

Using a Dynamic Performance Management approach to reinforce the benefits of territorial strategic planning

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Abstract

The purpose of this paper is to present how system dynamics (SD) can be used to enrich performance management in local government and to foster a common shared view of the relevant system's structure and behavior among stakeholders for territorial strategic planning.

We begin by framing how dynamic complexity through SD modeling can support consensus building among different stakeholders within a territory, which moves beyond the traditional view of strategic planning within the context of a single jurisdiction. A Dynamic Performance Management (DPM) approach, as shown by our case-study approach, may help such players to overcome possible barriers to collaboration because of its support to better detect how pursuing a sustainable development in the territory's performance impacts on the sustainability of each single institution belonging to the territory.

This implies that territorial public agencies, e.g. municipalities, may understand and communicate to their stakeholders that long term performance cannot be only assessed in financial terms or by referring to output measures only, but also in relation to the outcomes that public services will be able to generate as value transferred to the territory. Likewise, the enterprises operating in a given territory should be enabled to detect how their own performance can be sustainable in the long run if they will be able to generate not only financial capital, but also social capital to the benefit of the other players belonging to the territory.

Therefore, a key to implement a DPM approach for each of the players is to combine an institutional (single-player) with an inter-institutional (i.e. multi-players or territory) perspective with a view to enhancing performance and pursuing sustainable development. An inter-institutional perspective frames the territory (rather than a single institution) as the relevant system where to comprise and manage the cause and effect relationships between performance factors and strategic resources.

Key-words: *System Dynamics; Dynamic Performance Management; Territorial Strategic Planning, Case-study*

1. The path from government to governance towards territorial sustainable development policy making.

Territorial strategic planning is a crucial topic for sustainable development. This field of study and practice underlies a method to enhance an effective implementation of the ‘metropolitan governance’ principle, i.e. “the process by which citizens collectively solve their problems and meet society’s needs, using ‘government’ as the instrument” (OECD, 2000).

In today’s globalized world, sharply characterized by decentralization and devolution, urban and regional areas are emerging as key players of the economic and social life. Their competitiveness, livability and sustainable development are cornerstones to pursue quality of life, economic development, and social wellness.

The concept of competitiveness, when applied to a territory, goes beyond a mere aggregation of the competitiveness of companies or other single organizations located in the area. In fact, a region can be considered such as an independent economic agent, competing on a global scale, with its own capability to attract and retain strategic resources to further improve its competitiveness, to preserve or increase quality of life and social wellness (Marques, 2012; Begg, 1999).

Interregional competition has been defined as “a process that occurs among territorial units aiming to increase the welfare of the people living in the cities or regions by promoting the development of regional and local economy, a development that certain groups try to influence explicitly or often implicitly through local policies by competing and rivalizing with other territorial units” (Lengyel, 2009, p. 18). More specifically, interregional competition implies the following (Lengyel, 2009):

- the aim to improve the welfare of the population leaving in the region, which involves the pursuit of objectives related, for instance, to the income produced and distributed into the territory, or to the employment rates;
- a set of different public-private players (whose interests may even compete with one another), where the city (or county) local government’s coordination plays an essential role in the network;
- an independent position of local players in designing and implementing the territory’s competition strategy;
- a shared vision of how the territory will pursue local economic and social development;
- a learning process, through which territorial actors are able to dynamically adapt their policies and actions to constant changes.

Likewise enterprises, cities and territories may compete to attract and retain a number of strategic resources, such as: mobile investment, public funds, infrastructures, companies, population, human

capital, tourism, arts, and global events (Lever, 1999; Porter, 1995, 1996). In pursuing territorial competitiveness, mutual reinforcing relationships between such resources are also fostered by local decision makers; for instance: human capital, companies, infrastructures, knowledge networks (e.g., universities, research centers) and the transparency of local public sector authorization processes, may further attract new companies, projects, and skills.

The capability of a territory to attract, retain and deploy such resources may foster the acquisition of further strategic resources that cannot be gained through ‘market-like’ competition, such as: quality of life, social capital, citizen satisfaction, trust in government, and reputation.

It has been emphasized (Camagni, 2002) the crucial role that territories may play in the processes affecting knowledge accumulation and in the development of collective learning cooperation models, rooted in a district culture. Within a territory, human, social and relational capital are crucial strategic resources to pursue competitiveness; they are necessary pre-conditions to strengthen employment stability, mutuality, to foster development of local well-being and wealth.

However, the governance of territories is not facilitated by a number of problems, which make the current administrative systems obsolete. Namely: fragmentation of jurisdictions, lack of coordination between them, blurred decision-making, chronic difficulties in financial management and fiscal policy making, lack of accountability and of outcome-driven vision (OECD, 2000).

Above all, changing attitudes and developing a culture of governance has been indicated as a major pre-requisite to improve the capability of metropolitan areas and smaller municipalities to pursue territorial and social development. More inclusive and participatory governance approaches should replace traditional and sectoral “top-down” rule-driven systems. In this perspective, the involved actors in the governance process should involve different social and cultural layers of population, businesses, non-profit institutions, and the public sector institutions operating at all levels in an urban area (OECD, 2000). This implies a shift from *government* to *governance* (Cavenago & Trivellato, 2010). While the first concept underlies a situation where a local administration strives to directly provide solutions to problems, the second one underlies a coordinated effort by a plurality of actors (both public and private ones) to satisfy societal needs. In this different system, governmental institutions are expected to take an active role as leaders of a change and learning process, implying a constant interaction, not only with other public sector institutions, but also with the civil society.

An entrepreneurial spirit and a more strategic approach have been claimed as a prerequisite to pursue sustainable development, economic and social wellness of urban territories (Jessop & Sum, 2000; Hall & Hubbard, 1998). Such spirit should characterize a proactive approach in city decision-

makers, aiming to mobilize “social, political and economic resources in a coherent institutional framework to develop ... a clear social and economic development strategy” (OECD, 2000, p.3).

In the described context, among the tools and techniques contributing to the competitiveness and livability of metropolitan areas are: scenario planning, performance indicators, monitoring and evaluation processes; governance and strategic planning to support clustering and innovation, and more sustainable urban development.

This paper aims at demonstrating that framing dynamic complexity through System Dynamics (SD) modeling may support a better understanding of the driving forces of a territory’s performance and, therefore, may foster consensus building among different stakeholders, whereas a single player (e.g. a Municipal administration) usually takes a leading role in the strategic planning process in a territory. This line of inquiry builds on the research of Ghaffarzadegan, Lyneis, and Richardson (2011), where small system dynamics models were used to enhance public policy, and decision-making.

In the next sections of the paper, the concept of territorial strategic planning and the need of a multi-disciplinary and interinstitutional approach will be first illustrated. Then, the concept and method of Dynamic Performance Management (DPM) will be explored. Through a case-study we will show how DPM can be applied to a medium-sized territory. Based on an analysis of the case study, a conceptual feedback model linking strategic resources with performance drivers and end-results will be outlined.

After describing the background of the territorial area, and the characteristics of the strategic planning process followed by the key-actors in the area, using “traditional” instruments of “deliberative democracy”, we will discuss how SD could be adopted in such context to enrich performance management, and how key drivers can be used to foster a shared view among key-players about the future of the area, with a view to support policy and process changes.

2. Pursuing sustainable development through territorial strategic planning: the need of a multi-disciplinary and interinstitutional perspective.

The culture and practice of strategic planning, applied to territories, has evolved since the ‘60s according to three main consequential stages (Tanese *et al*, 2006, p. 17), i.e.:

1. *Structure plans* have been a first kind of tool that was used to provide a long-term guide for changes to land use, buildings and public spaces. This first generation of plans has been mainly developed in the UK practice, since the ’60-70s, according to a systemic and

“strategic rational” – but static – approach. This approach implies that each single local public sector institution operating in a territory is seen as an isolated player pursuing the public good, in respect to the specific functions it fulfils.

2. *City strategic plans*, which have been adopted, based on the pioneering work developed by Arthur Andersen in 1982 in the city of San Francisco. The approach characterizing such tools was borrowed from the business practice, and the focus of the planning effort was only on a single institution, i.e. the city.
3. *Territorial strategic plans*, which started emerging from the early ‘90s in order to foster territorial governance and the participation of different public and private stakeholders, aiming to involve citizens in policy-making, according to a pluralistic and participative perspective. Territorial strategic planning is an ongoing activity, which should guide – rather than precede – action. A multi-actor, dynamic and systemic view, aimed to deal with global and sustainability issues sharply characterizes such planning approach.

Territorial strategic plans should deal with the dynamic complexity of governance in regional areas. Such complexity has a number of practical implications, such as the need for each institution playing a key-role in the territory to: 1) coordinate its policies and actions with those of other (both public and private) institutions affecting territory’s performance; 2) perceive and measure a territory's performance as a key determinant of its own performance; 3) promptly and selectively perceive the factors affecting territory’s results; 4) frame and manage the accumulation and draining processes affecting the territory’s tangible and intangible strategic resources; 5) identify delays and non-linear relationships between factors affecting performance; 6) properly perceive trade-offs in both time and space; 7) adopt a multi-disciplinary approach to frame different issues involving a plurality of study areas, ranging from urban planning, to architecture, sociology, accounting and finance, economics, political science, law, etc.

A lack of perception of such dynamic complexity can be considered as a major determinant of a partial, or even ritual implementation of the governance principles, through territorial strategic planning. The literature has pointed out how an improper design of institutional, regulatory, and information systems has often challenged the process of fostering territorial development through the drawing up and implementation of formal strategic plans (Razumeyko, 2011, p. 406-408; Ricz & Salamin, 2010, p. 28). Also, according to the authors’ experience, a number of methodological problems have affected the quality of territorial planning and implementation in the last decade. Such problems can be found particularly, in:

- A considerable level of *abstraction*: plans are built on vision statements, but they often lack focusing how long term views can be operationalised, and by which actors.
- A lack of focus of *trade-offs* in strategic decision-making. In fact, implementing a given strategy might improve territorial performance in the short term, but it might even lead to worse results in the long term (and vice-versa). Also, it might improve performance in a given industry to the detriment of another.
- The use of a static and non-systemic view, leading to difficulties by policy makers in identifying, measuring, and interpreting *weak signals* of change that might suggest to promptly undertake corrective actions in implementing plans, or even modify goals and objectives.
- Problems in framing *cause-and-effect relationships* affecting the desired outcomes in territorial performance.
- A missing link between territorial strategic plans and performance measurement/evaluation systems.
- The use of a sectoral disciplinary approach in planning and implementation.
- A lack of coordination and synchronization of actions by different players, leading to frequent implementation problems.

Regarding the last two points, a few comments are needed. First of all, we'll focus the disciplinary perspective issue.

On this regard, scholars from each discipline may often contribute to the territorial strategic planning process by assuming a too specific and narrow viewpoint, in relation to the multifaceted framework of the analyzed contexts. For instance, urban planners may be prone to over-emphasize the architectural and land-use perspectives associated to the development of metropolitan plans; sociologists may devote more attention on the effects of group behavior and culture on territorial performance; accountants and financial experts may be too focused on the technical aspects associated to the drawing up of budgets and reports, often linked to the formal procedures through which public sector decision makers are legitimated to obtain the resources to implement policies; experts in regional studies may over consider macro-economic aggregates (e.g. consumption rates, savings, employment); political scientists may overweight the role of rules and formal institutional systems.

Though the viewpoint of each discipline may be considered as consistent with the analyzed topic – if observed within the framework of a specific study-area – a sectoral approach runs the serious risk

not to be able to capture the systemic, complex and dynamic structure of the problem context.

Therefore, an *inter*-disciplinary (rather than *multi*-disciplinary) and learning-oriented perspective is needed.

If we now consider the very last mentioned methodological problem (i.e., lack of coordination between players) we should observe that, in order to pursue territorial sustainable development, a combined institutional and interinstitutional perspective is needed.

Under an institutional perspective, performance is seen as an output or an outcome of the policies adopted and the actions undertaken by decision makers in a given organization. Performance is, hence, primarily assessed in relation to the effects produced by a group of actors *on the institution* to which it belongs.

Under an interinstitutional perspective, performance is seen as an outcome of the policies adopted and the actions undertaken by decision makers *in different inter-related organizations*. If framed under this level of analysis, performance is primarily assessed in relation to the effects produced by different organizational actors on the wider system (or territory) to which they belong (Bianchi, 2010; 2012).

Today, due to increasing dynamic complexity of competitive and social systems where organizations operate, there is a growing need to assess performance under an *interinstitutional* level. The extent to which an organization is able to contribute to the generation of value in such a wider system (interinstitutional level), provides a good estimation of the sustainability of organizational growth (institutional level).

Therefore, assessing organizational performance under an *institutional* level can be considered as only a first step to assess performance under an *interinstitutional* level. In fact, for instance a business which is able to combine the generation of profits with the creation of new employment, of new industry knowledge and increasing product quality at a reasonable price is likely to positively contribute to the generation of value for the territory to which it belongs. Such value will be measured in terms of tax contributions, increasing employment, shared knowledge with business partners, etc. It will provide the conditions for the generation of new value to the benefit of each institution, and hence will generate new growth on an institutional level. For example, a territory could be made more attractive, due to public investments in infrastructures funded by higher tax contributions, and to higher skilled and motivate workers.

So, if a business is able to generate value to the benefit of the wider system to which it belongs, this will constitute a fundamental condition to make its growth sustainable in the long run. On the contrary, a business generating value *only* to the benefit of itself (i.e. on an institutional level) to the

prejudice of the territorial space where it operates (i.e. on an interinstitutional level), it will run the risk to make its growth unsustainable in the long-term.

Framing organizational growth sustainability under an *interinstitutional* level is a traditional viewpoint when the outcomes of public policies are assessed. In such a context, a public institution often takes a coordinating role in a system characterized by multiple actors, i.e. different (public and private) institutions.

Particularly if we aim to evaluate the outcomes generated by adopted or planned policies in such a context, the interinstitutional system's performance would not result from the aggregation (i.e. the sum) of the performance levels produced by each single institution. The performance of such systems would be, rather, the effect of the net of relationships and synergies between the different institutions linked each other. This applies to several examples.

For instance, to evaluate the outcomes of industrial district policies, a public decision maker (e.g. a Municipality) needs to move the focus of analysis from an institutional to an inter-institutional perspective (Bianchi, 2010, p. 378-381). The relevant system's boundaries for such analysis are much broader than those that can be associated to an institutional perspective. In fact, other public and private institutions (implying other decision makers) will be involved in such system. Such institutions will be related to other municipalities, associations of enterprises, single enterprises, Universities and research centers, non-profit organizations, and even families.

Therefore, each single organization operating in an interinstitutional system needs not only to focus on its own performance, but also on its contribution to the wider system's performance, which will eventually affect its own performance in a longer run.

Inside such a system, every single organization could build and/or share with others (both public and private; profit and not-for-profit ones) a given endowment of strategic resources (e.g. infrastructures, human capital, capacity, image, environmental neatness) in a territory. Some of these resources will be privately owned by each organization (or ruled by groups of them); public institutions also may rule the access to some others. An important subsystem of such resources can be associated to the so-called *social capital*, i.e. to the connections among individuals and organizations and the norms of reciprocity and trustworthiness arising from them (Putnam, 2000) ¹.

Both the aggregate performance of a territory and the specific performance of each organization inside it, are significantly affected by the accumulation and depletion processes of social capital and

¹ Social capital is not just the sum of the institutions in a society; it is rather the glue that holds them together (The World Bank, 1999).

other strategic resources (e.g. infrastructures, image). For instance, an opportunistic business behavior oriented to maximize profits in the short run, e.g. without taking into account environmental pollution or human capital development issues, will contribute to deplete the quality of the territory's social capital and of the other strategic resources. In the long run, this will reduce the attractiveness and productivity of the territory itself. A lower attractiveness could be measured, for instance, in terms of a negative market labor turnover rate (resulting from the loss of population); a lower productivity could be measured in terms of yield reduction in the exploited territorial resources (e.g. labor, raw materials, suppliers, funders), and a drop in the level of synergy/collaboration between different actors in the system. A reduction in the territorial system's performance will determine – sooner or later – also a reduction in the performance of the opportunistic business.

The adoption of the described approach leads to integrated urban or metropolitan development plans developed around long-term visions for cities and neighbourhoods in their regional context. According to the European Commission, the experience has demonstrated that area-based integrated development plans work best if they are embedded in city-wide strategies and supported by policies that are geared towards specific target groups (European Commission, 2009).

In such view, strategic planning does not replace the ordinary tools of urban and territorial planning; on the contrary, it integrates in a rationally ordered framework the objectives of “strategic” importance, and outlines the future vision of the area, the strategic lines through which it is articulated, the actions and projects to be undertaken, and the resources to build.

Strategic planning emerges as an innovative process of extraordinary importance, since it coagulates the different actors of the local community (stakeholders) in a common effort aimed to draw the future of the territory in a long-term horizon and in multidimensional strategic frame embracing the urban, environmental, social and economic aspects of the community's life.

The importance of strategic planning mainly descends from the following factors:

- stakeholders are involved and made accountable over achieved results, both in the phase of planning and in the phase of implementation, through a process of «deliberative democracy» in an integrated perspective that overcomes the distinctions / opposition of roles among public and private sector decision makers;
- the idea of administrative border/limit is adopted; i.e., the efforts jointly undertaken by neighboring territorial areas to raise resources, exploit the territory's potential and foster development.

As stated at the end of the previous section, this paper aims at showing how a Dynamic

Performance Management (DPM) approach may help key-players in a territory to overcome possible barriers to collaboration, since it supports them to better detect how pursuing a sustainable development in the territory's performance impacts on the sustainability of each single institution belonging to the territory.

This implies that territorial public agencies, e.g. municipalities, may better understand and communicate to their stakeholders that long term performance cannot be only assessed in financial terms, but also in relation to the outcomes that public services will be able to generate as value transferred to the territory. Likewise, the enterprises operating in a given territory should be enabled to detect that their own performance can be sustainable in the long run if they will be able to generate not only financial capital, but also social capital to the benefit of the other players belonging to the territory.

Therefore, a key to implement a DPM approach for each of the players, is to combine an institutional (single-player) with an inter-institutional (i.e. multi-player, or territorial) perspective with a view to enhancing performance and pursuing sustainable development. An inter-institutional perspective frames the territory (rather than a single institution) as the relevant system where to comprise and manage the cause and effect relationships between performance factors and strategic resources.

Though urban studies are a tradition in the System Dynamics literature (Forrester, 1969), to our knowledge, this paper outlines a new stream for research and practice to propose a dynamic performance management as an approach applied to territorial governance and sustainable development (Bianchi & Navarra, 2013). The approach we use is based on insight conceptual models we have developed on an exemplary case study, to link territorial performance drivers and end-result measures in a feedback systems analysis.

3. A Dynamic Performance Management approach to enhance sustainable development in urban areas.

According to Bianchi & Riverbank (2012) one possible avenue to enhance performance management in the public sector — which is the term used for the implementation of performance measurement as described by de Lancer Jules and Holzer (2001) — is the application of system dynamics, where modeling organizational systems and simulation techniques are used for understanding the behaviour of complex systems. The advantage of using this approach is placing performance measures into the broader context of the system, responding to the reality that even simple policy and process changes to impact specific outputs and outcomes are not likely to be that

“simple” in organizations (Bianchi, Winch and Tomaselli, 2008). The main focus is on the wider system, and policy implications for each player can be taken by the light of the responses that the observed system’s behaviour is likely to give, as a consequence of changes in its structure.

If one takes the point of view of each decision maker on behalf of whom a SD model is developed, such a perspective could be defined as ‘external’, since it does not primarily reflect the observation point from which each involved player perceives the system. In other words, an ‘external’ perspective primarily implies an analysis of the relevant system per se, rather than that of a specific decision maker (Bianchi, 2010). A critical tipping point in managing organizational and territorial (inter-institutional) performance is associated to the capability of policy makers to: a) identify those strategic resources which most determine the success in the environment (i.e. competitive and social systems) where an organization or different organizations operate; b) insure that the endowment of such resources is satisfactory over time; c) keep a proper balance between the different relevant strategic resources. SD can then be used to enrich performance management in local government, focusing specifically on how the development of conceptual and simulation models can foster a common shared view of the relevant system among stakeholders.

According to a dynamic performance management perspective, each strategic resource should provide the basis to sustain and foster others in the same system. For instance, both workers and equipment provide capacity, which affects perceived service quality. This affects territory attractiveness, which, in turn, influences population dynamics. A change in the population that a municipality must serve will affect workload and perhaps the stock of available financial resources, and eventually capacity and service. The feedback loops underlying the dynamics of the different strategic resources imply that the flows affecting such resources are measured over a time lag. Therefore, understanding how delays influence strategic resources and achieved results becomes a key-issue to manage performance in dynamic complex systems.

Another key-issue suggested by a dynamic performance management view is the need to adopt a broad enough perspective in order to understand the driving forces affecting achieved results. This implies that the number and range of stakeholders involved in making decisions influencing strategic resource dynamics — and, therefore, the relevant system’s performance — are often located in several organizational units and institutions in a given territorial area. Such implication is particularly relevant when performance management concerns the outcomes generated by public policies and the sustainability of performance indicators is measured not only in the long term, but also in the short-run.

Figure 1 illustrates how the *end-results* provide an endogenous source in an organization to the accumulation and depletion processes affecting strategic resources. In fact, they can be modeled as *in-* or *out-*flows, which change over a given time span the corresponding stocks of strategic resources, as a result of actions implemented by decision makers. End-results that most synthetically measure the overall organizational performance are flows affecting the accumulation of corresponding strategic resources that cannot be purchased. These are: 1) resources generated by management routines, and 2) financial resources (Bianchi, 2012).

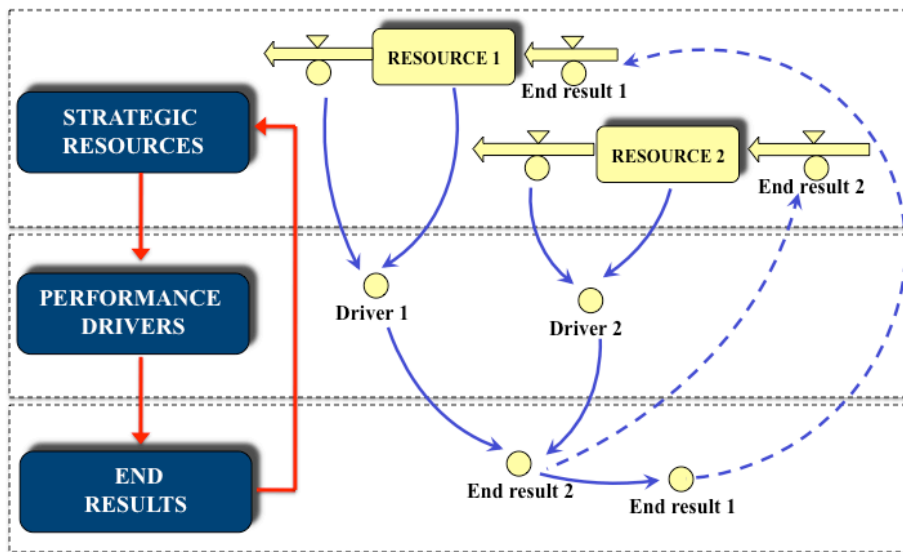


Figure 1: A dynamic performance management view.

Figure 1 also highlights that *performance drivers* are a measure of factors on which to act in order to affect the final performance. They can be measured in relative terms, i.e. as a ratio between organizational or territorial (inter-institutional) performance perceived by the community or specific groups of service users and a benchmark, or target. Such denominator must be gauged in relation to either perceived past performance, or users' expectations, or even competitors' (e.g. other territories) performance. For instance, if related to an end-result such as the number of new business initiatives undertaken in a urban area in a given time span, corresponding performance drivers could be associated to the (financial and socio-political) perceived stability of a region, and to the perceived transparency and promptness of the public sector (e.g., in terms of authorization protocols or supply of various services, such as those related to security, transportation, social assistance, housing).

In order to affect such drivers in the desired direction, each decision maker must build up, preserve and deploy a proper endowment of tangible and intangible strategic resources systemically linked each other.

The growth of a single organization and of a territorial community (like a urban area) embracing different institutions can be sustainable if the rate at which end-results change the endowment of corresponding strategic resources is balanced. This implies that each institutional decision maker is able to increase the mix of strategic resources and that this increase is not obtained by reducing the endowment of the wider strategic resources in the territory.

Such dynamic complexity factors justify the use of SD as an approach to frame territorial performance processes, and to improve decision makers' mental models and policy design. In the context of this paper SD provides a supporting methodology to the address the above methodological considerations for the development of a territorial strategy, an urban performance management model and a dynamic monitoring system when it is not immediately possible to understand *ex ante* the causes of phenomena, where it is problematic to conduct an evaluation of the possible future outcomes of decisions taken today. Especially when the decisions taken by a single organization affect other areas of interdependency with other organizations and stakeholders in the same or other cultural, local, regional or national systems. SD in this case would help decision makers to develop a common shared analytical view of the horizontal relationships between phenomena and of their interdependencies and evolution over time. An SD based analysis does not disregard the elicitation of the decision areas that each player is in charge of, and does not focus only on possible responsibility overlaps, but also on unattributed roles, inconsistencies, conflicts and ambiguities in decision-making processes, and their consequences on the governance, management and performance of the observed territory.

Through the SD method, it is possible to carry out a structure-and-behaviour analysis (Richardson, 1986; 1995), based on which the reinforcing loops underlying growth can be identified and fostered by proper development policies. Also, reinforcing loops can be associated to corresponding balancing loops, which provide a source of limit to the growth of the investigated system. By promptly detecting and counteracting balancing loops, decision makers can foster sustainable development. Bagheri and Hjorth (2007) called *viability loops* the key elements in these critical balancing mechanisms, which rely on the development and flow of information, knowledge and/or communication to keep the system in balance. Thus, to ensure that a system is meeting the sustainability requirements, we should look for the viability loops and keep them healthy to prevent exponential growth or decline due to reinforcing loops. Hence we outline the pillars of territorial planning and sustainable development in urban areas, based on the critical elements in a balancing system, able to reinforce sustainable urban development dynamics, and then we highlight a useful set of metrics to measure progress towards urban sustainability (Bianchi & Navarra, 2013).

Prevailing approaches of planning and strategy making, which traditionally deal with the states of systems in terms of fixed goals, fail to acknowledge the nature of sustainable development processes. Therefore to overcome the myopic view of relying on a handful of performance indicators to facilitate change, preliminary SD models can be sketched to map the structure of sustainable viability loops and to capture and communicate an understanding of behaviour driving process changes over time to a variety of stakeholders in a dynamic performance management model. The underlying principle is that if process structure determines system behaviour, and system behaviour determines the performance of stakeholders and organizations, then the key to developing sustainable strategies to maximize performance is acknowledging the relationship between processes and behaviors and managing the leverage points of the investigated system (Bianchi & Riverbank, 2012).

Our approach implies a ‘shift of mind’ in territorial planning, i.e.: from a “fixed-goal” to a “process-based” approach, which may trigger the participation of main stakeholders into the planning activity (Bagheri and Hjorth, 2007; Bryson *et al*, 2009; de Geus, 1988).

4. Territorial Strategic Planning case-study: the territory of Caltagirone

In this section we will illustrate a territorial strategic planning case. The planning effort was focused on the territory around the municipality of Caltagirone (Sicily, Italy). The plan was drawn up at the beginning of the last decade to support local policy makers to identify and frame the factors impacting on the territory’s performance, which is affected by different local public and private sector institutions. Such plan (Comune di Caltagirone, 2004) can be considered as the first example of territorial strategic planning in Southern Italy. We will particularly focus how revitalization strategies for ceramics handcrafting played a key role in the strategic vision outlined in the plan. Based on such analysis, in the last section of the paper we will reframe a number of critical issues of the plan according to a DPM view.

Caltagirone is a small town in the province of Catania. Located in central Sicily, at the center of a territory, named as “Calatino”, it is famous for its ceramics handcrafts. Such an industry was flourishing since the era of the ancient Greeks. The city has a glorious past, since it has been for over two millennia the privileged stronghold of Byzantines, Arabs, and Normans (fig. 2).

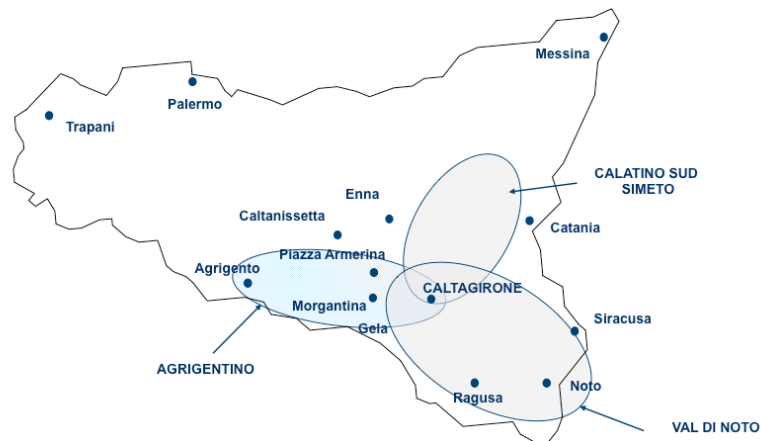


Figure 2: The geographical position of Caltagirone.

Rich of churches, valuable palaces and eighteenth-century villas, due to the exceptional value of its architectural heritage, in 2002 its historic center was awarded the title of World Heritage Site by UNESCO, together with the neighbor “Val di Noto”.

In spite of its small size (approximately 38,000 inhabitants), due to its geographical position, the city has been a hub for the territories located in the neighbor plains of Gela and Catania. Such territories overall count about 325,000 inhabitants.

The strategic plan of Caltagirone was promoted in 2003 by the newly elected mayor of the City with the intent to consolidate and give further impetus to various projects of urban renewal and promotion of economic development, started by the previous administration.

By that time, a number of programs mainly funded by the European Commission (i.e., the Territorial Pact *Calatino Sud Simeto*, PRUSST, URBAN II and LEADER II) encouraged the start of several initiatives in the area, with the aim to draw up and launch urban redevelopment projects. It also facilitated the start-up of new businesses, especially in the industries of artistic ceramics, tourism and agro-industry.

Despite such initiatives, the overall development of the area was unsatisfactory, mainly because of the following reasons:

- A weak entrepreneurial culture, due to the traditional development model followed in the last decades in the area. Such ‘model’ was mainly based on an individualistic search of a safe and easy employment in the public sector, rather than on the pursuit of projects aimed to add value to the territory.
- A fragmentation of initiatives to promote the area, carried out by various consortia, local

development agencies, different actors in the tourism industry. Such initiatives did not converge in viable projects, leading to further implementation.

- A lack of coordination and consensus among different involved actors, such as: local government, entrepreneurs, banks, and education institutions. Still today, such coordination between different players seems to be mainly based on only spontaneous or emerging factors, such as good interpersonal relationships, rather than on the adoption of a consistent method fostering a common shared view of the system on which to act.
- A fragmented – rather than systemic – view of the broad area of South-Eastern and Central Sicily and of the role of Caltagirone in such area.

The intent of Caltagirone’s mayor was to enhance a development process, through a strategic plan that was outlined around three main phases.

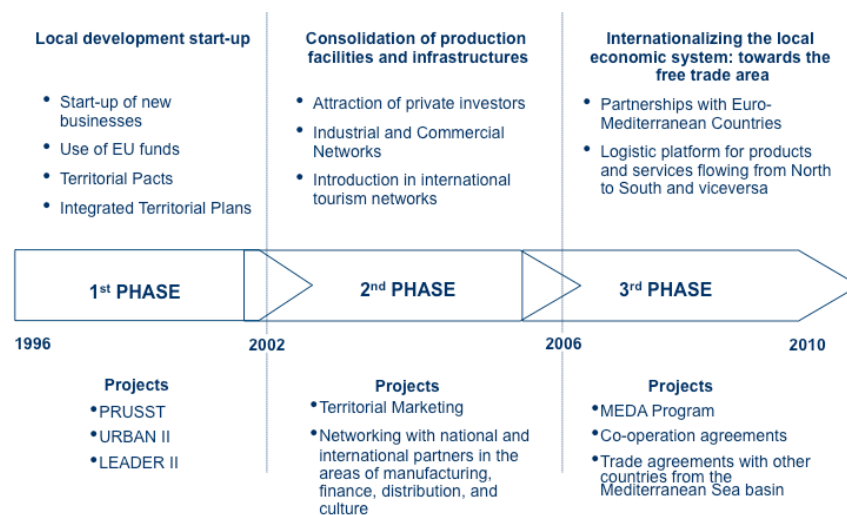


Figure 3: The development process of Caltagirone to strengthen its role in the economy of South-Eastern Sicily and the Mediterranean Sea basin

As figure 3 shows, in a medium-term (2003-2006) the plan aimed to create an attractive environment for private initiatives and investments promoted by local and outside actors, and to increase the opportunities for youth employment and entrepreneurial growth. This goal was pursued by (1) enabling the city of Caltagirone to play a more important role in the area of central-southern Sicily, based on a strengthened co-operation with the main cities in neighbor territories, i.e.: Calatino Sud Simeto, Val di Noto, Piazza Armerina, Gela, and Agrigento, and by (2) improving the citizens’ quality of life.

In a long-term perspective (2004-2010), the goal was to create the necessary conditions to internationalize the territory and prepare it to take advantage from the opening of the free trade area

of the Mediterranean Sea. This goal would have been pursued by promoting cooperation and joint investments with players of other countries in the Mediterranean area. To this end, fostering the exploitation of the distinctive assets of the Caltagirone district and leveraging on them would have been a critical issue.

In such view, the role of the Municipality was to act as an integrator among the different stakeholders who were invited to become the actors of the planning process, through their participation to roundtables, think tanks, brainstorming sessions, etc. (fig. 4).

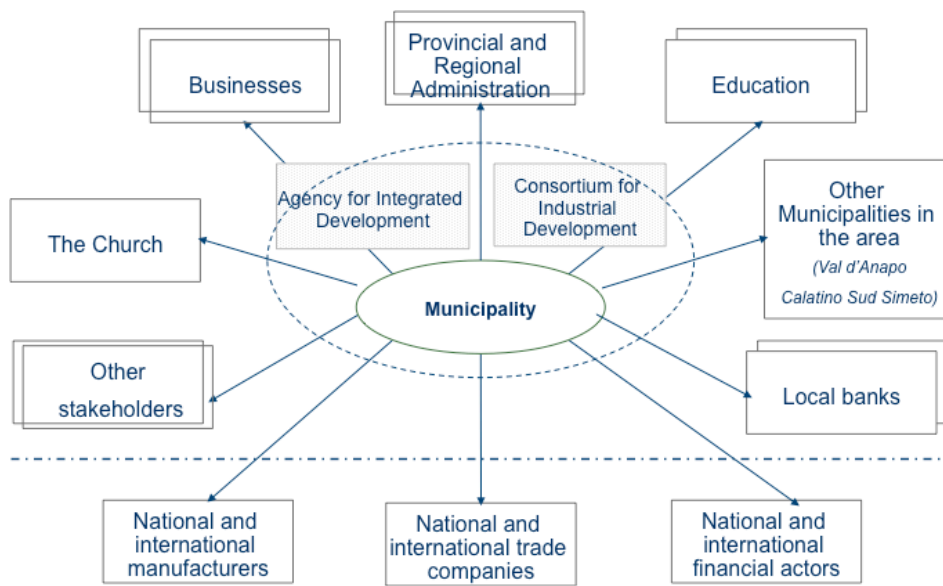


Figure 4: The Municipality as an integrator of the contributions of various stakeholders.

The strategic planning process is depicted in fig. 5.

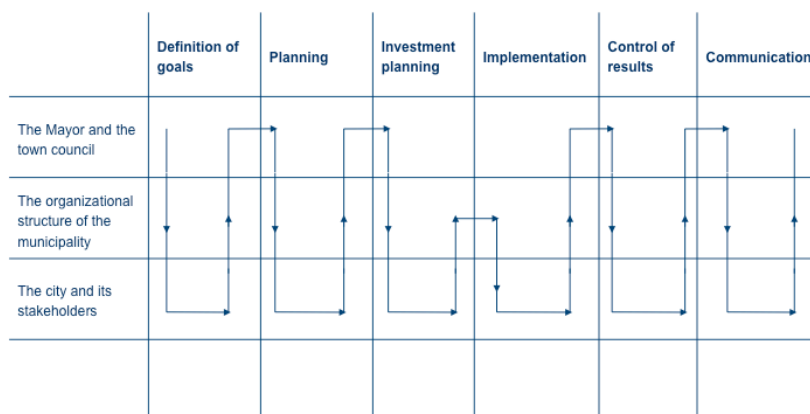


Figure 5: The strategic planning process

To draw up the strategic plan, a team of consultants supported the Municipality of Caltagirone. One of the co-authors of this paper was a member of this team. The project team spent 18 months to collect data to feed the planning process, to identify main stakeholders in and outside the territory, conduct interviews with them, and support the local administrators in outlining realistic goals and actions. The plan was issued in 2004.

Based on a prior socio-economic analysis of the area and on the ideas, suggestions, and requests raised by different stakeholders, the plan defined a set of “visions” for the future of the city and the surrounding area. Such visions were then structured around a system of strategic goals, strictly intertwined each other.

The guiding principles of the plan can be synthesized as follows:

<p>Enhancing the “uniqueness” of Caltagirone</p> <ul style="list-style-type: none"> ▪ Baroque ▪ Craft workshops ▪ The wheat tillage station ▪ The image of “Don Sturzo” ▪ The historic ceramic staircase ▪ The Museum of artistic ceramics ▪ School of art of ceramics 	<p>Resolving the structural criticalities of the city</p> <ul style="list-style-type: none"> ▪ Seismic Vulnerability ▪ Traffic congestion in the historic center ▪ Desertification ▪ Ageing of the population
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Both an economic and social perspective of development were outlined:

<p>Economic development</p> <ul style="list-style-type: none"> ▪ Tourism based on culture, agriculture, congresses ▪ Agro-biological industry ▪ Ceramics and quality craftsmanship ▪ Commerce 	<p>Social development</p> <ul style="list-style-type: none"> ▪ Social cohesion ▪ Quality of life ▪ Urban quality
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The guidelines for development (missions) were listed as follows:

- Develop and disseminate a strong culture of quality;
- Enhance the history, traditions, environmental resources of the area;
- Embellish/make the city more welcoming;
- Internationalizing culture and trade relations;

- Adapt services to international standards;
- Focus policies on the territory wider than the city, as a basis to increase the value provided by Caltagirone;
- Extend production chains;
- Combine innovation and tradition, but also art and technology.

The overall logic pursued by the plan was essentially based on framing the “drivers” of such development. For instance: which role would have played an improvement of key production chains, of local product and service quality, so to make the area more attractive to outside investments? This analysis would have involved the companies of the area in new projects aimed to generate a stronger business culture and to foster the development of professional services to local enterprises (see fig. 6).

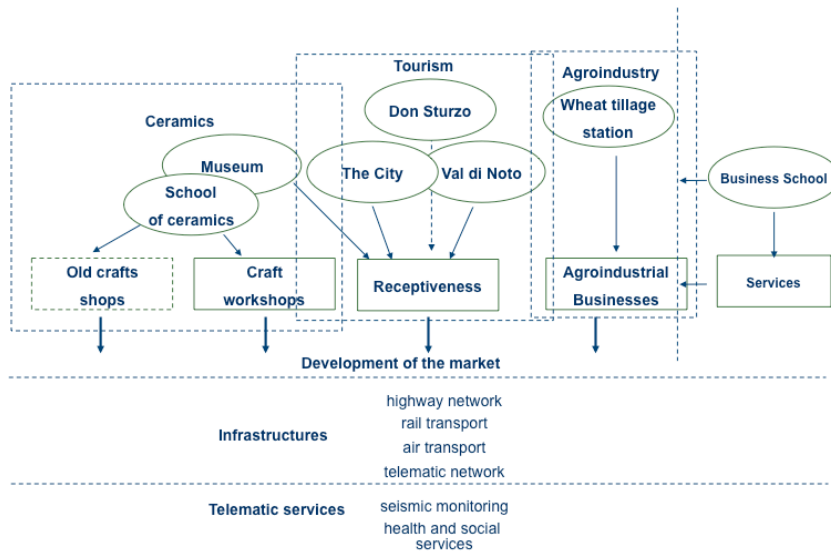


Figure 6: The development framework outlined in the plan.

The following table portrays a summary of the objectives and development projects related to the different “visions” of the city.

Table 1: The territory’s vision and related strategic objectives and projects included in the plan.

“Vision” of the future of the city	Strategic objective	Projects
Caltagirone as an attractive city	Promote the image of Caltagirone to encourage and develop high quality tourism	<ul style="list-style-type: none"> – Baroque Caltagirone Unesco heritage – New look for the city – To each citizen his/her own park – The city as an open museum – The city of don Sturzo
Caltagirone as an educating city	Enhance the role of Caltagirone, which was hosting a University in old times, as a center of cultural production and as a point of reference for the enjoyment of culture on the territory	<ul style="list-style-type: none"> – The city as a hub for education and as an engine of culture – A multiplex city for congresses and conventions – The city of authors – The city of photography
Caltagirone as a city to be lived	Urban quality and quality of life as resources for the development of the area	<ul style="list-style-type: none"> – A suitable city for elderly people – Children "masters of the city" – A livable city for disabled persons – An ethnically integrated city – A careful city – A clean city – zero emissions – Public utilities – Urban regeneration
Caltagirone as a center of innovation and implementation of new technologies	Favouring the use and integration of innovative technologies	<ul style="list-style-type: none"> – New technologies – Biotechnologies for quality feeding – High tech baroque buildings
Caltagirone as a city of artistic productions and quality handicrafts	Boost the image of Caltagirone internationally as a center of innovation and production of high quality artistic ceramic	<ul style="list-style-type: none"> – For a new development of ceramics – The school of ceramics as a centre of innovation – Manufacturers of internationally recognized quality
Calatino as a territory of innovation in agriculture	Enhance the area as a center of production and processing of high quality agricultural products	<ul style="list-style-type: none"> – Biological, integrated cultivation and development of local products – A chain of high quality bread and pasta – Against desertification processes
Caltagirone e-Government	Improve the efficiency of the local public administration “bureaucratic machine” and enable it to interact with citizens and businesses	<ul style="list-style-type: none"> – "e-Caltagirone"
Caltagirone as an International city	Promote the image of the city on an international scale through economic and cultural exchanges	<ul style="list-style-type: none"> – Pursuing international co-operation

The plan described in detail each of the projects listed above and also defined the investments and financial resource needs. An appendix to this paper will provide a synthesis of such section of the strategic plan.

We will now focus the specific implications of the Caltagirone's plan for the industry of ceramics.

Caltagirone is worldwide known for the production of ceramics that nowadays engages almost two hundred artisans. A myriad of shops enliven the streets of the city by exposing the typical products of this ancient art: dishes, jars, vases, tiles, candlesticks ².

After a period of strong growth, the industry entered into a stagnation phase, due to a loss of quality and the failure in research on new techniques and materials, which determined a process of vulgarization of the product and widespread imitative phenomena. Many competencies and professional skills related to the creation of the forms of handcrafts are almost completely lost. Some ancient crafts, such as turners, for example, are no longer available in the area.

The critical issues about the development of the ceramics industry in Caltagirone can be summarized as follows:

1. The majority of local artisans are now dedicated mainly to the production of traditional ceramic, which is often characterized by an inadequate quality level, if one considers the historical traditions of the city. Main customers are mainly occasional travelers, tourists and a few residents. This trend has hampered the artistic quality of handcrafts and has been a major cause of a more generalized decay generated by a lack of entrepreneurial spirit by local potters.
2. The sector also produces floor and wall tiles for kitchens and bathrooms with traditional design. This market segment requires a key-competences, which are closer to those of mass production than to handcraft, and therefore needs a proper management of commercial issues and production techniques. In spite of these changes in the production system, local producers are still far from making a major shift from a traditional (but mass-market and anonymous) production to the introduction of more advanced manufacturing and commercial methods.
3. Despite its history and ancient tradition, the State Institute of Arts, which in the past decades played a very important role in the preservation and transfer of technologies and in supporting the commercialization of products, now has been experiencing difficulties in interacting with local producers. There has been an increasing dichotomy between the policies undertaken by

² In Caltagirone, in 2000 there were 132 companies operating in the field of ceramic art, (of which, only 2 non-artisan). In the City there are 24% of all the businesses operating in the field of ceramic art in Sicily.

such Institute and the expectations of local craftsmen. This has led to a substantial lack of communication between them. In fact, the Technology Innovation Center – that features cutting-edge tools for testing and quality control of materials – has never been used by local businesses.

4. The ‘controlled designation of origin’ recognition, which was attributed to Caltagirone’s ceramics since the year 1993 has never played the role of a driving force for the development of quality, production reliability and innovation. The launch of the DE.CO.P. brand (Municipal Controlled Designation of Origin), by the Municipality of Caltagirone, in order to support and protect heritage, knowledge and experience of the ceramics handcrafting is still in its embryonic state.

There is still a need of leading actors, which are able to operate as driving forces for the industry, to network, foster a more market-oriented view, and to improve the capability to craft higher quality products, which may foster the pursuit of synergies with other sectors and other cultural domains of the territory.

It is necessary to recover the past values of art, and consistently connect them to those related to design, so that they may mutually reinforce. An enhanced design, which is consistent with the historical roots of local art, is today a fundamental means to increase the bounded production capacity of local craftsmen.

In order to face such challenges, the strategic plan identified three lines of action to boost the image of Caltagirone internationally as a center of innovation and artistic ceramic production quality, i.e.:

- a. *The pursuit of a stronger coordination between actors* (i.e., the State Institute of Arts, the Regional Museum of Ceramics, the Technology Innovation Center, businesses). To this end, a new company start-up was decided. The company’s shareholders would have been the Municipal administration, the regional government, the local agency for development, a local bank, the Institute of Art, and local businesses in the ceramics industry. The company aimed to promote the development of good practice along the supply chain. To this end, a training effort – focused on handcraft production and technologies – was considered as a key to foster a major change in the industry. Also, the new company would have pursued the role to monitor technological changes in the industry and to act as an external agency supporting local businesses in their R&D strategies. Furthermore, the new company would have supported local firms to refocus their design and commercial strategies, to better understand market structure and needs. Such company was even expected to foster a higher interaction (through meetings, projects and other joint initiatives) with different actors

related to other cultural and professional fields (e.g.: Design, Architecture, Construction, materials technology).

- b. *An improvement of the artistic and innovation skills* of local artisan firms, through the School of ceramics. Such School was started in 1918 by Don Luigi Sturzo, deputy mayor of the city, with the aim of contributing to the increase and improvement of the art of potters. The survival of a craftsmanship to our era is widely recognized as an outcome of the positive role played by this school in the region. The school has been able to retain the enormous cultural heritage of the city and has ensured the identity and tradition of Caltagirone. It has been the place for experimentation and innovation and has forged a number of famous masters in the field of artistic ceramic production. In spite of this, now the school is not able to interact anymore with local craftsmen: its teaching curricula are not able to meet the needs of entrepreneurs. Based on this analysis, the strategic plan outlined a deep reorientation of the role of the school, so to enable it to restore its ability to support the development of local firms, through proper training of craftsmen and professionals (e.g.: turners, toolmakers, decorators, but also designers able to use CAD systems, and experts in communications and business simulation). Such a strategic reorientation of the school would have enabled it to contribute to innovate the industry in its multiple dimensions and market segments (e.g.: art ceramics, industrial ceramics, advanced ceramic materials). It would have also supported companies in the identification of new uses for the products of the sector, e.g. through the search for new forms of ceramic cookies, as well as the combination of styles and colors from the tradition of Caltagirone with those of other countries, both Northern Europe (in particular Finland, Denmark and Sweden) and the Mediterranean area (mainly Spain, France, Turkey and North Africa).
- c. *The creation of favorable conditions to improve product innovation and a marketing effort aimed to gain a good international reputation.* To this end, the plan encouraged a number of initiatives fostering entrepreneurial development and new business start-up. A major concern was related to support startup firms in the ceramics industry in identifying their market segments, choose marketing channels (e.g., antiques dealers, jewelers, retail chains of high-class décor or design, high class hotels for higher quality products) and focusing other key players in the industry value chain (e.g.: designers, engineers, architects).

Table 2 reports the most relevant segments for ceramic products, with their respective distribution models. Figure 7 summarizes the main new models and consumption styles in the use of ceramics.

Object	Value for the client (purchase driver)	Elements that add value to the purchase	Partner	Distribution channels	Target
High-class handycraft	<ul style="list-style-type: none"> • investment • Collections • Furnishing 	<ul style="list-style-type: none"> • certificate of authenticity • art books • historical Books • Information about possible exchanges / purchases / sales in the "community" • repairs • restoration certificate 	<ul style="list-style-type: none"> • publishers • auction houses • art Galleries • centers of culture 	<ul style="list-style-type: none"> • Antiques • Jewellers • restaurants • Hotels • Design Furniture Stores 	Consumer
Tableware, ceramic tableware, gifts (umbrella stands, vases, tiles, statues, paintings, centerpieces, jars, stoves, ...)	<ul style="list-style-type: none"> • food use • furnishing • souvenir • Communication element 	<ul style="list-style-type: none"> • Possible uses at different temperatures • Historical books related to the territory • Cookbooks (vintage recipes, celebrities, ...) 	<ul style="list-style-type: none"> • publishers • designers • designer • Design schools • Communications businesses 	<ul style="list-style-type: none"> • hotels • restaurants • bar • large retailers • Specialty Shops • Manufacturers of kitchens 	<ul style="list-style-type: none"> • Consumer • Horeca
Tiles	<ul style="list-style-type: none"> • Interior decoration • Urban decoration (tile panels, ventilated facades, terraces, balconies, patios, floors, fountains) 	<ul style="list-style-type: none"> • custom design • custom decoration • Spare parts and supplies • Treatments and repairs 	<ul style="list-style-type: none"> • designers • architects • Artists • design schools • tech innovation centers 	<ul style="list-style-type: none"> • large retailers • Specialty Shops • Building industry businesses 	<ul style="list-style-type: none"> • Building industry • Public Sector (urbani planning) • Places of worship

Table 2: Ceramics products and distribution channels: the need of a product/channel specialization

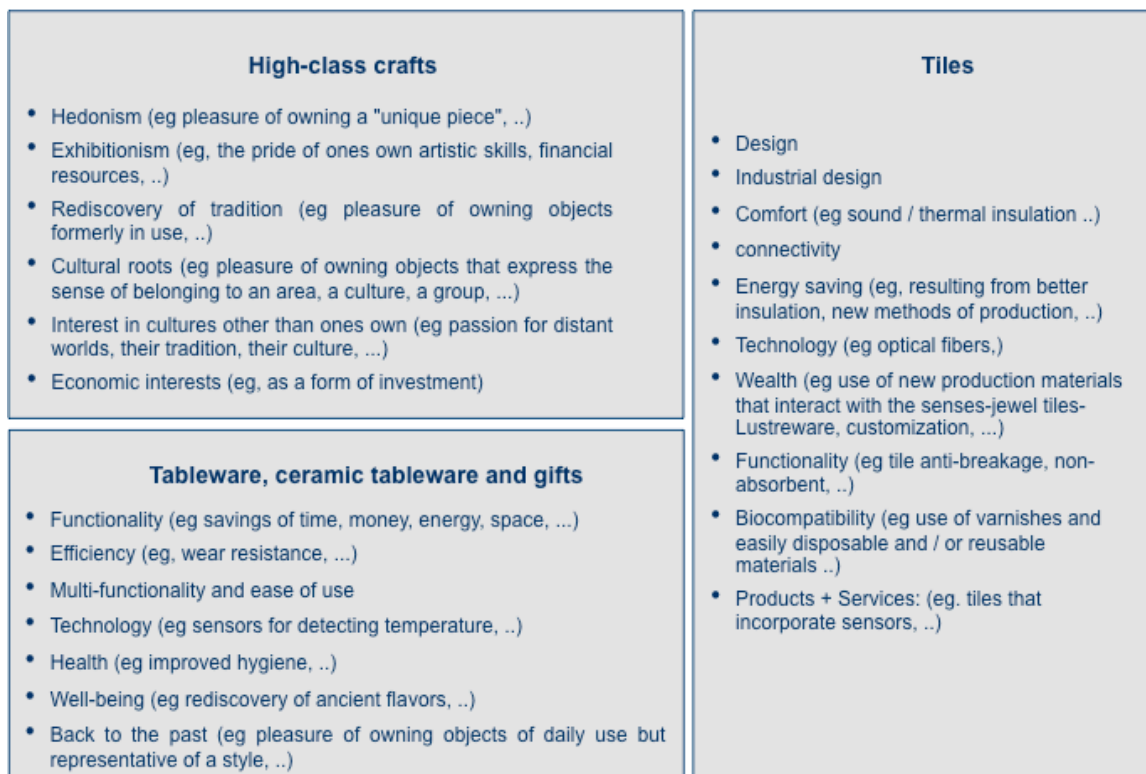


Figure 7: New patterns of consumption and new design styles of ceramic products

Figure 8 illustrates how, in order to foster innovation and better communication to the market, the players' capability to add value and identity to the product would become a crucial issue.

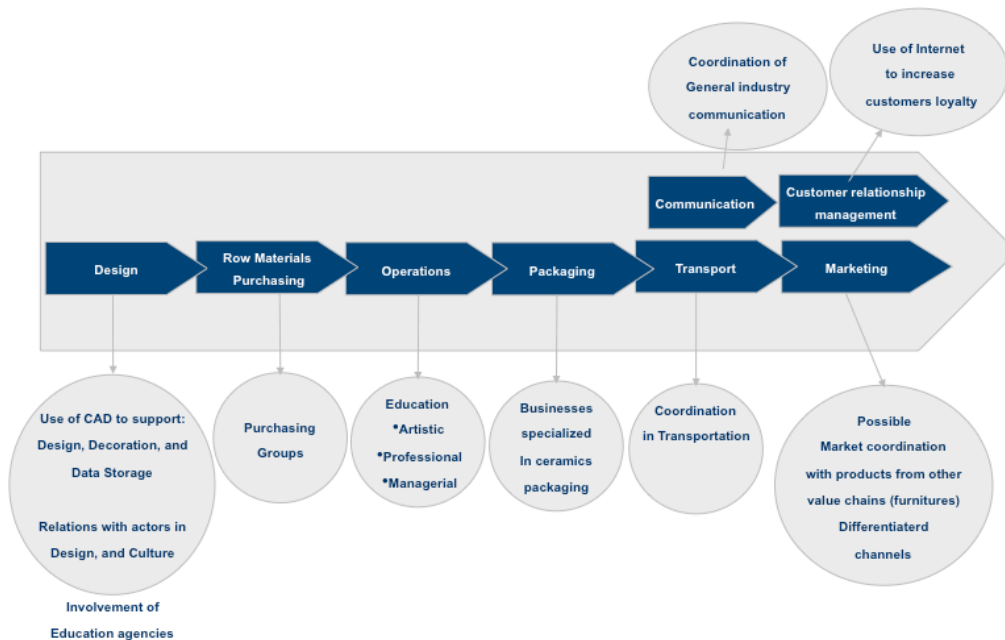


Figure 8: Possible areas of innovation along the ceramics value chain.

5. Main limitations of the Caltagirone strategic plan in dealing with dynamic complexity: insights for framing the ceramics industry according to a dynamic performance management view.

Although the efforts produced by involved actors to draw up a viable plan were substantial, during the implementation phase of the plan a number of problems emerged. As referred at the beginning of the last section, a weak entrepreneurial culture, a fragmentation of initiatives, a lack of coordination between stakeholders, and a cultural resistance towards a territorial – rather than an institutional-only – perspective in policy making, were the main causes of unsuccessful plan implementation.

In spite of the governance perspective that was nominally embodied in the plan, the various meetings and workshops aiming to align the policies and actions of different public and private sector institutions in the territory did not produce any practical outcome. A static and non-systemic view was adopted in framing the phenomena focused by the plan. Though individual strategic resources (e.g. infrastructures, knowledge, businesses, cultural heritage) were taken into account in the policy design process, the plan was not able to capture the effects that adopted policies might

have generated on their accumulation and depletion processes, over time, according to alternative scenarios.

The plan could not capture delays between causes and effects. For instance, it did not take into consideration the time that the designed policies to improve R&D and artistic/innovation skills would have required in order to generate the expected effects on ceramics quality. Also, it did not consider the delays through which the planned investments to improve the quality of the city's museums might have generated an improvement in the territory's image.

Such a static perspective underlies a bounded planning view, which is quite far from a policy outcomes evaluation. This implies a risk of inversion between means and ends. According to such view, building a strategic resource (such as knowledge, infrastructure, R&D capacity, a controlled designation of origin recognition) is implicitly considered as a goal to achieve, rather than a pre-condition to gain, in order to carry out effective policies aimed to affect the territory's performance, in terms of both drivers and end-results (i.e., outcomes such as: employment and investment rates, or change in citizens' quality of life).

Furthermore, although the plan mentioned possible trade-offs and/or synergies in space, e.g. related to different industries (such as: ceramics *vs.* tourism, *vs.* agriculture) or to market segments (such as artistic *vs.* industrial), there was not an attempt to measure the effects of planned policies on performance drivers and end-results.

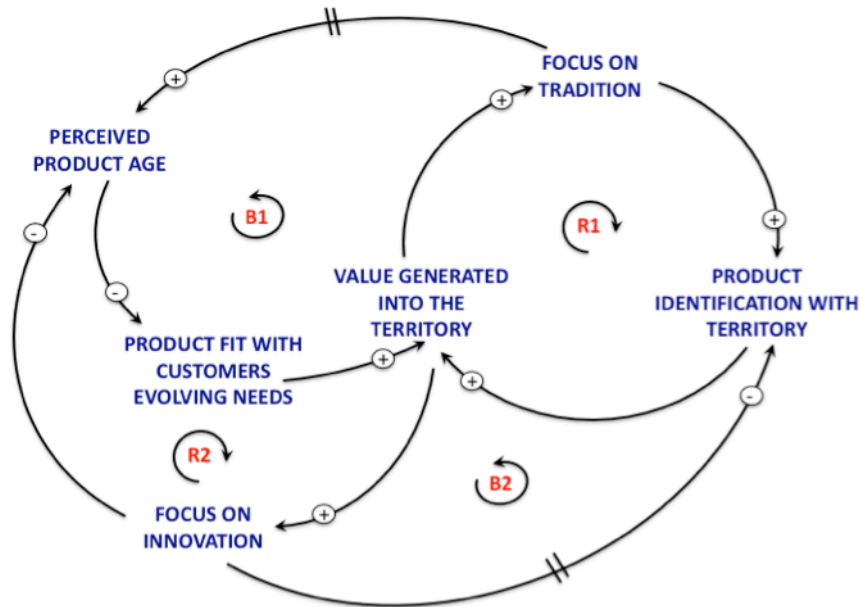
An example of this can be referred to the trade-offs between innovation and tradition in ceramic handcrafting. For instance, in the short run, focusing policies on tradition and continuity with the historical roots of the area is likely to consolidate the product image and its identification with the territory. This would increase the value (e.g. in terms of sales turnover, profits, or new jobs) generated by the product, and might foster further efforts oriented to focus the territory's policies on tradition's preservation (reinforcing loop "R1" in figure 9). However, focusing policies on only this direction might generate product obsolescence in the long run. In fact, new market trends might require a gradual adaptation of the product characteristics to the evolving values and needs of new generations of customers. A misperception of this need would increase the perceived product age, which would reduce the product fit with customers' evolving needs. This would decrease the value generated by the ceramics industry (balancing loop "B1" in figure 9).

On the other hand, in the short run, an aggressive innovation policy (e.g. aimed to foster an hybridization of ceramic crafts to embody emerging artistic traits from other cultures) could allow the product/territory to stay in an early maturity stage of its lifecycle and to increase the generated value (reinforcing loop R2 in figure 9). However, in the long run an excess of focus on innovation

might undermine the product identification with its territory; this would reduce the value created by the industry to the benefit of the territory (balancing loop B2 in figure 9).

Therefore, a proper mix between the two sets of policies might trigger a path to sustainable development. Nevertheless, the possibility to frame the effects of such policies requires an actors' capability to identify and analyze main feedback loops between relevant variables affecting the described system behavior. It also implies a proper methodological effort to identify and measure the performance variables related to the designed policies.

For instance, in the example portrayed in fig. 9, an effort is made in order to define for each variable in the feedback loop diagram one or more corresponding performance measures. Regarding such measures, a causal analysis is also done: end-results are affected by second level performance drivers, which are – in turn – affected by first level performance drivers. In this case, the average age of product portfolio is the first level performance driver, which is influenced by an aging chain of stocks depicting the number of ceramic models or forms in the territory's "portfolio" (strategic resources) at each lifecycle stage (fig. 10). An aggressive product innovation strategy implies an increasing percentage of the new products stock on the total. Such state of the system can be pursued by alternative policies. In the Caltagirone strategic plan, the adopted policies were focused on a new company startup to foster R&D and on the strengthening of efforts to revitalize the School of ceramics. As remarked, the implementation of the two policies should not be evaluated in terms of simple output measures (i.e. number of started or accomplished projects), but especially in relation to their outcomes. Such outcomes can be detected based on the identification and measurement of the indirect policy effects on the identified performance drivers and end-results. A dynamic performance management synthetic view of the described context is depicted in figure 10.



KEY:

- A — (+) —> B = Direct relation between A and B
- A — (-) —> B = Opposite relation between A and B
- A — (||) —> B = Delayed relation between A and B

VARIABLE NAME	UNIT OF MEASURE	PERFORMANCE MEASURE TYPE
Perceived product age	Average age of product portfolio	1 st level performance driver
Product fit with customers evolving needs	% Customer needs satisfied by product features Number of product forms and used raw materials	2 nd level performance drivers
Product identification with territory	% Products telling the history of Caltagirone	2 nd level performance driver
Value generated into the territory	Cash flows, Profits, Employment rates, ...	End-results

Figure 9: Main feedback loops and performance measures associated to tradition vs. innovation policies

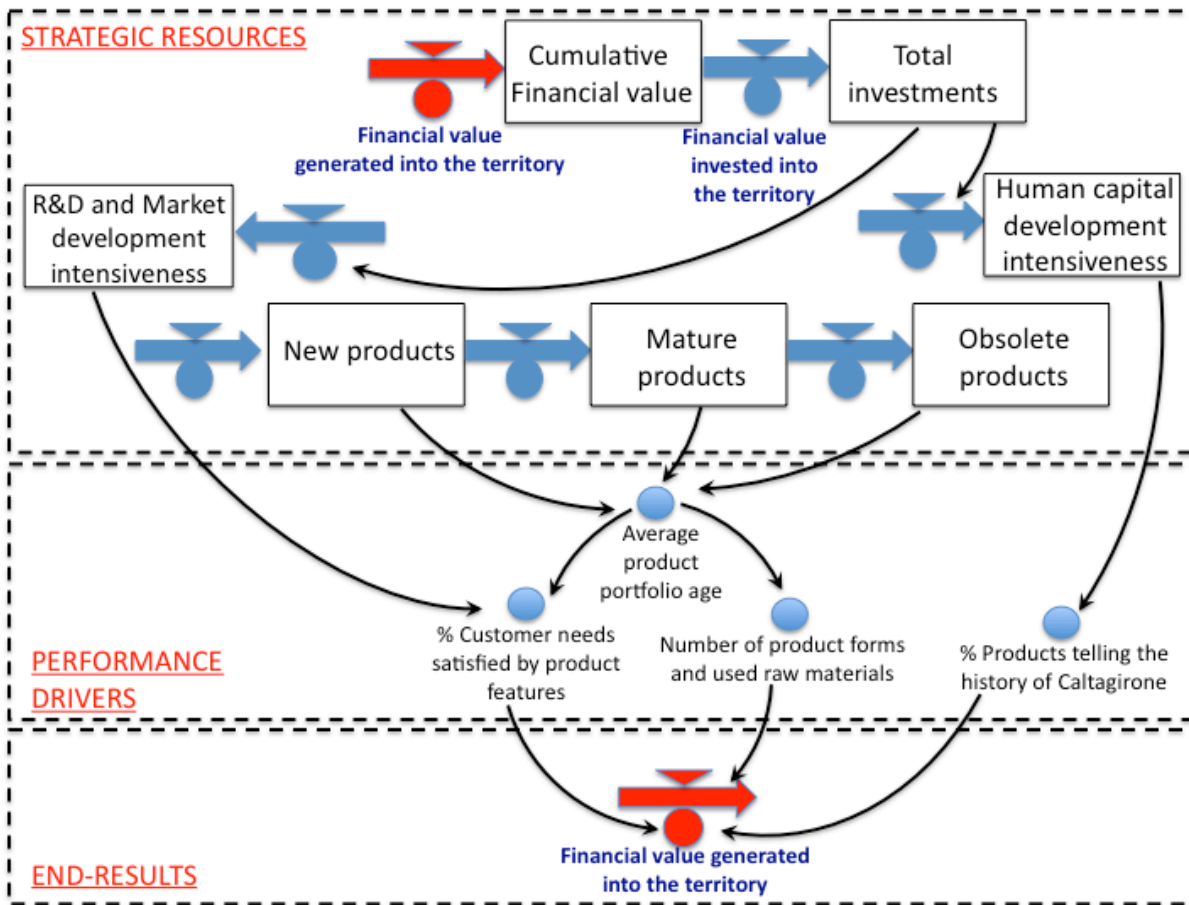


Figure 10: A dynamic performance management view of the tradition vs. innovation trade-off.

In particular, fig. 10 aims to show how we suggest applying system dynamics modeling (as illustrated in the example in fig. 9) to a territory’s performance management. For simplicity, we consider here as an end-result only the financial value generated into the territory by the ceramics industry. This can be referred as a synthetic expression of the income or cash flows earned in a given time span (e.g. a year) by companies in the territory. On the one side, the accumulation over time of this value contributes to increase the stocks of equity and financial resources of local companies. On the other side, it provides a basis for further investments in the territory. Such investments are here depicted as an accumulation into two different synthetic strategic resources, i.e.: “R&D and Market development intensiveness” and “Human Capital Development intensiveness”. The two stocks are an expression of the quality and volume of investments done in the territory to ensure that the development activities focused on innovation and tradition will effectively impact on the key-drivers affecting end-results.

Overall, an effect of the static and non-systemic view that was adopted in sketching the Caltagirone strategic plan was a lack of attention on the role that an individualistic culture, a fragmentation of jurisdictions and administrative processes encompassing different public and private organizations in the territory would have affected in delaying and tackling the implementation of the change process designed by the plan.

Perhaps, in the short term, a more realistic strategy might have been focused on the pursuit of a gradual improvement in key-actors' (i.e. entrepreneurs, public sector decision makers, etc.) culture and knowledge, as well as in organizational management processes (i.e. R&D, production, commercial skills) along the ceramics value chain. A more open and collaborative culture and a stronger key-actors' knowledge of the historical roots of Caltagirone might have encouraged the start of partnerships on innovating projects in the field of ceramics, e.g. to feed the use of new materials in production processes (performance drivers), leading to the launch of new product lines, the search of new market segments, leading to an increased value generated in the territory – e.g.: sales volumes and revenues, profits, cash flows, employment rates, new companies (end-results). In the long run, such results would have significantly strengthened the socio-economic structure of the territory (referred to strategic resources such as: number and dynamism of companies, total employees, knowledge base, social capital) and therefore would have increased its relative attractiveness towards an improvement in the net of partnerships, both on the international markets and on other adjoining industries.

Figure 11 shows how such long-term effects of policies, aimed to combine tradition and innovation in the ceramics industry, could imply an improvement of territory attractiveness (performance driver). Higher territory attractiveness might determine an increase in the stock of companies operating in the area in the ceramics and other adjoining industries (end-result). A higher number of companies located in a stimulating and competitive territory would contribute – other things being equal – to increase the intensiveness and inclination of players to network (performance driver). This would, on a side, further increase the territory attractiveness, which might also positively affect the population rate. On another side, it would also increase the number of partnerships and the employment rate (end-results). Such effects might further amplify the territory's growth rate, since a higher stock of skilled employees in the area (strategic resource) would make the territory more attractive to potential investors. Also, a higher stock of companies located in the area might further increase the intensiveness and scope of collaboration projects.

The capability of players in the territory to frame and govern the driving forces of such growth is a fundamental condition to ensure sustainable development. For instance, limits to growth might

gradually originate from an increasing population, leading to saturation in the provision processes of different services in the territory (e.g. housing, health care, police, education, traffic). Ignoring such limits to growth might generate a shift from a development to a crisis pattern in territorial management.

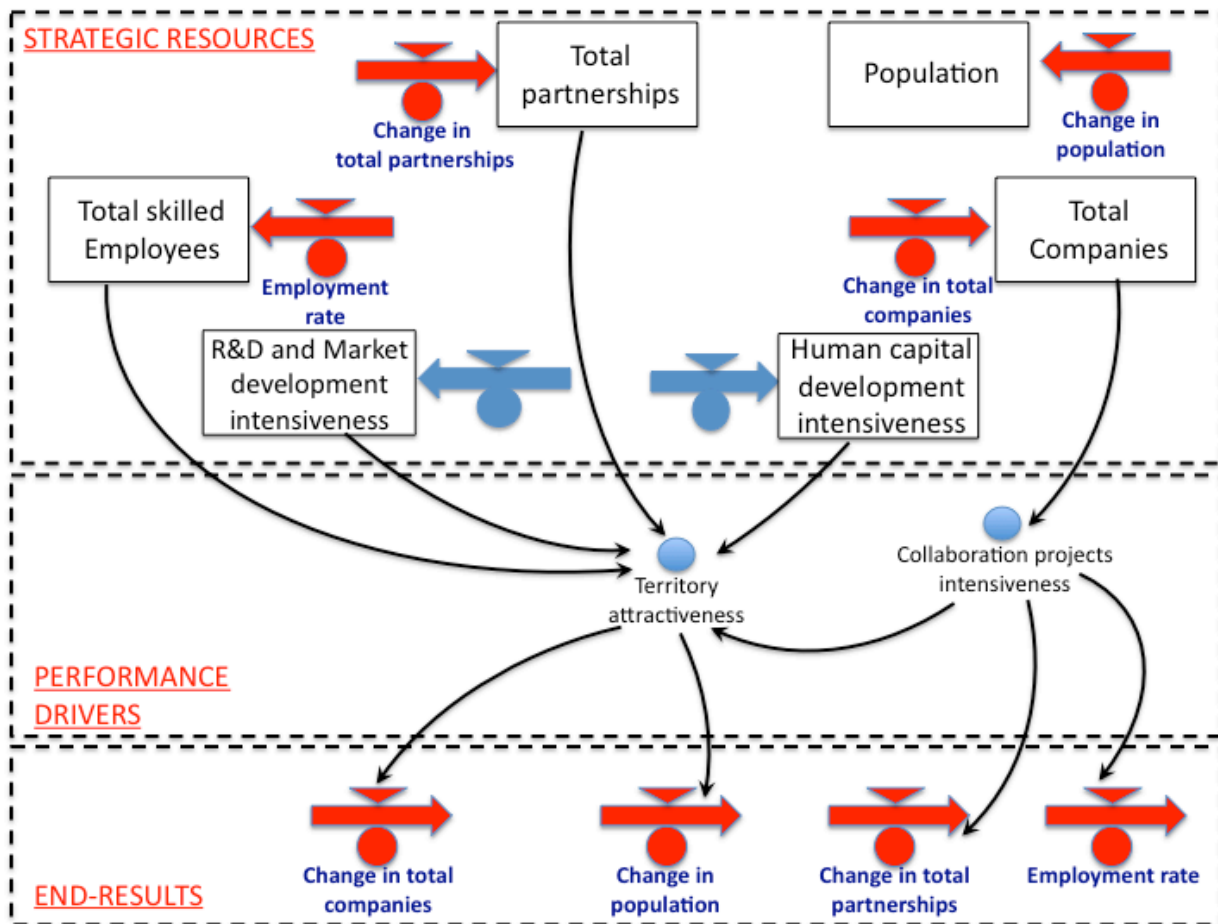


Figure 11: Long term effects of tradition vs. innovation policies on territory attractiveness and collaboration projects intensiveness.

From such examples it emerges how a dynamic performance management view supports territorial strategic planning in three main ways: 1) it allows decision makers to discern short from long-term policies. Therefore, it provides a multi-dimensional perspective to plans; 2) it supports planners to link strategic goals with proper measures aimed to gauge expected and emerging results. Therefore, it supports the adoption of feed-forward control mechanisms and the attribution of responsibilities to different decision makers, together with their performance evaluation; 3) it allows planners to clearly distinguish means from ends, and to identify different “layers” of performance measures, starting from the identification of end-results and of corresponding sequentially related performance drivers.

6. Conclusions.

This paper conceptualized the concept of territorial strategic planning and its practical implications for the governance of regional areas. The need of a multi-disciplinary and inter-institutional approach was illustrated first, setting the stage for the dynamic and complex nature of territorial government and for the dynamic complexity of applying performance management methods and techniques to territories. Therefore, performance management within the context of a territory rather than an organization allows us to bridge the gap between planning and implementation. Performance management provides decision makers a set of interconnected measures to monitor over time and supports performance evaluation and accountability.

It has been emphasized how modeling and measuring a territory's performance requires the use of a proper approach to support decision makers' learning in territorial strategic planning: the need to frame the feedback loop structure underlying territorial systems' behavior has been claimed. To this end, it has been suggested that combining system dynamics modeling with performance management can substantially contribute to the design and implementation of dynamic performance management systems and to reinforce the benefits of territorial strategic planning.

A case-study of a medium-sized territory's strategic plan was analyzed to show both the potential and the limitations of the traditional static approach adopted in common practice. A number of insights have emerged for reframing the static strategic plan illustrated in the case, according to a dynamic performance management view. The authors believe that the case analysis has shown the usefulness of the proposed method to enhance territorial strategic planning. However, because we have applied the "dynamic performance management" approach to a single territory, further research is necessary to focus how to set and gauge proper performance measures in regional areas and how to evaluate achieved results.

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APPENDIX

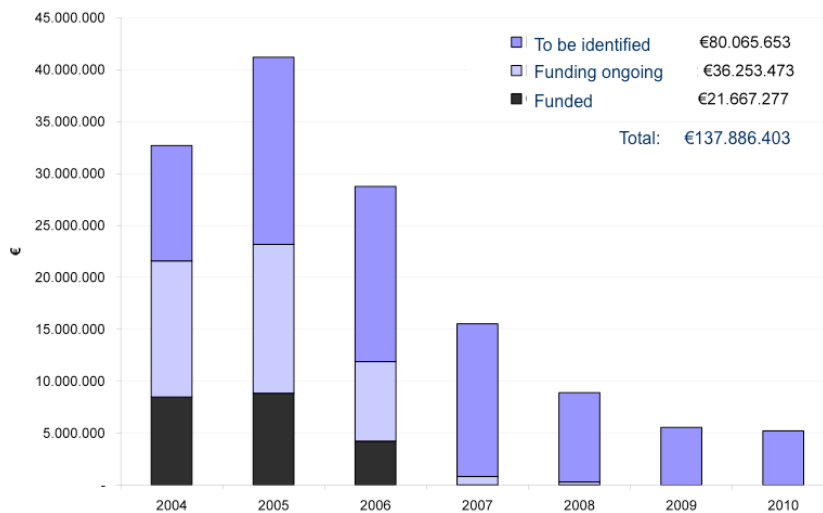
Investments and Financial Resources

The whole set of actions and projects provided in the strategic plan determines a comprehensive program of investments to be made during the period 2004-2010 with a value of approximately 138 million euros.

According with the plan, the financial resources to fund these actions and projects are expected to come from both public agencies – the municipality, provincial or regional administration, or even national and/or European union's – and private stakeholders, eventually through project financing.

The graphs and tables that follow synthesize the investment, classified by single vision, project, and time.

Graph n. 1: Plan of investments 2004-2010



Graph n. 2: Plan of investments by goal/vision

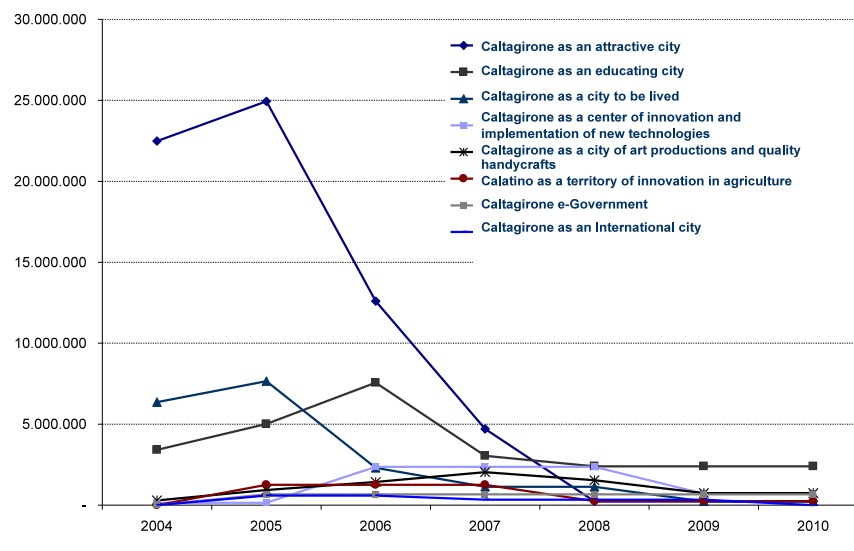


Table A: Plan of investments by goal/vision

"Vision" of the future of the city	2004	2005	2006	2007	2008	2009	2010	Total
Caltagirone as a city to be lived	22.484.436	24.937.364	12.597.330	4.706.191	229.167	229.167	229.167	65.412.821
Caltagirone as a center of innovation and implementation of new technologies	3.413.014	5.013.201	7.563.201	3.050.000	2.400.000	2.400.000	2.400.000	26.239.417
Caltagirone as an attractive city	6.363.146	7.660.487	2.304.845	1.127.776	1.127.776	230.435	230.435	19.044.900
Calatino as a territory of innovation in agriculture	140.078	140.078	2.366.667	2.366.667	2.366.667	700.000	700.000	8.780.156
Caltagirone as an educating city	294.753	936.982	1.427.944	2.035.715	1.535.715	750.000	750.000	7.731.110
Caltagirone as a city of artistic productions and quality handicrafts	0	1.250.000	1.250.000	1.250.000	250.000	250.000	250.000	4.500.000
Caltagirone as an International city	0	666.667	666.667	666.667	666.667	666.667	666.667	4.000.000
Caltagirone e-Government	0	589.000	589.000	333.334	333.333	333.333	0	2.178.000
Total	32.695.427	41.193.780	28.765.654	15.536.349	8.909.325	5.559.602	5.226.269	137.886.403

Graph n. 3: Plan of investments by goal/vision

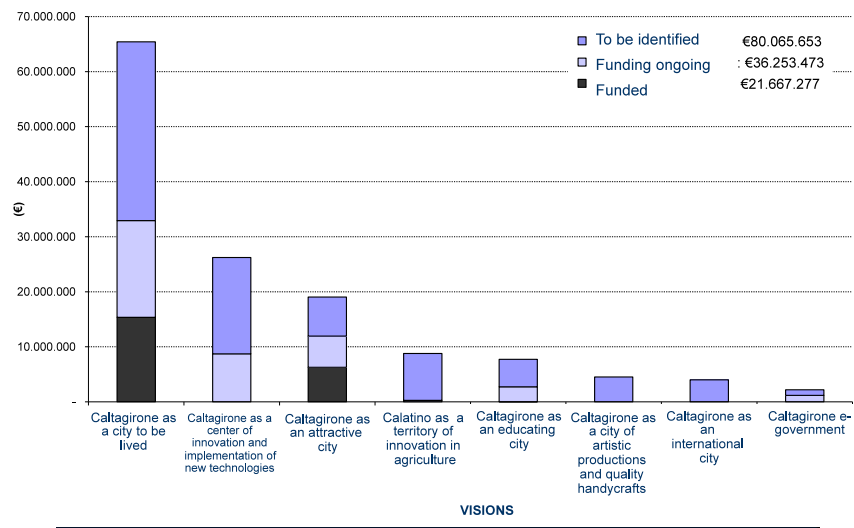


Table B: Investments by project

"Vision" of the future of the city	Projects	Total	% over visions	% over total resource
Caltagirone as a city to be lived	- Public utilities	29.564.808	45%	21%
	- Urban regeneration	28.922.207	44%	21%
	- A suitable city for elderly people	3.324.056	5%	2%
	- Children "masters of the city"	1.175.000	2%	1%
	- A clean city - zero emissions	1.098.000	2%	1%
	- A livable city for disabled persons	1.028.750	2%	1%
	- An ethnically integrated city	300.000	0%	0%
	- A careful city		0%	0%
		65.412.821	100%	47%
Caltagirone as a center of innovation and implementation of new technologies	- High tech baroque buildings	14.000.000	53%	10%
	- New seismic instruments	8.839.043	34%	6%
	- Biotechnologies for quality feeding	3.400.374	13%	2%
		26.239.417	100%	19%
Caltagirone as an attractive city	- To each citizen his/her own park	10.043.145	53%	7%
	- Baroque Caltagirone Unesco heritage	6.440.392	34%	5%
	- New look for the city	1.613.043	8%	1%
	- The city as an open museum	748.319	4%	1%
	- The city of don Sturzo	200.000	1%	0%
		19.044.899	100%	14%
Calatino as a territory of innovation in agriculture	- A chain of high quality bread and pasta	5.000.000	57%	4%
	- Against desertification processes	2.000.000	23%	1%
	- Biological, integrated cultivation and development of local products	1.780.156	20%	1%
		8.780.156	100%	6%
Caltagirone as an educating city	- The city as a hub for education and as an engine of culture	4.731.110	61%	3%
	- A multiplex city for congresses and conventions	1.000.000	13%	1%
	- The city of authors	1.000.000	13%	1%
	- The city of photography	1.000.000	13%	1%
		7.731.110	100%	6%
Caltagirone as a city of artistic productions and quality handicrafts	- The school of ceramics as a centre of innovation	1.500.000	33%	1%
	- The city of design	1.500.000	33%	1%
	- High quality manufacturers with international reputation	1.500.000	33%	1%
		4.500.000	100%	3%
Caltagirone as an International city	- Pursuing international co-operation	4.000.000		3%
		4.000.000	100%	3%
Caltagirone e-Government	- "e-Caltagirone"	2.178.000		2%
		2.178.000	100%	2%
		137.886.403		103%

Table C: Funds by source (€)

Source for funding	Caltagirone as a city to be lived	Caltagirone as a center of innovation and implementation of new technologies	Caltagirone as an attractive city	Calatinoas a territory of innovation in agriculture	Caltagirone as an educating city	Caltagirone as a city of artistic productions and quality handicrafts	Caltagirone as an International city	Caltagirone e-Government	Total
to be defined	32.474.279	14.100.000	7.091.000	8.500.000	5.000.000	4.500.000	4.000.000	1.000.000	76.665.279
Regional government of Sicily	15.807.794	3.400.374	11.842.492	280.156	2.713.034				34.043.850
Regional government of Sicily + State	2.324.056	8.739.043							11.063.099
Private investors	5.000.000								5.000.000
PRU	3.615.000								3.615.000
URBAN	3.098.741								3.098.741
POT	1.397.802								1.397.802
Municipality	1.178.691		22.043		18.076				1.218.810
Municipality + Regional government of Sicily							1.178.000		1.178.000
Regional funds	516.457								516.457
PTO			89.365						89.365
Total	65.412.820	26.239.417	19.044.900	8.780.156	7.731.110	4.500.000	4.000.000	2.178.000	137.886.403

To be defined	32.474.279	17.500.374	7.091.000	8.500.000	5.000.000	4.500.000	4.000.000	1.000.000	80.065.653
Ongoing	17.573.427	8.739.043	5.669.814	280.156	2.713.034			1.178.000	36.153.474
Defined	15.365.114		6.284.086		18.076				21.667.276
Total	65.412.820	26.239.417	19.044.900	8.780.156	7.731.110	4.500.000	4.000.000	2.178.000	137.886.403

Table D: Time-sheet

"Vision" of the future of the city	Projects	Activity	Year							
			2004	2005	2006	2007	2008	2009	2010	
Caltagirone as a city to be lived	- Public utilities	A new parking in "Santo Stefano"	x	x	x					
		Escalators		x	x					
		Wiring the palaces pf the Municipality	x	x	x					
		New lighting for the city	x	x	x					
		Expansion of water and gas pipelins in "San Pietro" area	x	x						
	- Urban regeneration	The Hospital in Gravina a centre of excellence for rehabilitation		x	x	x				
		Enhancing dismissed areas		x						
		Requalification of the area between Bellini Square and Vella street	x							
		Restoration of Saint Stephen Church	x	x						
		Restoration of Saint Augustin Convent (owned by the Regional Government of Sicily)	x	x	x	x				
		Restoration of the ex Municipal Library	x	x						
		Restoration of the ex Convent of the crociferous	x	x						
		Escalators at the Politeama theatre	x	x						
		Restoration of Luigi Sturzo Gallery	x	x	x					
		Restoration of Reburdone Palace	x	x	x					
	- A suitable city for elderly people	Restoration of the Hoffman furnace		x	x					
		Restoration of the cine-theatre Metropol	x	x	x	x				
		Tele-cardio medicine services			x	x				
	- Children "masters of the city"	Centers of bio-mechanic and domotic for elderly people	x	x	x					
		Green areas and dedicated spaces for children's education and entertainment		x	x	x				
	- A clean city – zero emissions	Public green spaces cared by children from schools of the city		x	x	x	x	x	x	x
		Solar panels for the production of alternative energy			x	x	x	x	x	x
	- A livable city for disabled persons	Electric buses and taxis		x						
		Kalatambiente: a composting plant in the area of Grammichele		x						
	- An ethnically integrated city	Turistic offer customized for disabled persons		x	x	x				
		Initiatives for the integration and enhancement of disabled persons	x	x	x	x				
	- A careful city	Integration between the city and the NATO military bases in the area		x	x	x				
		Integration of immigrants		x	x	x				
	Caltagirone as a centre of innovation and implementation of new technologies	- High tech baroque buildings	Renewable energy systems (photovoltaic shingles)			x	x	x	x	x
			Domotic systems			x	x			
- New seismic instruments		Diffusion of new criteria for construction and maintenance against moisture	x	x						
		Satellitar monitoring and control system for seismic risk	x	x	x					
- Biotechnologies for quality feeding		New design criteria for the new blocks and areas of the city			x	x				
		The wheat tillage station a centre for innovation on bio technologies		x	x					
	The wheat tillage station a campus for education to bio products for the Mediterranean Sea Basin and a service centre for farms and trading companies			x	x					

"Vision" of the future of the city	Projects	Activity	2004	2005	2006	2007	2008	2009	2010
Caltagirone as an attractive city	- To each citizen his/her own park	The linear park: the old railway line by bike		X	X	X	X		
		The archeological park: for those traveling through history	X	X	X				
		The natural park of Saint Peter: for those who love uncontaminated nature	X	X	X				
		The literary park: a tour through the sites of Verga, Capuana and Pirandello	X	X					
	- Baroque Caltagirone Unesco heritage	The Noto Valley (Val di Noto) an integrated offer	X	X					
		Integrated tourism projects with Piazza Armerina, Morgantina, Gela	X	X					
		Raising the availability and quality of accommodation	X	X					
		New hospitality structures	X	X					
		Favouring knowledge of the tradition and the history of the territory	X	X					
	- New look for the city	Ceramics for street furniture	X	X	X	X	X	X	X
		Flowers and music to decorate the city	X	X	X	X	X	X	X
	- The city as an open museum	Baroque as an emotion	X	X	X	X	X	X	X
		From the Regional Museum of Ceramics to the Museum of Ceramics of the Mediterranean Sea Basin	X	X	X	X			
		New museums: photography, cribs, modern ceramics	X	X					
		The network of civic museums		X	X				
The Villas of the Leopards		X	X						
- The city of don Sturzo	Historical/cultural tours through buildings		X						
	Enhancing the house and places loved by Don Sturzo to encourage new forms of tourism		X	X					
Calatino as a territory of innovation in agriculture	- A chain of high quality bread and pasta	Development of local specialties: Wine, Olive oil, Oranges, Peaches, Prickly pears, Grapes, Artichokes, Cheese, Cottage cheese	X	X	X	X	X	X	X
	- Against desertification processes	Development of systems to contrast desertification			X	X	X		
	- Biological, integrated cultivation and development of local products	Lengthen the productive chains			X	X	X	X	X
Caltagirone as an educating city	- The city as a hub for education and as an engine of culture	"The Sturzo House" a School for education in politics and local administration			X	X			
		Business school	X	X	X	X			
		Old crafts school		X	X				
		Bio technologies school				X	X	X	X
		Calatino University	X	X					
	- A multiplex city for congresses and conventions	Caltagirone, a destination for Erasmus students				X			
		The history written by students			X				
		Caltagirone a destination for conventions, courses and seminars, cultural events of national and international interest				X	X		
- The city of authors	Caltagirone the venue of "meet the authors"				X	X	X	X	
- The city of photography	Caltagirone the venue of "photography in the Mediterranean Sea Basin"				X	X	X	X	
Caltagirone as a city of artistic productions and quality handicrafts	- The school of ceramics as a centre of innovation	The Centre for artistic innovation		X	X	X			
	- The city of design	Promoting co-operation among ceramists, the school of ceramics, the design centre of the University of Palermo and the faculty of Architecture of Syracuse	X	X	X	X	X	X	X
	- High quality manufacturers with international reputation	Promoting integration among ceramists and handicrafts from different areas: glass, iron, wood, laces	X	X	X				
Caltagirone as an International city	- Pursuing international co-operation	Projects for international co-operation		X	X	X	X	X	X
Caltagirone e-Government	- "e-Caltagirone"	Kalat.net		X	X				
		Other projects				X	X	X	