An innovative Strategic Spatial Planning Model: The Municipal Unity of Thermi (Thessaloniki-Greece) case study

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Abstract: Strategy is distinguished as a widely discussed issue inside the scientific world. Strategic Planning constitutes an appropriate and systematic method of strategy formulation and implementation. Characteristic models of Strategic Planning are initially presented in this paper in order to analyze the characteristics and differentiations in different levels. This paper presents an unconventional Strategic Spatial Planning model in the Municipal Unity of Thermi (Thessaloniki) for the strategic arrangement of the emerging development spatial issues. The main aim of the proposed model is the identification and formulation of Specific Action Programs which are prioritized through a composite application of integrated multi-criteria decision-making methods.

Subjects: Urban Studies; Development Studies; Economics, Finance, Business & Industry

Keywords: strategy; Strategic Planning; Strategic Spatial Planning; urban planning; strategy formulation process

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The present paper provides an innovative Strategic Spatial Planning process that integrates useful scientific methods/tools of Strategic Planning at the spatial level.

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PUBLIC INTEREST STATEMENT

The strategy concept is distinguished as one of the widely discussed scientific issues during the last decades. The adoption/application of the expression is considered to be diffused and multidimensional, causing the emergence of varied definitions and explanations. Strategic Planning constitutes an appropriate method of strategic framework formulation and implementation in Business Management field. The conceptual framework encompasses multiple approaches and explanations that feature an intended and systematic method of strategic decision formation and making. Characteristic models of Strategic Planning process are presented from international references, while attempting to analyze the distinct characteristics and differentiations of Strategic Planning at the spatial level. The present paper deals with an unconventional approach of Strategic Planning in Municipal Unity of Thermi (Thessaloniki). The main objective of the proposed Strategic Spatial Planning model is the identification and formulation of Specific Action Programs which are prioritized through a composite application of multicriteria decision-making methods.
1. Introduction

Strategy constitutes one of the most studied and highly evolving issues inside the scientific community during the last decades. The diachronic development of this concept is very rapid, presenting a wide range of definitions and applications in recent times. Strategy originates from the military terminology in ancient Greek Era, while the systematic scientific citation of this term has appeared in many scientific documents the recent years (Newman, 1951). There is not a commonly acceptable conceptual expression of strategy nowadays, as this term can be used variously having multiple interpretations, dimensions and characteristics in proportion to each application field.

Johnson, Scholes, and Whittington (2008) claim that “strategy is the direction and scope of an organization over the long-term, which achieves advantage in changing environment through its configuration of resources and competencies with the aim of fulfilling the stakeholder expectations”. The concept and nature of strategy, as a generic term, is expanding gradually and is also specialized in different scientific disciplines (business policy, corporate strategy, strategic planning/management, long-range planning).

The strategy formulation process is also considered a major issue in scientific and academic world. Strategic Planning is an appropriate and popular scientific method of planning, formulation and application of Strategic Plans, which firstly appeared in the decade of 1960. The application of Strategic Planning is focused mainly on the field of Corporate/Business Management and has multiple definitions, fundamentals, characteristics and applications (e.g. businesses, corporations, organizations or spatial entities). Strategic Planning constitutes a targeted method that takes into account critical factors and techniques in systematic and rational manner (O’Regan & Ghobadian, 2002). Generally, the Strategic Planning framework consists of three distinct components: the formulation, implementation and control/assessment.

Strategic Planning is essentially a management tool that consists of the two fundamental axes of analysis and synthesis, associating the detailed strategy structure and formulation, on behalf of planning, with the creativity and insight from strategic thought side.

The main aim of this paper is to develop and apply an unconventional approach of Strategic Planning model formulation in the Municipal Unity of Thermi in Thessaloniki (Northern Greece). The rest of the paper is organized as follows: Section 2 presents the most famous Strategic Planning and Strategic Spatial Planning models identified in the literature. Section 3 includes the description of the study area, where the proposed model is applied, while in Sections 4 and 5 the proposed Strategic Spatial Planning model is presented and analyzed and the results of its application to the study area are provided. Section 5 concludes to some useful remarks.

2. Strategic Planning methodologies

2.1. Models of Strategic Planning process (business sector)

The internal structure of a business organization consists of three basic conceptual hierarchical levels which constitute the essential components of Strategic Planning process: the corporate, business and functional levels. The corporate level encloses the main strategic decisions that have purely corporate and centralised character. At the business level the main efforts and actions are assigned in order to secure the long-term competitive advantage in all the business fields of the organization. The functional level includes the functional requirements by the business actions and essentially constitutes the dynamic component of the distinct organisation competencies development in order to create competitive advantage. The “formal strategic planning process”, proposed by Hax and Majluf (1991), consists of twelve steps that express the different character and sequence of the tasks execution and the individual responsibilities for development, implementation and control of the strategic tasks in the three basic hierarchical levels. More precisely, these steps include:
(1) Vision of the organization, managerial infrastructure, corporate culture and management of key personnel: The main processes that are involved in this step are the determination of company’s mission, the distribution of its operations, its horizontal strategy and vertical integration, its corporate philosophy, specific strategic issues and the identification of Strategic Business Units (SBUs).

(2) Strategic posture and planning guidelines: This step includes the formulation of the strategic position of the company. The corporate level formulates the strategic posture and planning guidelines, through the determination of the corporate strategic thrusts, the planning challenges at all functional levels and the corporate performance objectives.

(3) Mission of the business: In this step, the mission of each business units, well as the product-market segments are defined.

(4) Formulation of business strategy and broad action programs: This step refers to the formulation of business level strategy and broad action programs.

(5) Formulation of functional strategy: The fifth step contributes to the functional strategy formulation phase that is achieved through participation in business planning, concurrence with business strategy proposals, and through the final formulation of the broad action programs that are defined in the previous step.

(6) Consolidation of business and functional strategies, portfolio management and assignment of resource allocation priorities: In this step, there is consolidation of the business and functional strategies, portfolio management and priorities are assigned to the allocation of resources.

(7) Definition and evaluation of specific action programs at the business level: This step concerns the strategic programming phase where the broad action programs are defined and evaluated at the business level and they are further analyzed to specific action programs.

(8) Definition and evaluation of specific action programs at the functional level: This step also concerns the strategic programming phase and as in the previous step, in this step, the broad action plans are defined and evaluated at the functional level.

(9) Resource allocation and definition of performance measurements for management control: In this step, resources are allocated and performance figures for management control are determined. The scale of the extent of the actions is redefined.

(10) Budgeting at the business level and

(11) Budgeting at the functional level: In these two steps, the budgeting of the programs for each level is respectively elaborated.

(12) Budgeting consolidations and approval of strategic and operational funds: In this step, there is budgeting consolidation, and the approval of strategic and operational funds by the corporate level to support the overall strategy.

It is obvious that in this model, strategy is expressed as a hierarchy of purposes that is specialized through a step sequence from broader guidelines to specific action programs. The planning followed could not be characterised as “top-bottom” or “bottom-up”, but conversely reflects a synthetic route from the lower to the higher hierarchical level creating a sense of coherence and continuation.

An effective strategic planning and implementation process named “Strategy Change Cycle” is described by Bryson and Alston (2011), which encloses ten distinct steps as follows: (1) Initiation and agreement on a Strategic Planning process, (2) Clarification of organisational mandates, (3) Identification and understanding of stakeholders, development and refinement of mission and values, and development of a vision sketch, (4) Assessment of the environment and identification of strengths, weaknesses, opportunities and challenges, (5) Identification and framing of strategic issues, (6) Formulation of strategies to manage the issues, (7) Review and adoption of the strategic plan, (8) Establishment of an effective organizational vision, (9) Development of an effective implementation process, and (10) Reassessment of strategies and the strategic planning process. The
precedent strategic planning process is considered to follow a cyclic and repetitious development route, although it seems to represent a linear sequence. Moreover, the process does not necessarily start from the first step (in case of strategic issues that need direct response) and appropriately combines strategic planning (steps 1–6) with strategic management (steps 7–10) in terms of a united and flexible strategic framework.

Armstrong (2008) composes and presents an indicative planning process pattern, based on the “classic approach” of strategy formulation (Whittington, 2001), which consists of the following succession of steps: mission definition, objectives setting, SWOT analysis, Gap analysis and resource capability, distinctive capabilities of organization definition, key strategic issues definition (emerging from previous analysis), corporate and functional strategies determination (for achieving goals and competitive advantage), integrated strategic plans for implementing strategies preparation, strategies implementation, monitoring implementation, and existing strategies revision or new strategies development (if necessary).

Additionally, Sourkouhi, Keivani, Almasi, Bayat, and Makouei (2013) cite the following basic steps of strategic planning process: specification of the organizations future objectives, identification of the available objectives and strategies, analysis of environmental conditions, analysis of the organisation resources, recognition of current situation, determination of the necessary changes in strategies, decision on the optimal strategy and implementation of the new strategy. The process pattern may need improvement or modifications, but incorporates all the necessary tasks for strategy formulation. It could be also characterised as linear and deterministic, following a definite succession of steps, a fact that may not refer to realistic (cyclic or systemic) conditions.

Finally, van Aartsengel and Kurtoglu (2013) support that the so-named “Generic Strategic Planning process” should include definite steps/stages as follows: (1) overall strategy plan definition, (2) strategic analysis execution, (3) mission statement revision/production, (4) corporate intended strategy development, (5) business intended strategies development, (6) implementation determination, (7) strategies assessment and implementation, and (8) strategic documents formulation and approval. They also contend that this process reflects “a single and comprehensive system of strategic thinking that combines the necessary terminology with the most important methodologies”.

The thorough investigation and study of various Strategic Planning process models from the international literature has shown that there are some commonly accepted similarities between them in relation to the generally accepted philosophy and approach methodology, the distinction of hierarchical levels of operation, the tasks and commitments assigned to them, the sequence of execution of the individual actions.

The basic hierarchical reference levels of the aforementioned models are corporate, business, and functional levels that are responsible for the actions and functions involved. However, there are some differences in the course of implementation and development of the Strategic Planning process, as some models advocate a particularly linear sequence, while others support more flexible cyclic design paths respectively. However, each of them has distinct dynamics, specialization, advantages and benefits, along with the existence of obvious weaknesses and application restrictions in some cases.

2.2. Strategic Planning in spatial level

As it was highlighted in the previous section, Strategic Planning is a widespread management and planning tool with various applications and usages. The concept of Strategic Planning is thought to be highly complex in spatial level. According to Albrechts (2013), a wide range of references and international practices is observed justifying the high significance and utility of Strategic Planning in spatial level as an alternative approach for the structural changes and challenges confrontation.
Particularly, Spatial Planning includes a composite set of methods or practices for the formulation and implementation of policies, strategic plans and projects in spatial level (Healy, Khakhee, Motte, & Needham, 1997). It is mainly applied in national, regional and urban level, while it could be utilized in cases of transnational unities or associations. Moreover, the strategic character of issues emerged in spatial level need specific or specialized arrangement. The subject of Spatial Planning refers to strategic mid-term decisions and directions created through continuous processes, negotiations and interactions (Metaxas & Lalenis, 2006). Attempting to define appropriately the so-named Strategic Spatial Planning, “it is a set of concepts, procedures and tools that must be tailored carefully to whatever situation” (Albrechts, 2004) aiming at the arrangement and satisfaction of the contemporary needs and demands of different spatial unities (Sartorio, 2005).

The term “Strategic Spatial Planning” is attributed appropriately due to the fact that it constitutes a planning framework directed to the development issues in spatial level. Albrechts (2004) characteristically states that “the rationale of strategic spatial planning is to frame the activities of stakeholders to help achieve shared concerns about spatial changes”. Necessary precondition is the complete comprehension of the specifics, problems and needs in each study area in order to create a complex strategic perception for their arrangement (Healey, 2009).

Healy et al. (1997), attempting to investigate the different practices of Strategic Spatial Planning applied in spatial unities, classify its main components/factors in five general categories: the driving forces, the institutional dynamics of plan-making, the policy agendas and spatial organizing ideas, the methods, and the consequences. Davoudi and Strange (2009) and also Albrechts (2013), correlate the modern strategic spatial planning with the endeavour of concentration and selection of appropriate planning with the endeavour of appropriate planning tools and methods in order to detect the particular critical values, issues and purposes in each spatial level. Albrechts (2013) regards that the most important challenges of Strategic Spatial Planning are the continuous spatial changes, the restoration ways of justice and conflicts in spatial level, the necessity of knowledge and experience acquisition and the achievement of total actions inside and outside the spatial systems. As he also notes, a more composite form of strategic spatial planning is required for the response in the contemporary changes and challenges.

Taking into account all the formentioned concepts, “Strategic Spatial Planning Frameworks” or “Strategic Development Frameworks” constitute the direct product of Strategic Spatial Planning. Such Frameworks/Plans must include broad development issues coverage in each spatial unity, mid-term time horizon, identification of basic development axes and critical spatial issues, multi-sector development and spatial issues investigation, synthetic analysis and determination of alternative or flexible options, and concentration on implementation methods and processes.

Finally, Stremke, Van Kann, and Koh (2012), introduce an approach of Strategic Spatial Planning process which is composed of four generalized steps (Albrechts “four-track approach”, 2004) as follows: (1) Analysis of the existing conditions of environment and concentration on collective identification of focal issues, (2) Development of a dynamic, integrated and indicative vision that encloses conscious and purposive values and meanings for the future, (3) Deduction of actions (from vision) and discrimination between short-term and long-term, and (4) Implementation of actions through moral, administrative and financial agreements between the determinant factors of each study area.

At a spatial reference level, Strategic Spatial Planning presents some significant variations, adaptations and features, following the basic principles of Spatial Planning.

The “strategic” nature of Spatial Planning concerns major mid-term issues that require a comprehensive settlement. The key components of Strategic Spatial Planning include driving forces, institutional dynamics, political and spatial perceptions, methods and impacts respectively.
“Strategic Frameworks/Spatial Planning Plans” or “Strategic Development Frameworks/Plans” that have a medium-term horizons, a significant scale of analysis and highlight targeted alternatives to address development issues, are produced in this way.

The application of strategic planning in spatial level as an alternative approach for the structural changes and challenges confrontation have raised several reactions and criticisms around its theoretical context and its implementation. Strategic Planning, and even more so its prospects of application in space, prevailed as highly controversial concepts (Sartorio, 2005).

In this paper an effort to develop a Strategic Spatial Planning model integrating the classic principles of Strategic Planning with significant adaptions emerging in spatial level is performed. The model is applied to the Municipal Unity of Thermi in Northern Greece. In order to achieve the most effective model formulation, the determination of the spatial organization of the area as well as the identification of the major development spatial issues are necessary and are described in the next section.

3. The study area
The study area consists of the territory of the Municipal Unity of Thermi, which is spatially located in the suburban zone of Thessaloniki in Northern Greece. The position of the study area is regarded to be crucial as it is located in the southeastern exit of Thessaloniki near the basic highways as shown in Figure 1. More precisely, Thermi is a southeastern suburb of Thessaloniki, about 15 km far from the city center. The determinant factor of this survey is the coexistence of intense urban sprawl and industrial development phenomena in conjunction with the rich natural environment in the study area.

The effects of Thessaloniki city center are considered highly decisive, as the study area constitutes a receptor of industrial/productive units and hyperlocal urban activities through the significant roadways. Another important issue is the extensive residential development according to the general phenomenon of urban sprawl. The offer of housing areas with comparatively low value, the direct access to Thessaloniki city center, the high quality of the natural environment and the job opportunities in the local productive units are considered to be the main factors that feature the area as a modern suburb with urban organization.

The Municipal Unity of Thermi presents strong residential and economical/productive dynamic caused by the urban sprawl and population growth in the last decades. In spatial level, the study area is composed of four individual spatial unities, the so-called Municipal or Local Communities, as follows: Thermi, Nea Raidestos, Neo Rysio, and Tagarades. These unities include the homonymous and some smaller settlements with administrative independence and function.
The Urban Plan and the field study distinguish the three main components that determine the spatial organization of the area: (1) the internal valley and the development of agricultural activities, (2) the increased activation of the industrial and productive sector, and (3) the rapid and intensive development of suburban housing. Additionally, the main land uses are the agriculture and housing, whilst some other special uses are identified in the wider area (industries, Thessaloniki airport, military infrastructure, shopping malls, sanitary facilities).

Relating to the natural environment, great extent of the study area is occupied by the Anthemountas Valley which significantly affected the local economical and productive organization. The woodlands are located in the northern and southern parts of the area. Generally, the atmosphere and the grounds of the study area are considered highly sensitive facing important environmental problems caused by the many sources of pollution and nuisance and the overexploitation of the extents.

The major development spatial issues distinguished by the detailed analysis of the study area are: the intensification of urban sprawl and industrial development phenomena, the increased population and residential development, the high environmental significance of the Anthemountas Valley, the financial dependence on the secondary (industries, productive units) and the tertiary (trade, services) production sectors, the interactions and interdependencies with Thessaloniki city center, the overexploitation of the environmental resources, and the improvement necessity of the infrastructure and services networks.

4. The Strategic Spatial Planning model

The proposed Strategic Spatial Planning Model for the Municipal Unity of Thermi encloses, as mentioned before, key aspects, principles and dimensions of Strategic Planning, while accomplishing some appropriate modifications and adoptions according to specific spatial requirements. The Strategic Planning models represent some common similarities regarding to the basic hierarchical functional levels (corporate, business, and functional) and the execution sequence of the different tasks and actions. However, the transfer of these hierarchical levels to the spatial level requires determinant adjustments and modifications. In spatial level, the hierarchical functional levels refer to spatial/administrative levels, which essentially reflect the distinct spatial unities (based on administrative structure) in the study area. These critical adjustments aim to the rational treatment of the development issues and formulation of strategic directions in spatial level.

As a consequence, the corporate level is transferred to the municipal reference level. The municipal level is referred as an overall term, illustrating the spatial/administrative entity that encloses the central governance and management of the whole study area, the strategic decision-making, the development issues arrangement and the high quality infrastructure and services provision to the citizens. At the next spatial reference level, a critical adjustment is accomplished according to the requirements and necessities of the study area. Particularly, the community level is introduced, which includes the municipal or local communities and the individual residential areas. Moreover, the community level comprises the local government bodies that undertake the individual spatial unities management, the local infrastructure and services regular operation and the local development issues/problems treatment. The further specification of the spatial hierarchical levels is not considered necessary and is not practical applicable regarding to the common necessity and feasibility of the Strategic Spatial Planning Frameworks. Generally, the functional hierarchical level is indirectly incorporated in the two modified spatial levels in terms of the management and operation of the infrastructure and services networks.

The process model constitutes the synthetic application of a Strategic Spatial Planning Model inspired by the best practices of Strategic Planning in business world. Essentially, it is an attempt that combines and mixes the classic principles of Strategic Planning (in Business Administration) with the dimensions of modern Spatial Planning. It is also noted that the proposed model was formulated regarding to the physiognomy and specific characteristics of the study area.
More precisely, the proposed model consists of seven execution steps presented in Figure 2, which are developed progressively in order to produce the requested Strategic and Specific Development Action Programs. The proposed model is mainly inspired by the business sector model proposed by Hax and Majluf (1991) and the main steps of the above models are matched in Table 1. It is a qualitative planning process, like most Spatial Planning Plans, that reflects a cyclic execution route, in terms of the interaction and feedback possibilities between the basic steps, so as to optimally produce the Action Programs. The existence of two spatial hierarchical levels (municipal and community level) reflects the distinct spatial unities in the study area according to the philosophy and practices of Strategic Spatial Planning Frameworks. Finally, the process wavers between the two hierarchical levels owing to rational strategy structure requirements. However, the necessity of interactive or combining execution of the first steps (e.g. steps 3 and 4) in real time is not excluded as there are not any restrictions.

Figure 2. The Strategic Spatial Planning Model.

Table 1. Hax and Majluf model vs. proposed spatial model

| Hax and Majluf model                                      | Proposed spatial model                                      |
|-----------------------------------------------------------|-----------------------------------------------------------|
| Step 1: Vision of the organization, managerial infrastructure, corporate culture and management of key personnel | Step 1: Strategy Formulation at municipal level             |
| Step 2: Strategic posture and planning guidelines          | Step 2: Strategic posture and guidelines                    |
| Step 3: Mission of the business                           | Step 3: Mission at community level                         |
| Step 5: Formulation of functional strategy and broad action programs | Step 4: Strategy Components at community level             |
| Step 6: Consolidation of business and functional strategies, portfolio management and assignment of resource allocation priorities | Step 5: Strategic Development Action Programs               |
| Step 8: Definition and evaluation of specific action programs at the functional level | Step 6: Specific Development Action Programs                |
| Step 8: Definition and evaluation of specific action programs at the functional level | Step 7: Assessment and Ranking of Action Programs          |
4.1. Strategy formulation and objectives determination at Municipal level (Step 1)

The “vision” of the Municipal Unity of Thermi is essentially a general formulation with permanent and prospective character which consists of the following components: mission of the Municipal Unity, administrative and spatial segmentation of the study area, horizontal strategy, vertical integration, municipal philosophy, and specific strategic development issues.

The most remarkable modification of this step refers to the stage of administrative and spatial segmentation. In this case, the term “Strategic Business Unit” of the Strategic Planning classic theory is appropriately transferred as the term “Strategic Spatial Unit”. Particularly, the study area consists of the distinct Strategic Spatial Units of (i) Thermi, (ii) Nea Raidestos, (iii) Neo Rysio, and (iv) Tagarades, based on purely spatial and administrative criteria. Each Strategic Unit has its own position, dynamic and administrative autonomy inside the overall spatial system of the study area.

Additionally, the specific strategic development issues that concern the study area coincide with the major spatial development issues presented in the analysis of the previous section.

The “vision” of the Municipal Unity of Thermi constitutes the consequence of the main strategic objectives and the ethical commitments towards the local community. The adopted “vision” is enclosed in the following formulation: “The Municipal Unity of Thermi to become a dynamic suburban pole of development with functional autonomy and high geographical range”.

4.2. Strategic Posture and guidelines development (Step 2)

The development of the Strategic Posture reflects the creation of a set of realistic, objective and coherent guidelines that determine the strategic proposals and actions at the basic spatial levels of the study area. Particularly, the Strategic Posture development presupposes the formulation of the vision (step 1) and the conduct of internal and external scrutiny at the Municipal level. In the proposed model, the prerequisite external and internal scrutiny is executed via the popular PEST (Table 2) and SWOT Analysis (Table 3) according to the character and the demands of Spatial Planning practices.

Table 2. PEST analysis at municipal level

| Political environment                                      | Economic environment                  |
|-----------------------------------------------------------|---------------------------------------|
| Significant position & dynamic                            | Important productive/economic base    |
| Suburban development pole                                 | Socioeconomic crisis impact           |
| Territorial cohesion enhancement                          | Agricultural sector fall              |
| Interdependency between city center and suburb            | Secondary and tertiary production sector rise |
| Local character promotion                                 | Activity reduction & unemployment     |
| Industrial development & tourism                          | Local production units operation      |
| Rational spatial planning                                 | Non-dependence on tourism             |
| Infrastructure improvement                                | Residential centers development       |
| Social environment                                        | Technological environment             |
| Population growth & equal allocation                      | Interaction with Thessaloniki city center |
| Productive ages high percentage & youth ages low percentage | Education, research & technology institutions |
| Unemployment rapid increase                               | Settlements redevelopment projects    |
| Social welfare disturbance                                | Developing infrastructure networks    |
| Important social & cultural work                          | Interactive services & innovation     |
| Research & technology institutions                        | Technology development prospects      |
| Natural beauty promotion & touristic product development  | Trade and entrepreneurship enhancement |
Another significant component of this step is the formulation of the Strategic Thrusts and Guidelines. Essentially, the Strategic Thrusts constitute the major short-term issues (3–5 years) that need direct arrangement so as to restore the strategic competitive position of the study area. Moreover, these Strategic Thrusts are the result of the detailed analysis of the external and internal environment (PEST and SWOT Analysis) and should be explicitly formulated in order to structure a rational strategic framework that guides the critical development actions in the study area.

| (S)–Strengths | (W)–Weaknesses |
|---------------|----------------|
| Strategic position & local climate | Intense urban sprawl |
| Rich natural environment | Disperse industrial development |
| Interdependence with Thessaloniki city center | Environmental resources overexploitation |
| Important road network | Agricultural sector fall |
| Industrial development & tertiary production sector rise | Economic dependence on local industries & trade |
| Traditional agricultural base | Technical infrastructure requirements |
| Infrastructure & services adequacy | Traffic conjunction & noise |
| Concentration on technology | Unorganized Spatial Planning |
| Important social & cultural action | Socioeconomic disturbances |

| (O)–Opportunities | (T)–Threats |
|-------------------|-------------|
| Geographical position exploitation | Wider uncertainty climate |
| Proximity to Thessaloniki city center | Current socioeconomic crisis |
| Natural beauty projection | Local welfare disturbance |
| Local production empowerment | Environmental resources overcharge |
| Natural resources protection | Spatial planning & development issues |
| Road network exploitation | Development programs/actions financing delays |
| Financing from EU programs | Road network degradation |
| Research & technology institutions | Agricultural production decline |

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The proposed model encloses the following Strategic Thrusts and Guidelines for the Municipal Unity of Thermi: (1) Local development and competitiveness enhancement, (2) Compact suburban environment formulation and living standard improvement, (3) Administrative, management and functional autonomy, (4) Rational spatial planning and development, (5) Sustainable development and natural environment protection, and (6) Infrastructure and services networks improvement.

4.3. Mission determination at community level (Step 3)

The mission at the Community level is determined similarly as in the first step, but the modification is that the analysis is conducted in the level of the Strategic Spatial Units of the study area. Essentially, the community mission constitutes the formulation of the current and future purposes of the spatial unities referring to the basic criteria of (i) function and status, (ii) development and geographical dynamic, and (iii) competitive advantage acquisition and maintenance. It is noted that the mission statement of each Strategic Spatial Unit specifies the general objectives and provides useful information about the planning transformations and challenges at the lower spatial level.

4.4. Strategy components determination at community level (Step 4)

The Community Strategy is a framework of targeted objectives at the level of the Strategic Spatial Units, which leads to the Strategic Development Action Programs formulation. The strategy components at the Community level constitute the result of the synthetic analysis of (i) the Strategic Thrusts and Guidelines at the Municipal level (step 2), (ii) the mission of the study area and the individual spatial unities (steps 1 and 3), and (iii) the external and internal scrutiny dimensions at the Community level respectively.

It is noted that some significant adaptions are accomplished during the conduct of the external and internal scrutiny at the Community level.

The external scrutiny aims at the identification of the significance and attractiveness of the Strategic Spatial Units in the study area territory. It encloses the identification of the important external factors that affect the function and the dynamic of the Strategic Spatial Units and the estimation of their attractiveness rate in current and future time horizon. The results of this analysis are appropriately framed by the PEST Analysis conducted at the Municipal level (step 2) as a further analysis is not considered feasible in spatial level.

Additionally, the internal scrutiny aims at the investigation and detection of the main opportunities, weaknesses and prospects of the individual spatial unities. The SWOT Analysis conducted (step 2) is regarded sufficient as there are not any further development and spatial differentiations at the Community level in comparison with the (higher) Municipal level. The results of the previous analysis are supplemented by the selection of the critical success and development factors and the assessment of the current and future conditions of each Strategic Spatial Unit based on these critical factors.

Taking into account the dimensions of the internal scrutiny, the commonly selected critical success and development factors of the spatial unities are the following: attractiveness and development prospects, social welfare, economic and productive base, geographical position, population dynamic and employment, environmental resources protection, infrastructure and services quality, transport service levels, functional independence, and technological development.

4.5. Strategic Development Action Programs and Specific Development Action Programs Formulation (Steps 5 and 6)

The Strategic Development Action Programs represent the Municipal Strategy at the wider spatial level as the consequence of the analysis and assessment accomplished in the previous step of the proposed model. Moreover, prerequisite for the formulation of the Action Programs constitutes the composite estimation of the power/strength of the Municipal Unity and the Strategic Spatial Units.
compared to the attractiveness rate of the wider development environment in current and future time horizon.

The formulation of the Strategic Development Action Programs essentially constitutes the connection and alignment between the general strategic framework (municipal level) and the individual strategy components (community level). The content and the objectives of the Strategic Development Action Programs are specified through the Specific Development Action Programs (SDAPs) (Table 4) for the study area. The Specific Programs have more detailed and definite character with short-term implementation time horizon (1–3 years).

### Table 4. Strategic Development Action Programs as well as the Specific Development Action Programs (SDAPs) of Thermi Municipal Unity

| Strategic Development Action Programs | Specific Development Action Programs (SDAPs) |
|---------------------------------------|-----------------------------------------------|
| 1. Redvelopment of spatial planning framework for the major strategic issues confrontation | 1. Institutionalization of mixed suburban zones with strict urban regulations in intense urban sprawl areas, 2. Determination of organized productive zones for concentration of existent or potential production units, 3. Enhancement of suburban environment attractiveness with low-price housing options, high living standard and activity or employment opportunities |
| 2. Creation of compact suburban environment in combination with the rich natural environment | 4. Determination of specific environmental protection areas in central parts of Anthemountas Valley, 5. Installation of local facilities of monitoring and natural resources quality and atmospheric pollution control |
| 3. Intensive protection and sustainable utilization of the environment and natural resources | |
| 4. Improvement and empowerment of administration/management system of the study area | 6. Upgrade of the Community Authorities role and jurisdiction for better local administration/management, 7. Formulation of multicenter administration/management system with functional and administrative independence to the individual spatial unities |
| 5. Enhancement of business and production dynamic for the local economy revitalization | 8. Provision of motivations/opportunities for local entrepreneurship and productivity enhancement, 9. Concentration on the increase of productivity and business activity levels through modern and sustainable practices, 10. Utilization of EU or national financing programs in targeted development actions |
| 6. Improvement, upgrade and extension of road and technical infrastructure in the study area | 11. Establishment of integrated transport framework for road infrastructure upgrade and soft means of transport promotion, 12. Upgrade and extension of technical infrastructure in the spatial unities and investigation of renewable energies exploitation possibilities |
| 7. Restructuring and improvement of services towards the citizens via technology and innovation | 13. Creation of integrated and technologically evolving system of services provision, 14. Qualitative and functional upgrade of services network through the promotion and introduction of cutting-edge technology and innovative practices |
| 8. Development and utilization of the education, research and technology institutions in the study area | 15. Pilot application of cooperation framework between the local community and the education, research and technology institutions, 16. Utilization of the profile and capacity of the education, research and technology institutions for the broader projection of the study area |
| 9. Promotion and empowerment of local cultural and touristic product with wider geographical range | 17. Promotion of cultural actions in conjunction with the natural environment prospects, 18. Promotion and reactivation of the existing touristic areas and planning of organized touristic facilities installation |
5. Action programs assessment and ranking (Step 7)

5.1. Assessment and ranking process

Taking into account that the Specific Development Action Programs have qualitative character, a synthetic application of the multicriteria decision-making methods Analytical Hierarchy Process (AHP) (Saaty, 1980) and TOPSIS (Hwang & Yoon, 1981) is selected. The considered assessment issue encloses three hierarchical analysis levels (Figure 3). The first level reflects the main assessment objectives as determined in the formulation of the study area vision (step 1). The second level is associated with the optimal satisfaction of the Strategic Thrusts that essentially function as the main assessment criteria/factors (step 2). The third hierarchical level includes the Specific Development Action Programs (SDAPs) which illustrate the alternative strategic planning options.

In preliminary stage, the basic philosophy of the AHP multicriteria method is applied in order to systematically calculate the weight rates of the Strategic Thrusts with respect to the main objectives. A pair-wise comparison in an $n \times n$ concentrated matrix ($n =$ number of criteria) is conducted by attributing specific values (qualitative scale 1–9) to the Strategic Thrusts according to the judgement and viewpoint of the researcher. Essentially, the values given represent the level of significance/superiority of each Strategic Thrust (compared with the other) to the best fulfillment of the main objectives. After the consecutive execution of the individual pair-wise comparisons, the calculation of the weight rates of the Strategic Thrusts is accomplished. Particularly, the matrix is normalized by dividing each value with the sum of the corresponding vertical column and follows the calculation of the vectors priority (weights) of the Strategic Thrusts as the average of the normalized values of each horizontal line. Finally, the consistency control of the matrix is accomplished with the calculation of the consistency index $[CI = (\lambda_{max} – n)/(n – 1)$, where $\lambda_{max}$ is the higher eigenvalue of the normalized matrix] and the consistency ratio (CR = CI/RCI, RCI = 1.24 for $n = 6$ criteria) respectively. Executing all the previous stages, the weights of the Strategic Thrusts are calculated noting that the consistency ratio is 0.05 and satisfies the predefined conditions (CR ≤ 0.1).

Subsequently, the TOPSIS multicriteria method is applied for the final assessment and ranking of the Strategic Development Action Programs (SDAPs). Necessary prerequisite constitutes the generation of an $n \times m$ initial decision matrix ($n =$ number of criteria, $m =$ number of alternatives) that includes specific values (qualitative scale 1–6) of each Action Program (alternatives) in respect with

![Figure 3. The multicriteria analysis of the assessment issue.](image)
the Strategic Thrusts (assessment criteria). Additionally, the following six steps of TOPSIS process are executed:

**Step 1: Normalization of the initial decision matrix**

Each field of the initial decision matrix ($r_{ij}$) is normalized using the equation:

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{i}^2}}, x_{ij} \text{ are the values of each alternative, } i = 1, 2, \ldots n; j = 1, 2, \ldots m (n = 6, m = 18)$$

(1)

**Step 2: Construction of the weighted normalized decision matrix**

The weights of each Strategic Thrust are multiplied with the normalized values of the Action Programs in order to produce the weighted normalized decision matrix.

**Step 3: Determination of the positive ideal solution ($S^+$) and the negative ideal solution ($S^-$)**

Precondition for the determination of the positive and negative ideal solution is the identification of the function type (cost or benefit) that each Strategic Thrust (6 criteria) indicates. If the criterion represents a cost function, the positive ideal solution receives the minimum value between the values of the Action Programs (18 alternatives) and the negative ideal solution the maximum value. Similarly, if the criterion represents a benefit function, the positive ideal solution receives the maximum value between the values of the Action Programs and the negative ideal solution the minimum respectively. As a consequence, 6 positive and 6 negative ideal solutions are defined, noting that all the Strategic Thrusts (criteria) reflect benefit functions (main objectives fulfillment).

**Step 4: Calculation of the Euclidean distance of the alternatives from the $S^+$ and $S^-$ solutions**

The following equations are used to calculate the Euclidean distances:

$$S_i^+ = \sqrt{\sum_{i=1}^{m} (v_{ij} - v_{ij}^+)^2}, \quad i = 1, 2, \ldots m (m = 18)$$

(2)

$$S_i^- = \sqrt{\sum_{i=1}^{m} (v_{ij} - v_{ij}^-)^2}, \quad i = 1, 2, \ldots m (m = 18)$$

(3)

**Step 5: Calculation of the relative closeness ($C_{i}^+$) to the positive ideal solution**

The relative closeness of each alternative in respect to the positive ideal solution is calculated using the equation:

$$C_i^+ = \frac{S_i^-}{(S_i^+ + S_i^-)}, \quad i = 1, 2, \ldots m (m = 18)$$

(4)

**Step 6: Results and determination of the ranking order of the alternatives based on the relative closeness ($C_{i}^+$) measure**

In final stage, the results of the TOPSIS method process are concentrated in an overall matrix and the ranking order of the Specific Development Action Programs (SDAPs) is determined according to the relative closeness measure (descending scale). The best/preferred alternatives are the ones with the highest score.

**6. Results**

In Table 5 the pair-wise comparison between the Strategic Thrusts and the calculation of the weight rates are presented noting that the consistency control is successful (CR = 0.05).
The matrices of the TOPSIS method application are generated in order to prioritize the proposed Specific Development Action Programs (SDAPs). Table 6 illustrates the generation of the initial decision matrix including the performances of the Action Programs in respect to the Strategic Thrusts.

Finally, the calculation of the Euclidean distances ($S_i^+$, $S_i^-$) and the final results of the of the Action Programs prioritization, based on the relative closeness measure ($C_i^+$), are presented in Table 7. The alternatives with the highest scores are ranked in higher positions in a descending scale. The final ranking indicates the degree of significance/contribution of each Action Program to the accomplishment of the main objective of the proposed model. It is worth mentioning that it is only a qualitative prioritization without proceeding to the calculation of budgets or resource allocation which should supplement a Strategic Spatial Framework in real conditions.

Table 5. Pair-wise comparison of the Strategic Thrusts

| Criteria | Str. Thrust 1 | Str. Thrust 2 | Str. Thrust 3 | Str. Thrust 4 | Str. Thrust 5 | Str. Thrust 6 | Weight (w) |
|----------|---------------|---------------|---------------|---------------|---------------|---------------|------------|
| Str. Thrust 1 | 1 | 3 | 9 | 2 | 7 | 5 | 0.399 |
| Str. Thrust 2 | 1/3 | 1 | 5 | 1/3 | 3 | 3 | 0.154 |
| Str. Thrust 3 | 1/9 | 1/5 | 1 | 1/7 | 1/3 | 1/3 | 0.031 |
| Str. Thrust 4 | 1/2 | 3 | 7 | 1 | 5 | 3 | 0.266 |
| Str. Thrust 5 | 1/7 | 1/3 | 3 | 1/5 | 1 | 1/3 | 0.057 |
| Str. Thrust 6 | 1/5 | 1/3 | 3 | 1/3 | 3 | 1 | 0.092 |

Table 6. The initial decision matrix

| Alternatives | Str. Thrust 1 | Str. Thrust 2 | Str. Thrust 3 | Str. Thrust 4 | Str. Thrust 5 | Str. Thrust 6 |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| SDAP 1 | 1 | 5 | 1 | 6 | 3 | 2 |
| SDAP 2 | 3 | 4 | 1 | 5 | 4 | 3 |
| SDAP 3 | 3 | 3 | 2 | 3 | 2 | 2 |
| SDAP 4 | 2 | 4 | 1 | 5 | 6 | 3 |
| SDAP 5 | 3 | 5 | 2 | 3 | 6 | 4 |
| SDAP 6 | 4 | 4 | 5 | 2 | 1 | 5 |
| SDAP 7 | 4 | 4 | 6 | 3 | 1 | 6 |
| SDAP 8 | 6 | 2 | 2 | 1 | 1 | 3 |
| SDAP 9 | 6 | 2 | 2 | 1 | 2 | 3 |
| SDAP 10 | 6 | 3 | 2 | 1 | 1 | 4 |
| SDAP 11 | 5 | 4 | 4 | 3 | 2 | 6 |
| SDAP 12 | 5 | 4 | 4 | 3 | 4 | 6 |
| SDAP 13 | 4 | 4 | 6 | 3 | 1 | 6 |
| SDAP 14 | 4 | 3 | 5 | 1 | 1 | 5 |
| SDAP 15 | 5 | 2 | 3 | 2 | 1 | 4 |
| SDAP 16 | 5 | 2 | 3 | 2 | 1 | 3 |
| SDAP 17 | 4 | 3 | 3 | 2 | 5 | 4 |
| SDAP 18 | 4 | 3 | 3 | 3 | 4 | 5 |
Table 7. Calculation of Euclidean distances and relative closeness measures (final prioritization)

| Action programs | $S_i^+$ | $S_i^-$ | $C_i^+$ |
|-----------------|---------|---------|---------|
| SDAP 1          | 0.112   | 0.106   | 0.49    |
| SDAP 2          | 0.072   | 0.095   | 0.57    |
| SDAP 3          | 0.096   | 0.061   | 0.39    |
| SDAP 4          | 0.092   | 0.089   | 0.49    |
| SDAP 5          | 0.090   | 0.071   | 0.44    |
| SDAP 6          | 0.095   | 0.074   | 0.44    |
| SDAP 7          | 0.079   | 0.083   | 0.51    |
| SDAP 8          | 0.110   | 0.109   | 0.50    |
| SDAP 9          | 0.109   | 0.109   | 0.50    |
| SDAP 10         | 0.087   | 0.112   | 0.56    |
| SDAP 11         | 0.068   | 0.101   | 0.60    |
| SDAP 12         | 0.066   | 0.101   | 0.61    |
| SDAP 13         | 0.079   | 0.083   | 0.51    |
| SDAP 14         | 0.114   | 0.068   | 0.37    |
| SDAP 15         | 0.093   | 0.090   | 0.49    |
| SDAP 16         | 0.093   | 0.090   | 0.49    |
| SDAP 17         | 0.095   | 0.072   | 0.43    |
| SDAP 18         | 0.079   | 0.080   | 0.51    |

7. Conclusions
Strategy constitutes a continually evolving and widespread concept in scientific and academic world presenting various dimensions and multiple interpretations. It is mostly associated with fundamental decisions and options that determine the general posture and success of an organization. Strategic Planning is regarded to be the “backbone” of the modern Strategic Management field. It is a multidimensional term with broad usage and applications in different objectives and purposes. In spatial level, some significant differentiations, variations, adjustments and modifications are usually observed. Strategic Spatial Planning refers to major mid-term issues that need strategic and integrated arrangement. It is a targeted planning framework directed to critical development spatial issues. The main purpose of this paper is to generate a Strategic Spatial Planning model that combines the classic principles of Strategic Planning with significant adaptions emerging in spatial level. The proposed model consists of a 7-step sequence in form of a flexible planning cycle adapted to the requirements of the study area. It is an attempt that combines and integrates the classic principles of Strategic Planning in Business Administration with the dimensions of modern Spatial Planning. It is also noted that the proposed model was formulated regarding to the physiognomy and specific characteristics of the study area. The structure and content of the basic steps enclose the determinant components and aspects that could be transferred to the spatial dimension.

The first step of the model defines the adopted strategy at municipal level (Municipal Unity of Thermi). In the second step, the strategic posture towards the study area is developed and the strategic thrusts and guidelines are formulated. The third implementation step essentially involves the detailed expression of the mission in the level of the Strategic Spatial Units of the study area (Community level). In the fourth step, an attempt is performed to specialize and present some important components of the strategy at Community level. The fifth step refers exclusively to the development of the Strategic Development Action Programs for the study area, considering all the issues that have emerged from the successful implementation of the previous steps. The sixth distinct step includes the specification of the Strategic Development Action Plans through the Specific Development Action Programs (SDAPs) for the Municipal Unity of Thermi. The final step of the
The proposed model concludes to the assessment and final ranking of the Specific Development Action Programs. A composite application of decision-making methods is proposed for the assessment and prioritization of the Action Programs in respect to the main objectives formulated during the execution of the model.

The application of the proposed spatial strategic model is an overall initial attempt/venture to arrange particular spatial issues that surely need some supplementary development and management policies. Political, administrative and local interest and activation is required to promote and enhance the revitalization and further empowerment of the study area, which has typically achieved significant progress and growth in recent years. It is a spatial unity that has significant prospects of development, which require future promotion and exploitation based on local dynamics, social sensitivity and environmental protection. The proposed model could be applied in any study area and possible modifications and adjustments may arise from the analysis of the study area.

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