deal more emphatically with the issue of the interplay of the two systems, containing strategic directions that serve the policy of ISD. This situation reflects the place-based character of Cohesion Policy. In this light, strategies and actions that concerns ITIs, SUDs and CLLDs are promoted.

4 The spatial impacts of weak integration between spatial and development planning: The case of Kalochori Informal Industrial Concentration

The ineffectiveness of policies and the insufficient connection of spatial and development planning adversely impacted the spatial structure of the sector of industry in Greece. An illustrative example is the case of Kalochori, Thessaloniki, where the aforementioned deficiencies resulted in the establishment of one of the largest Informal Industrial Concentrations (IICs) in the entire country. IICs are characterized by intense economic activity, inadequate infrastructure, deficient urban planning, and environmental challenges (Article 41, paragraph 2 of L. 3982/2011). They are frequently located on the outskirts of large urban areas, and their proliferation in Greece is ascribed to the lack of an integrated spatial consideration of industry location, combined with the absence of a national industrial development policy [67]. According to Gourgiotis

et al [68], the phenomenon of IICs occurred in two periods: a) 1970–1990, during efforts to regulate industrial land use and protect the environment. Policies included the dissuasion of industrial businesses from launching new installations in the major urban agglomerations and the classification of industrial activities based on the type of nuisance they caused. Despite state policies, IICs continued to establish at the outskirts of major urban centers; b) 1990-2020, when investments declined, leading to the 2009 economic crisis. Institutional reforms and improvements allowed private firms to organize themselves in a business park or IIC.

According to the Operational Plan of the Ministry of Development for the establishment of business parks in Greece [69], the industrial concentration in Kalochori is one of nine (9) IICs located within the Regional Unit of Thessaloniki in the Region of Central Macedonia, encompassing a total area of 5,556 Ha. The industrial concentration at Kalochori covers an estimated surface area of 1,640 Ha and is situated within a broader zone of 4,253 Ha (Figure 1), designated as “IIC Oreokastro – Kalochori” in the Operational Plan. The overall number of firms in the “IIC Oreokastro - Kalochori” is approximately 1,845, with around 30% situated within the confines of the Kalochori concentration [70].

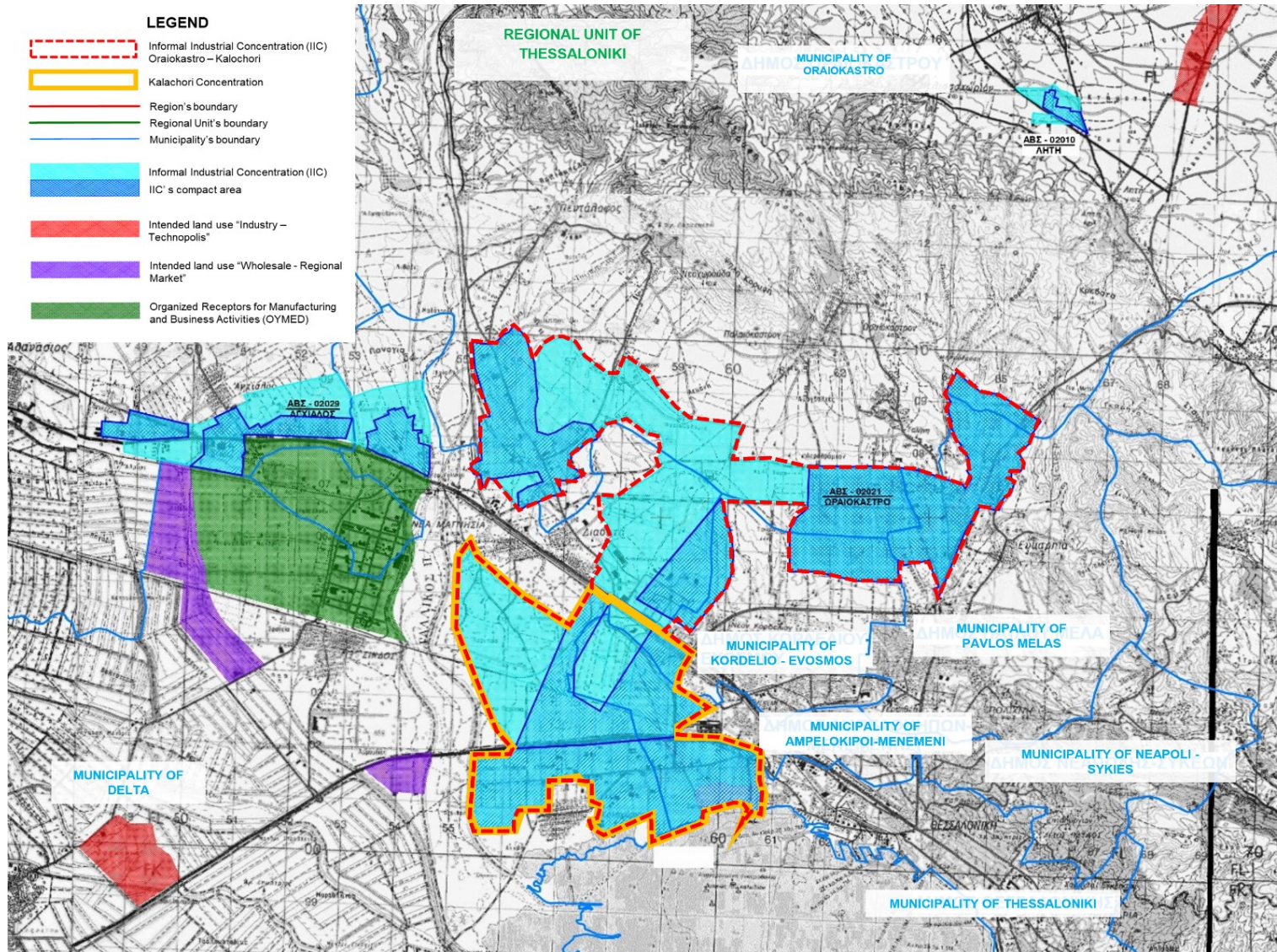


Fig. 1. Informal Industrial Concentrations (IICs) in Central Macedonia – Indication of “IIC Oreokastro – Kalochori (YPAN, 2020, https://www.ggb.gr/sites/default/files/basic-page-files/ABΣ-02_03_K_MAKEAONIA.pdf; Own Edit)

The main features of Kalochori IIC are its disordered urban planning and high building density, the lack of infrastructure, and the widespread urban and environmental problems. These characteristics are prevalent among all informal industrial clusters in the country and attributed to four main reasons. The first reason is that in the IICs, the provisions for "off-plan" construction apply. The development of industrial activity outside the "official" (i.e. planned) city boundaries is associated with the presence of inadequate technical infrastructure (such as road network, sewage system, waste treatment facilities) within the IIC, most of which fails to comply with requisite technical and quality standards. This evolution was significantly influenced by the choice to locate the industrial units in rural areas, far from central infrastructure networks, as well as by the private initiatives of the companies that bore financial responsibility and were compelled to independently design the requisite technical infrastructure. The ongoing execution of this practice, along with the lack of a thorough, cohesive, and carefully developed plan, adversely affects public health, ecosystems, and the overall natural and anthropogenic environment of the area. The second reason is due to the prohibition on the establishment of industries in organized receptors located in metropolitan areas (despite the recent exceptions for industries of medium environmental nuisance). The prohibitions are due to the fact that industries continued to establish in metropolitan areas despite the zero incentives granted by the Development and Investment Laws. The third reason pertains to the failure to identify suitable areas for the organized spatial development of productive activity. This failure can be ascribed, firstly, to the delay of spatial planning frameworks until at least the mid-2000s, resulting in a lack of clearly articulated and enforceable policy directives, and secondly, to the delay in approving regulatory plans at the local level and in activating existing organized industrial receptors. The fourth reason pertains to the capacity of the established organized receptors to address the actual needs of the sector, particularly in areas with increased demand. The Thessaloniki Industrial Area (namely *VIPE Sindou*), located near Kalochori and operational since 1970 (depicted in green in Figure 1), spans 940 Ha and, according to the Hellenic Federation of Enterprises [71] maintained a 96% occupancy rate until 2012. Therefore, the location of the industrial units took place linearly along the routes of Northern Greece's two major highways, PATHE and EGNATIA, lacking comprehensive planning and utilizing the stipulations of out-of-plan construction.

In addressing the integration of spatial and development planning within the study area, the prior Regional Spatial Planning Framework of Central Macedonia (GG 218D/2004) sought to achieve sustainable spatial organization of the secondary sector by determining the following immediate priorities: a) the establishment of new organized receptors for manufacturing activities, b) the resolution of industrial concentrations surrounding the Thessaloniki Urban Complex and other major urban centers, c) the modernization of the operational framework for existing Industrial Areas, d) the identification of new locations for the development of manufacturing and freight activities along critical transport networks of supra-local significance. It stipulated a range of actions such as anti-pollution initiatives in the Sindos Industrial Area and the organization of secondary and tertiary activity receptors in the peri-urban region of Thessaloniki, including the Kalochori area. The Regional Framework underscored the

importance of the local urban plans (GPUs) in addressing issues regarding the industrial concentrations through the implementation of appropriate spatial regulations.

The current Regional Spatial Planning Framework (GG 485D/2020), consistent with its predecessor, and with the objective of "restructuring manufacturing", proposes the establishment of new Organized Receptors for Manufacturing and Business Activities (namely *OYMED*), the expansion of existing industrial parks (e.g. *VIPE Sindos*), and the remediation of IICs, including Kalochori, in alignment with the directives of the overarching Special Spatial Planning Framework for Industry. The lower-level statutory plans (GUPs) must align with the same policy framework, promoting the development of *OYMED*, while simultaneously implementing measures to significantly restrict off-plan construction. No reference is made to aiding in the implementation of the Framework's guidelines via any type of development planning tool.

At the local level, the GUPs of the Municipal units of Echedoros (GG 304AAP/2011) and Menemeni (GG 73AAP/2016), which encompass Kalochori IIC, were not entirely aligned with the objectives of the Regional Spatial Planning Framework. While they defined organized receptors for manufacturing activity and the transformation of Kalochori IIC into a Business Park, they concurrently permitted the establishment of industrial and other production units outside these organized receptors, with the status of off-plan construction. Numerous industrial units coexist alongside primary sector activities, and urban planning permits their continued operation, upgrading, or expansion under certain conditions. In this instance also, there is no mention of employing development planning tools to facilitate the execution of the GUP. Only Menemeni's GUP Implementation Program states in general terms that the necessary studies and projects would be funded by "the Municipality's own resources – national and EU resources".

The logic of "ad hoc" location, as well as the widespread adoption of out-of-plan construction as a model of industrial spatial organization, hinder the ability of building a strong (institutionally, productively, and spatially) business ecosystem [9]. The contribution of the municipalities' development programs to the reversal of the above correlations is considered negligible, given a) their strategic nature, b) their one-dimensional development-economic approach, and c) the municipality's inability to define binding directions in its development model. A typical example is the two operational programs of the Municipalities of Delta and Ampelokipi - Menemeni in the study area for the period 2014–2019, which, while considering the spatial planning guidelines, do not include comprehensive actions for the qualitative upgrading and organization of the IICs.

5 Discussion and conclusions

While the integration of spatial and development planning has been examined at the EU level and in many countries, the article asserts that Greece continues to face persistent integration challenges. The paper's novelty is threefold. Firstly, it offers a country-specific analysis utilizing both prior research and a contemporary case study from the industry sector, yielding novel empirical insights. Addressing the primary issue of

planning integration within the industrial sector reveals how inadequate planning coordination can impede the advancement of this crucial economic sector. Secondly, the paper employs a multi-layered analysis by investigating planning integration difficulties across all governance levels, a perspective that has not been previously studied in the Greek context. Finally, an important outcome is the proposal of policy recommendations tailored to the Greek case.

The weak synergy, inconsistency, and insufficient coordination of development options with spatial arrangements compromise the integrated nature of planning, hinder opportunities for sustainable development, and impede the advancement of critical productive sectors such as industry. The preceding research highlighted the deficient vertical integration of spatial planning policy and its insufficient synergy with development planning in Greece. This is because the spatial and development planning systems in Greece, which are internally defined by vertically hierarchical, binding relationships, are insufficiently integrated. The absence of sufficient integration (or interplay) ultimately brings about multifaceted side-effects. The case of the formation of the IIC in Kalochori is notable, with implications for regional development planning, the organization of space, the environment and public health. This section concisely discusses the findings of the prior analysis and concludes with policy recommendations to address the issue.

The developmental aspect of spatial planning at the national, regional, and local levels remains insufficiently advanced, limiting the effective integration of spatial with development planning. Most spatial planning frameworks exhibit a deficiency in mechanisms and guidance for integration with development programs; when interconnection is attempted, it typically manifests merely as a statement about using development planning programs for funding spatial planning implementation.

Before the enactment of Laws 4269/2014 and 4447/2016, the competent body for coordinating spatial and development plans was the Government Policy Coordination Committee on Spatial Planning and Sustainable Development. The Committee was established in 1999 (Article 3 of Law 2742/1999, Government Gazette 207/A), and its responsibilities included:

- Designing a unified and coordinated policy for spatial planning and sustainable development at the national level and developing measures for its effective implementation
- Approving the General and Special Spatial Frameworks and aligning them with the broader governmental directions in the areas of economic policy, social cohesion, and quality of life
- Coordinating the implementing bodies of the aforementioned frameworks

The Committee's role was considered limited, and in 2014, it was abolished.

Today, the National Spatial Strategy (NSS) serves as a document outlining the fundamental principles for coordinating various policies with spatial implications. The NSS is drafted by the Ministry of Environment and Energy, in collaboration with the relevant ministries, and approved by the Council of Ministers, without having a binding character. For the preparation of the Special Spatial Frameworks, executive coordination and monitoring committees are established, comprising representatives of the competent ministries on a case-by-case basis. The NSS consists a fundamental framework

for the nation's spatial planning strategy, clearly aiming to integrate the two systems by coordinating the strategies and actions of the spatial frameworks, including the directives of development programs and the PIP. Nonetheless, the NSS has yet to be promoted.

At the same level, the Special Spatial Planning Framework for Industry, while considering the development planning framework for shaping and establishing the spatial structure of industrial (and other productive) activities, falls short of considerably strengthening the linkage. In contrast to its ambitious relevant programming aims, it eventually advocates development programs as the primary means of acquiring resources for action program implementation. The preceding demonstrates that the linkage of the two systems at the national level of spatial planning is inactive, particularly for a sector that is directly influenced by development programs (Development Laws, PIP, NSRF).

The current Regional Spatial Planning Framework of Central Macedonia, relevant to the case study of this paper, aims to strengthen its structure and approach to development planning by including the region's development model in combination with the spatial model. At the same time, in order to harmonize its directions with the Special Spatial Planning Framework for Industry, it takes into account the respective development programs of the regional and national levels, and it provides for a "feedback" mechanism to resolve any issue in the event of non-harmonization and "conflict" between the directions of the Regional Framework and the overarching planning level. However, in this case, too, its developmental purpose is confined to obtaining financial resources to meet the needs of the action program.

At the local level, the examination of the GUPs in the Kalochori area, where the Informal Industrial Concentration is situated, reveals an emphasis on provisions that are exclusively spatial in nature, lacking integration with development planning and the necessary requirement for harmonization. Contemporary Local Urban Plans, according to their specifications, could substantially enhance the potential for aligning spatial and developmental initiatives toward a unified objective. This assumes the release from the time-consuming procedures of local spatial planning and the recognition of the significance of an integrated and substantive approach to spatial and developmental issues by the stakeholders engaged in the relevant processes.

The emergence of the territorial cohesion dimension forms a framework for the promotion of spatial planning as a tool for coordinating and integrating planning policies, as well as guiding spatial outcomes, with an emphasis on its strategic nature. In addition, the place-based approach that inspires planning has a catalytic effect on the effort of development planning for the optimal utilization of spatial advantages. The formation of (favorable) conditions for fostering synergies, horizontally, between spatial and development systems (policies) becomes evident. In this direction, the activation of tools with integrated character is deemed necessary.

A capable tool for integrating spatial and development planning at the sub-regional scale is the Special Spatial Intervention Area (SSIA). Along with the Plan for Integrated Urban Intervention (PIUI), which focuses on the urban scale [72], these constitute the tools for integrated spatial interventions within the Greek planning system (Law 2742/1999). They share similarities in philosophy and strategic approach with the

Integrated Territorial Investments (ITI) promoted by recent European policy [73,74]. The SSIA is distinguished by its complex and integrated nature, as it combines spatial and development-oriented regulations and actions, enabling synergies between relevant policies. Through special economic incentive schemes and compensatory fees, it allows for the direct incorporation of development policy directions at the local level. Despite its distinctive characteristics, it has not yet been activated.

The recent institutional reform of the framework that governs planning in Greece restores an, albeit non-binding, relationship between the specific (i.e., sectoral) frameworks and the corresponding development tools. Special mention should be made of the tool of the SUPs (Special Urban Plans), which is "adapted" in many ways to development planning, and which has received negative criticism as it is considered to be a means of circumventing "traditional" spatial planning. At the same time, the Development and Investment Laws, that provide incentives to businesses, have acquired a more profound spatial dimension.

At the national level, the establishment of a National Spatial and Development Strategy would be beneficial, integrating the country's development and spatial policies within a common framework. Moreover, the role of existing national programs (Development Laws and the PIP) will be strengthened, as they need to be incorporated into the core structure of the unified framework. The development of unified regional plans may be pursued as a potential solution to the existing disconnection, therefore clarifying the strategic directions set at the national level and establishing fundamental planning frameworks at the local level. After all, according to Gourgiotis and Tsilimigias (2016) [75], the regional level serves as a crucial arena for the reconfiguration of economic, social, and ecological structures, while simultaneously fostering the interconnection among several related scientific disciplines. The European experience has produced positive results from the execution of similar plans in countries like Portugal, Ireland, and Denmark, where regional and municipal authorities possess autonomy and significantly contribute to economic and spatial planning.

To maximize this outcome, the administrative structure of spatial policy authorities at both levels will be of critical importance. This necessitates the establishment of unified policy bodies to formulate integrated development strategies with a clear and distinct spatial perspective. Furthermore, the enhancement of participatory planning within the Greek system is essential, ensuring the active engagement of local planning authorities in the formulation of regional plans, alongside a reconsideration of the traditional and dominant top-down planning approaches [76–78].

In conclusion, the lack of effective integration between spatial and development planning in Greece has led to uncoordinated industrial expansion, causing environmental and developmental challenges. Despite actions to address this issue through spatial planning, inconsistencies and institutional inertia undermine the effort. Additionally, while decentralization policies aimed to redistribute industrial activity, the lack of geographical criteria has often led to uncontrolled sitting rather than balanced regional development.

The need for stronger cooperation between planning authorities, better alignment of industrial investment programs with spatial policies, and the promotion of organized industrial zones remain critical. Recent legislative reforms have introduced frameworks

to bridge the gap between spatial and development planning, yet their practical effectiveness remains limited. A more holistic and coordinated approach, including clearer guidelines at the local level and stronger institutional mechanisms, could enhance spatial development policies, ensuring sustainable industrial growth while minimizing negative impacts. Strengthening collaboration between ministries and ensuring that economic incentive legislation aligns with spatial planning frameworks will be key to achieving a more structured and efficient industrial landscape.

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