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Original article

# Strategic analysis: territorial governance for development at the provincial level

# Análisis estratégico: gobernanza territorial para el desarrollo a escala provincial

# Análise estratégica: governança territorial para o desenvolvimento em nível provincial

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**ABSTRACT**

The aim of this paper is to establish a model of territorial governance for development based on the experience of Cienfuegos in the construction of the Provincial Development Strategy, whose conception is based on the institutional framework derived from the Policy for Territorial Development and Government Management, based on Science and Innovation in Cuba and on the authors' model to be instituted. The research-action-participation method and practical validation were used; the

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strategic analysis, essential for planning, was obtained, containing the diagnosis, the identification of the main potentialities and restrictions of the provincial territorial planning scheme, conflicts, inter-territorial and multi-level complementarities, structural problems, and prospective studies of territorial development were added. It is concluded that the results obtained with the betting scenario are a guarantee of the interactive construction of the actors, based on action-participation research and a thorough analysis using system dynamics and strategic foresight, allowing the vision of the development of this territory of the country to be structured in a way that can be adapted to other territorial contexts in Cuba. The province's development strategy should prioritize intergovernmentalism to strengthen the productive forces of localities and focus on enhancing inter-territorial and multilevel complementarities.

**Keywords:** science; territorial development; development strategy; government management; territorial governance; innovation.

**RESUMEN**

El trabajo que se presenta tiene como objetivo establecer un modelo de gobernanza territorial para el desarrollo a partir de la experiencia de Cienfuegos en la construcción de la Estrategia de Desarrollo Provincial, cuya concepción parte del marco institucional derivado de la Política para el Desarrollo Territorial y la Gestión de Gobierno, basado en Ciencia e Innovación en Cuba y de los autores en cuanto al modelo a instituir. Se empleó el método investigación-acción-participación y la validación práctica; se obtiene el análisis estratégico, indispensable para la planeación, que contiene el diagnóstico, la identificación de las principales potencialidades y restricciones del esquema provincial de ordenamiento territorial, los conflictos, complementariedades interterritoriales y multinivel, los problemas estructurales y se adicionan los estudios prospectivos del desarrollo territorial. Se concluye que los resultados obtenidos con el escenario apuesta, son garantía de la construcción interactiva de los actores, basada en la investigación acción participación y un minucioso análisis mediante la dinámica de sistemas y la prospectiva estratégica, permitiendo estructurar la visión del desarrollo de este territorio del país que puede ser adecuada a otros contextos territoriales de Cuba. La estrategia de desarrollo de la provincia debe priorizar la intergubernamentalidad para fortalecer las fuerzas productivas de las localidades y apostar a la potenciación de complementariedades interterritoriales y multinivel.

**Palabras clave:** ciencia; desarrollo territorial; estrategia de desarrollo; gestión de gobierno; gobernanza territorial; innovación.

**RESUMO**

Este artigo visa estabelecer um modelo de governança territorial para o desenvolvimento, baseado na experiência de Cienfuegos na construção de sua Estratégia Provincial de Desenvolvimento. Este modelo baseia-se no marco institucional derivado da Política de Desenvolvimento Territorial e Gestão Governamental, fundamentada na Ciência e Inovação em Cuba, e em um modelo próprio dos autores a ser implementado. O método de pesquisa-ação participativa e a validação prática foram empregados. A análise estratégica resultante, essencial para o planejamento, inclui um diagnóstico, a identificação dos principais pontos fortes e limitações do esquema de planejamento territorial provincial, conflitos, complementaridades interterritoriais e multiníveis e problemas estruturais. Estudos prospectivos de desenvolvimento territorial também são incluídos. O artigo conclui que os resultados obtidos com o cenário escolhido garantem a construção interativa do plano pelas partes interessadas, com base na pesquisa-ação participativa e em uma análise meticulosa utilizando dinâmica de sistemas e prospecção estratégica. Isso permite a estruturação de uma visão de desenvolvimento para esta região do país que pode ser adaptada a outros contextos territoriais em Cuba. A estratégia de desenvolvimento da província deve priorizar a colaboração intergovernamental para fortalecer as forças produtivas locais e fomentar complementaridades interterritoriais e multiníveis.

**Palavras-chave:** ciência; desenvolvimento territorial; estratégia de desenvolvimento; gestão governamental; governança territorial; inovação.

## INTRODUCTION

The design and subsequent implementation of a territorial governance model for development, whose most outstanding feature would be the existence of a development strategy, requires strategic analysis as a starting point. This requires understanding local development as a territorial vision - and a bottom-up approach- beyond the administrative boundaries that have evolved toward a territorial approach to development in recent years (Alburquerque Llorens, 2017). In the Cuban

context, both municipal and provincial levels are understood as territorial development; it is generally accepted that the municipality is more closely associated with the local space and the province with the territorial space, but in reality, both structures form part of the territories.

Thus, the territory is not only a specific geographical space, but also a place of life, whose social, cultural, and political features and institutions play a transcendental role in the design of endogenous local development strategies, that is, with local capacity to internally exploit existing resources and opportunities, both those based on local resources and opportunities for exogenous dynamism (Alburquerque Llorens, 2017).

The development of a territory is forged in relation to four basic dimensions: economic, referring to the creation, accumulation, and distribution of wealth; social and cultural, referring to quality of life, equity, and social integration; environmental, in terms of natural resources and the sustainability of the models adopted in the medium and long term; and political-institutional, linked to the governance of the territory and the definition of a specific, autonomous collective project supported by local actors themselves (Carrizo & Gallicchio, 2006).

Meanwhile, the policy to promote territorial development in Cuba states that it is necessary to promote the development of the territories based on the country's strategy, so that the municipalities are strengthened as a fundamental entity, with the necessary autonomy, sustainable, with a solid economic-productive, sociocultural, institutional, and environmental base, which should lead to a reduction in the main disparities between them. In this process, it is essential to strengthen the capacities of local actors to manage, in a context of decentralization, the set of strategies, public policies, programs, and projects that give substance to local development, as well as its adequate financing (Capote Pérez & Torres Paez, 2024).

The novelty of this new approach in national public policy lies in the incorporation of multilevel, multi-actor, and multidimensional strategic management approaches to territorial development. The implementation of the National Economic and Social Development Plan until 2030 stipulates that this will be achieved in the territories through provincial and municipal development strategies, which constitute the starting point for evaluating the contribution of each of these to the country's development goals; these strategies contribute to the different macro-programs, programs, and national projects from the design of their public policies, programs, and projects. These arguments underpin the need for a change in the way territorial management is conceived and expressed.

The starting point that needs to be transformed is necessarily the lack of a strategic analysis based on science and innovation and as a process of social construction and structural change (Rey Novoa et al., 2024); in such a way that it contributes to establishing a model of territorial governance through effective and innovative decision-making and a better contribution to the implementation of the National Economic and Social Development Plan and the Sustainable Development Goals for 2030.

The aim of this paper is to establish a model of territorial governance for development, based on the experience of Cienfuegos in the construction of the Provincial Development Strategy, whose conception is based on the institutional framework derived from the Policy for Territorial Development and Government Management, based on Science and Innovation in Cuba (Díaz-Canel Bermúdez, 2022).

## MATERIALS AND METHODS

The methodology for applying the model involved the construction of the provincial development strategy, which has a structure comprising: vision and strategic lines, territorial public policies, development programs and projects, and the territorial innovation system; in line with the conceptualization, principles, and premises of the territorial governance model for development; it is conceived, implemented, conducted, and evaluated by a diversity of actors and the main authorities, based on the identification of complex problems, and governance is applied throughout its management cycle.

The methodological design took into account the institutional framework derived from the policy for the strategic management of territorial development and science and innovation-based government in Cuba; in particular, the proposal for methodological guidelines on the working system for such purposes by the Ministry of Economy and Planning. This work system considers a better theoretical and practical construction in the municipalities (Municipal Development Strategy), while the provincial level (Provincial Development Strategy) lacks methodological tools and systematized practical experiences.

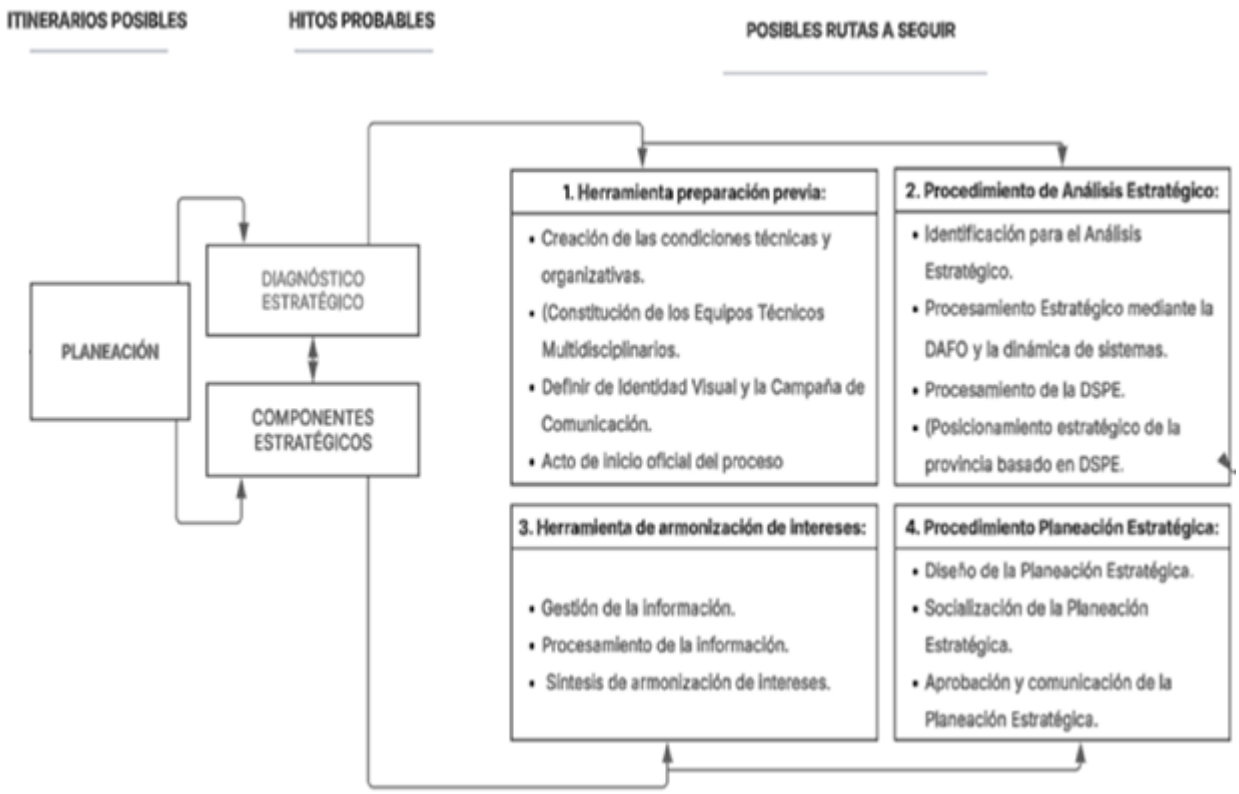


**Figure 1.** Diagram for strategic planning, which considers strategic analysis
Source: Own elaboration

Its construction was based on the Territorial Governance Model for Development and a systematization of the social construction process developed by the actors in the Provincial Development Strategy of Cienfuegos; the methodology for the construction of the strategy considers four itineraries, and this article considers the planning one (Figure 1). The research-action-participation method was used in the methodology that operationalizes the model and the strategy.

The strategic analysis is structured in four dimensions (economic, socio-cultural, environmental, and political-institutional), based on the official establishment of five multidisciplinary teams from five different perspectives (citizens, municipalities, provincial administration, science, and disparities and production chains); in all cases, the SWOT methodology (strengths, weaknesses, opportunities, and threats) is used. This process provided a wealth of viewpoints and allowed interaction with a wide range of actors (citizens, experts, businesspeople, officials, etc.). This result is integrated with the

structural analysis, which identifies the main potentialities and constraints, conflicts, inter-territorial and multi-level complementarities, and structural problems of territorial development.

## RESULTS AND DISCUSSION

The methodological approach takes into account the institutional framework derived from the policy for the strategic management of territorial development and science and innovation-based governance in Cuba (Díaz-Canel Bermúdez, 2022), in particular, the proposed methodological guidelines on the working system for such purposes of the Ministry of Economy and Planning. The authors' theoretical and methodological conception of the Territorial Governance Model for Development, based on all these criteria, also applies and understands open innovation and the use of the DUI Mode (do, use, and interact) for this purpose, proposed in the country as a reference for the construction of science, technology, and innovation systems (Delgado Fernández, 2024; Lundvall, 2009; Rodríguez Batista & Núñez Jover, 2021). Strategic territorial management considers a better theoretical and practical construction in the municipalities (Municipal Development Strategy), while the provincial level (Provincial Development Strategy) lacks methodological tools and systematized practical experiences.

The idea of connecting government decisions with expert knowledge is an international recommendation and has become a specific field known as science for policy or scientific advice for public policy (Díaz-Canel Bermúdez et al., 2020; Núñez Jover et al., 2023). In our country, we must ensure that this works at all levels and in all agencies, as connecting knowledge, innovation, and territorial development is a real challenge and, at the same time, a great strength.

### Strategic analysis of the province of Cienfuegos

The diagnoses made from five different perspectives were summarized to arrive at an integrated version of the territory that is expressed in seven strengths, 11 weaknesses, nine opportunities, and nine threats:

**Strengths:** Existence of infrastructure, resources, and capacities for economic and social development; establishment of the province's Export Hub; broad scientific potential with robust results; strengthening of the university-business-government-society link; high level of workforce qualification; strong culture of integrated management of watersheds and coastal areas; existence of natural resources with great potential for development.

**Weaknesses:** Limited effectiveness in the management of computerization and social communication processes, high technological obsolescence and deterioration of the productive and y infrastructure, disarticulation in the production system of goods and services, including new actors, instability and fluctuation of the workforce, inadequate relationship between use-potential of land resources, inefficient use of the territory's natural resources, territorial disparities in economic, social, and cultural development, poor management and use of waste, failure to take advantage of the government's science and innovation-based management policy, insufficient effectiveness in the control of material, economic, financial, and human resources, and failure to take advantage of heritage values for the development of tourism.

**Opportunities:** Updating of the Cuban economic and social model and its legal framework, greater flexibility in the management of development financing, existence of national programs for environmental protection, implementation of a science and innovation-based government management system, partnerships with national and international scientific institutions, broad possibilities for the export of goods and services, digital transformation of society, prioritization of the country's electricity sector, and a trend toward decentralization of powers at the territorial level.

**Threats:** Multidimensional international crisis and intensification of the US blockade against Cuba, high risk of natural, technological, and health disasters and climate change, decline in demographic indicators, dual currency system and inflation affecting the entire country, depopulation of rural areas, especially in the mountains, work organization and wages that encourage the exodus of the workforce, crisis in the country's electrical energy system, disadvantages of the Socialist State Enterprise compared to new economic actors, excessive bureaucracy in the regulation of investment, import, export, and legal procedures.

The result of cross-referencing these factors (SWOT Matrix) and their subsequent interpretation yields the following analysis:

The strategic problem lies in the fact that the Cienfuegos territory is undergoing a reorientation, where economic, social, environmental, and political-institutional weaknesses carry great weight and prevent the province from taking advantage of the opportunities offered by the national and international environment. Accordingly, the strategic solution that emerges is that the development of the province of Cienfuegos must be based on:

1. Territorial development in Cienfuegos should be based on **strengthening**:
    - infrastructure, resources, and capacities for economic and social development,
    - the province's export hub and the wide range of possibilities for the export of goods and services,
    - the broad scientific potential with robust results, the university-business-government-society link and alliances with national and international scientific institutions,
    - the implementation of a government management system based on science and innovation,
    - the level of qualification of the workforce,
    - the culture of integrated management of watersheds and coastal areas and natural resources with great potential for development,
    - the existence of national programs for environmental protection,
    - the maximum use of the updated Cuban Economic and Social Model and its legal framework,
    - flexibility in the management of financing for development,
    - the digital transformation of society,
    - the prioritization of the country's electricity sector, and
    - the trend toward decentralization of powers at the territorial level.
2. Territorial development in Cienfuegos should be based on **reducing**:
    - the limited effectiveness in the management of computerization and social communication processes,
    - the high level of technological obsolescence and deterioration of the productive infrastructure,
    - the disarticulation in the system of production of goods and services, including new actors,
    - the instability and fluctuation of the workforce,
    - the inadequate use-potential ratio of land resources,
    - inefficient use of the territory's natural resources,
    - territorial disparities in economic, social, and cultural development,
    - poor waste management and utilization,
    - the failure to take advantage of government management policies based on science and innovation,

- the insufficient effectiveness of the control of material, economic, financial, and human resources,
- the failure to take advantage of heritage values for the development of tourism.

3. Territorial development in Cienfuegos must be based on **mitigating**:
    - the multidimensional international crisis and the intensification of the US blockade of Cuba,
    - the high risk of natural, technological, and health disasters and climate change,
    - the decline in demographic indicators,
    - the dual currency system and inflation affecting the territory,
    - the depopulation of rural areas, especially the mountains,
    - the organization of work and wages that encourages the exodus of the workforce,
    - the crisis in the country's electricity system,
    - the disadvantages of the Socialist State Enterprise compared to new economic actors,
    - excessive bureaucracy in the regulation of investment, import, export, and legal procedures.

In parallel with the SWOT analysis, the potential and barriers to development are identified and ranked according to land use planning schemes. Complementarities and inter-territorial and multi-level conflicts are identified, as well as structural problems that have developed over the course of the province's history.

**Main potentialities and restrictions**

The main potential and constraints for the province's development, according to the 2018 Provincial Land Use Plan, are:

**Main potentialities:** land, the port, reservoirs, and other factors that support comprehensive and sustainable development, such as:

a) natural resources
b) significant hydrographic network
c) strategic geographical location within the South Coast Region
d) well-structured human settlement system
e) skilled and unskilled labor resources
f) high natural, historical-cultural, urban, architectural, and landscape values

g) potential for industrial zones with existing infrastructure
h) road and rail networks
i) maritime infrastructure
j) transmission and distribution network (electricity, communications, radio, and television)
k) potential for development and use for changing the energy matrix
l) tourism infrastructure
m) priority lines for comprehensive territorial development

While the **main constraints** are related to:

a) inadequacy of agricultural productivity soils I, II, and III as agricultural land
b) areas with poor drainage
c) areas critical in relation to drought
d) coastal protection zones as physical construction limits
e) areas at high risk of flooding due to heavy rains, sea penetration, and other disasters
f) poor aquifers in some basins
g) settlement system with structural and operational problems based on a monocentric development model
h) bay with a narrow entrance, restricting the arrival of vessels longer than 228 m
i) draught limitation in the port area
j) deterioration of the road network
k) no freight center or area where train traffic converges

**Inter-territorial and multi-level conflicts and complementarities**

A relationship has been identified as a result of interviews with mayors, deputy mayors, municipal administrators, and development directors, as well as other members of provincial bodies and administrations, to be managed through mediation, negotiation, and harmonization.

Conflicts:

a) Caused by the historical structure of production chains. The links in the production chains that, due to the logic of the economy itself, are more lucrative are those where value is added or marketing is carried out. The typical municipality in Cienfuegos has, as a rule, been

relegated to primary production and, for this reason, the value chain is strengthened outside its boundaries, condemning its long-term operation to be extractive in nature.

b) Between the quality of employment and its remuneration and the stability of the skilled workforce. Associated with the historical structuring of production chains, the quality of employment and its remuneration increases in the links where value is added and is one of the causes of labor mobility towards sources of employment other than those in municipalities that have a negative migration balance, relegated by the labor market to the status of dormitory towns.

c) Consequence of the distribution of the results of production in the main sectors based on supramunicipal logic. In some cases, this logic does not obey the complementarities and commitments of the municipality to the interests of the development of the province and the country, limiting the development of the productive forces of the locality and preventing the municipal productive system from becoming more solid and mature.

d) The consequence of the frequent impact on the municipality of decisions that reintroduce the old management paradigm. Several management styles still coexist that impose guidelines on the municipality and not only distract it from the main effort of developing and implementing its own development strategies, but also limit it in the exercise of municipal autonomy, enshrined in the Constitution. This is a way of expressing the well-known resistance to change and generally occurs with the approval of the municipal actors themselves.

e) The fact that the province's working system at that time had no development strategy and clashed with that of the municipalities, which did have strategies. This lack of a single methodological management tool carries the risk that these points of conflict will be resolved by authority, to the detriment of municipal autonomy. The development of the provincial strategy will be the means to generate an integrated and harmonious working system based on the strategic objectives that have been set and harmonized.

f) Between housing construction and other priority services and demographic dynamics (also impacted by points 1 and 5 above), the largest investments in housing development are being made in the provincial capital, which, although not intentional, may be contributing to the depopulation of rural municipalities.

g) Between agencies operating in the same territory without proper coordination. This refers to the well-known problem that, for example, the Basic Electrical Organization suspends service to the community that the Water and Sewer Company supplies with water, or that, for

example, the latter opens trenches in the roads that the Road Maintenance Company has just repaired.

h) Between some decentralized powers and the availability of resources, capacities, and organizational structures to exercise them. This conflict tends to be resolved as the implementation of the territorial decentralization process provided for in the legislative schedule progresses. This process aims to define the powers that will be exercised at the municipal level, those that will be decentralized and shared between municipalities and other levels of territorial power, and the gradual decentralization of resources in line with these powers. The process also considers the management of the municipal enterprise system and the strengthening of capacities to exercise these powers.

Complementarities:

a) The productive vocation of each territory naturally leads to territorial production chains with ample scope for complementarity. For example: Aguada, Rodas, and Cumanayagua are livestock farmers, Aguada and Abreu are rice farmers, Cumanayagua is a coffee grower, and all, except Cumanayagua, are sugar cane growers.
b) In structuring the local innovation system, with ample potential for complementarity.
c) Use of natural resources (such as water, soil, and mineral deposits) and infrastructure to, among other things, mitigate the effects of climate change.
d) Risk reduction management.
e) Promotion of training, development, and innovation services linked to the promotion of specific activities, for example: Productive transformation and competitive international integration.

**The structural problems of territorial development**

As part of the strategic analysis, four structural problems to be transformed in the medium and long term are identified, whose interrelationships are identified, assumed, and evaluated as a challenge in the subsequent strategy management process:

1. structural deformation of the economy (disproportionate growth between the primary sector, consisting of raw material extraction, compared to the growth of installed capacity in the secondary or industrial sector, and between these and the tertiary sector, mainly tourism and domestic trade).

2. demographic behavior (the population is declining, particularly in rural areas, becoming concentrated and generating high dependence on those in employment).
3. territorial imbalances and monocentrism.
4. lack of construction and consensus on the identity of the territory.

The following is an argument.

Structural deformation of the economy:

The disproportion between the different sectors of the territory's economy shows a structural distortion (what was had and what is intended to be had is not relevant, and what is relevant, to a certain extent, is not managed by the territory) that has several negative impacts on both the economic and social order at the provincial level.

Firstly, it implies the need to import raw materials from the primary sector (agriculture) to enable the functioning of the tertiary sector (tourism and commerce) and part of the secondary sector (food industry or fertilizers, for example), failing to take advantage of endogenous resources that would allow for the sustainable development of the territory. For example, in the case of tourism, it has not developed effective linkages with agriculture to drive its development, yet it requires imports of meat, dairy products, vegetables, fruits, and other produce. With regard to the food industry, there is a clear weak link between the meat and dairy industries and producers, leading to their progressive decapitalization. Fertilizer production is based on imported raw materials, but the circular economy is not being developed effectively, failing to take advantage of animal excrement and other waste in the production of organic fertilizers.

Secondly, this has led to a high urbanization rate of 82.38 percent in the province, placing it third in the country, which increases consumers' dependence on food with respect to the decreasing number of food producers and has a negative impact on the desired food sovereignty that the country has proposed (Torres Paez et al., 2022).

Thirdly, the primary sector, made up of agricultural activity, is unable to meet the processing demands of the installed capacity in the secondary or industrial sector, so that it can add value and supply the domestic market and create jobs, or of both sectors with the tertiary service sector. This creates the need to import inputs and raw materials to ensure the functioning of industries such as

the fertilizer industry, the food industry, and the energy industry, as well as to meet the demand of domestic trade and the tourism sector, among others.

Fourthly, industry is not sufficiently linked to the tertiary sector, apart from the processes now referred to as the circular economy, failing to make effective use of waste from the meat industry (hides, bones, hooves, etc.) or the fishing industry, which could supply footwear or other products to the domestic market and even for export.

Another interrelated issue that needs to be addressed is attracting investment, as the province is lagging behind in terms of human development, mainly due to large investments by the country in provinces such as Artemisa, Holguín, Villa Clara, etc.

Demographic trends:

The province's population, as the object and subject of development, is declining and concentrated in the capital, with decreasing rates in the seven rural municipalities and, in particular, in the rural sector in recent years, and has a high dependency ratio on the employed. At the end of 2022, it had a population of 401,738 inhabitants, the result of a decline in its population in recent years; in the 2012 Population and Housing Census, it had 404,228 inhabitants. The demographic pattern of the province is marked by low fertility rates, low infant mortality, high life expectancy at birth, a cause of death structure dominated by endogenous diseases, high urbanization, an accelerated process, and notable levels of demographic aging. It is striking that the provincial capital is the only municipality that is growing steadily due to internal migration, while the rest are losing population, with a sustained decline in the population residing in human settlements classified as rural.

The province grew in population and infrastructure in the 1970s and 1980s at the expense of its industrial development, and this momentum continued into the early years of the current century. This sector continues to have a significant impact on the economy today, despite its obsolescence.

The greatest growth in these 45 years has occurred in the city of Cienfuegos, increasing the monocentrism that has always characterized this territory. However, the following question can be asked: does the territory of the current province of Cienfuegos have the population that will allow it to implement its development strategy in the coming years? Currently, 38% of the population resides in the settlement of Ciudad de Cienfuegos, bearing in mind that 82.38% of the population resides in settlements classified as urban. According to the results of the 2022 National Occupation Survey,

22.52% of the employed population was in the primary sector, 15.76% in the secondary sector, while 61.71% were employed in the tertiary sector.

Territorial disparities and monocentrism:

The development that has taken place is characterized by marked monocentrism and the persistence of structural asymmetry, which has been historically represented from the founding to the present day. The inter-municipal disparities that characterize development in the province of Cienfuegos are accentuated, where there is a great contrast between the municipality of Cienfuegos and the municipalities of the north-central zone. The results presented are based on scientific research and demonstrate the need for actions and resources aimed at eliminating the distortions that still persist and give rise to asymmetries in development within the territory of Cienfuegos.

Lack of construction and consensus on the identity of the territory:

The historical fact that conditions the construction of the province in a space relatively close to that of the founding of La Colonia, which very soon became a town, then a city and municipality, and later a region and province; associated with the rapid expansion of sugar production in the 19th and 20th centuries, determining the process of settlement of the territory and the growth of the city of Cienfuegos, marked by the sugar-port-city triangle where the processes of capital accumulation and architectural splendor manifested themselves in the city.

Subsequent industrial development and the status of province granted in 1976 led to a tendency for the province to continually take over the symbols of the city (coat of arms, anthem, architecture, shrimp, etc.); therefore, in the early years, the shrimp was chosen as a symbol, in the late 1990s and early 2000s, the pearl, and there is a clear current trend towards choosing the dome. In this regard, a council is needed to determine the key identifying elements of the province based on the criteria of scientific and cultural experts. This will provide the symbolic foundations of the territory that identify, inspire, and include all the inhabitants of the province.

**Analysis from a strategic perspective**

Closely interrelated with the SWOT analysis process, potentialities and barriers, complementarities, conflicts, and structural problems, a set of variables was identified which, after processing by experts, yielded 23 key variables with their respective descriptions: (1) investment process, (2) tourism

development, (3) use of heritage values; (4) food production, processing, and marketing, (5) integrated management systems, (6) infrastructure, resources, and capacities, (7) transparency, control, and economic and social order, (8) employment and wages, (9) demographic dynamics, (10) social communication, (11) land use, (12) natural resources, (13) integrated management of watersheds and coastal areas, (14) energy development, (15) land and urban planning, (16) stakeholder consultation, (17) science and innovation, (18) capacity building, (19) public policy management, (20) foreign trade, foreign investment, and international cooperation, (21) economic integration, (22) climate change, (23) digital transformation.

Once the structural analysis has been carried out and the key variables identified, the selection of the actors that influence them begins, through analysis by the group of experts, where the actors that control the key variables emerging from the structural analysis "the interplay of these actors or drivers" (Godet, 2007) is what explains the evolution of the controlled variables. These actors will be associated with the policies, programs, and projects generated to achieve the selected scenario.

Based on the processing of the 23 key variables, five hypotheses were constructed, which are presented below:

1. Digital transformation, science and innovation, and social communication have an impact on all economic and social processes.
2. The integration of value chains, energy development supported by integrated management systems, the sustainable use of natural resources, and the coordination of actors enable municipal productive diversification;
3. The use of heritage values, infrastructure, resources, and capacities promotes the development of tourism in the territory;
4. The generation and application of scientific knowledge, innovation, and international integration generate added value;
5. The management of transparent, inclusive public policies with the active and leading participation of citizens.

The next step was to correlate the hypotheses with the key variables, where the progressive fulfillment of Hypothesis 5: The management of transparent, inclusive public policies with the active and leading participation of citizens could be achieved within the time frame of the study, to the extent that digital transformation, science and innovation, and social communication have an impact

on all economic and social processes, municipal productive diversification is achieved, with the integration of value chains, energy development, and integrated management systems; In addition, sustainable management of natural resources and coordination among stakeholders will be achieved, and heritage values, infrastructure, resources, and capacities that promote tourism development in the territory will be leveraged. Likewise, if added value is obtained through the promotion of investment, science, and innovation, they can progressively contribute to the management of transparent and inclusive public policies, with the active and leading participation of citizens. In this endeavor, the variables: Integrated Management Systems, Infrastructure, Resources and Capacities, and Skills Development play an essential role.

**Probable scenarios**

Of the 32 possible scenarios, according to expert opinion, nine are considered the most likely, accounting for 75% of occurrences, even though the probability values for each particular scenario are relatively low, as shown in table 1.

It is possible to note the coincidence of criteria among them, where hypotheses 1, 2, 3, and 4 are positive in 6 of these 9 scenarios, and hypothesis 5 is positive in 4 of the 9 most probable scenarios. This indicates that it is necessary to act on economic, environmental, and political-institutional aspects, all of which will allow for progressive results in social aspects with the active and leading participation of citizens. Based on the above summary, the group of experts considered scenario E02 to be the preferred scenario. This reflects the most reasonable and favorable future for the development of the territory. It depends on the coherent and relevant action of actors in the policies and strategies that will enable it to be achieved, which is described below.

Betting Scenario

Based on the above summary, the group of experts considered scenario **E02** to be the **preferred scenario**. This reflects the most reasonable and favorable future for the development of the territory. It depends on the consistent and relevant actions of stakeholders in the policies and strategies that will enable it to be achieved.

**Table 1.** List of scenarios and hypotheses

| Scenario | H1 | H2 | H3 | H4 | H5 |
|---|---|---|---|---|---|
| E01 P=0.133 | 1 | 1 | 1 | 1 | 1 |
| E18 P=0.125 | 0 | 1 | 1 | 1 | 0 |
| E06 P=0.104 | 1 | 1 | 0 | 1 | 0 |
| E03 P=0.09 | 1 | 1 | 1 | 0 | 1 |
| E20 P=0.089 | 0 | 1 | 1 | 0 | 0 |
| E02 P=0.076 | 1 | 1 | 1 | 1 | 0 |
| E32 P=0.071 | 0 | 0 | 0 | 0 | 0 |
| E13 P=0.069 | 1 | 0 | 0 | 1 | 1 |
| E09 P=0.056 | 1 | 0 | 1 | 1 | 1 |
| Occurrence of the hypothesis in probable scenarios | 6 | 6 | 6 | 6 | 4 |

Source: Adapted for the Provincial Development Strategy in Rey Novoa et al. (2024)

This depends on actors acting in a coherent and relevant manner in the territory's public policies, considering their own resources, efforts, and will. It focuses on the desired future for the province, identifying as a basic requirement for success the conscious involvement and commitment of the actors who play a decisive role in transforming the key variables to achieve the desired scenario based on science and innovation-based government management with a horizon of 2033.

Description of the Betting Scenario

In the betting scenario, the province achieves the following:

- Digital transformation, science and innovation, and social communication have an impact on all economic and social processes.
- Value chains, energy development supported by integrated management systems, the use of natural resources, and stakeholder coordination are integrated, enabling municipal productive diversification.

- Added value is obtained by promoting investment through the application of science and innovation.
- The use of heritage values, infrastructure, resources, and capacities that promote the development of tourism in the territory.
- In this scenario, greater action is required in the management of transparent, inclusive public policies with the active and leading participation of citizens.

The betting scenario for the transformation of the territory is the result of a thorough strategic analysis based on the theoretical assumptions of system dynamics and strategic foresight, and its construction is a capsule that allows for the structuring of a vision for the development of this territory of the country.

The design and subsequent implementation of the new model of territorial development governance through the province's development strategy requires a working system that, according to Núñez Jover et al. (2023), places the main actors at all levels at the forefront of addressing problems that, due to their relevance and complexity, require knowledge, science, and innovation.

The province's development strategy must prioritize intergovernmental cooperation to strengthen the productive forces of localities. Greater value addition is required in the municipalities' agro-industrial and tourism chains to mitigate the labor market's relegation of these areas to the status of dormitory towns, contribute to the implementation of their strategies and the exercise of autonomy, mitigate the shortcomings of supra-territorial strategic management, the coordinated use of physical space, and reverse the demographic paradox by concentrating housing development in the provincial capital.

The province's development strategy must focus on enhancing inter-territorial and multi-level complementarities with wide margins in conditions of greater decentralization, due to the productive vocation induced by the value chains in the municipalities; with potential for synergy between local innovation systems, the use of natural resources and infrastructure, mitigation of the effects of climate change, risk reduction, and the promotion of training and innovation services for productive transformation and competitive international integration based on the identity of the territory.

The betting scenario is the result of interactive construction by the actors based on participatory action research and a thorough analysis using system dynamics and strategic foresight, allowing the vision for the development of this territory of the country to be structured; combined with effective

management in the work system of the Provincial Government of People's Power, it can mitigate the long-standing macroeconomic imbalances in Cuba, the intensification of the blockade, and the multiple national and global crises.

It is recommended that the methodological proposal be enriched through its application in other Cuban territories interested in it, emphasizing compliance with its principles and premises and the particularities established by provincial and municipal development strategies in the country.

It is recommended that the Provincial Government of People's Power continue with the Provincial Development Strategy itineraries through the work system for strategic management based on innovation from the theoretical methodological proposal, the defined principles and premises; It should raise the importance of capacity building for the implementation of policies by institutions and individuals and modify the praxis of actors in the territory through the joint construction of knowledge with more horizontal forms and better dialogue, in alliance with the University of Cienfuegos.

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## Conflict of interest

Authors declare that they have no conflicts of interest.

## Authors' contribution

All the authors reviewed the writing of the manuscript and approve the version finally submitted.