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Towards Territorial Sustainability Systems: A step forward

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Towards Territorial Sustainability Systems: A step forward

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Towards Territorial Sustainability Systems: A step forward

Abstract

Regional research has focused on the innovation-competitiveness-growth chain, which is implicit in Territorial Innovation Systems. This literature has neglected or subordinated social and ecological regional conditions. We see this study as a first step towards more systematic research on what might be termed ‘Territorial Sustainability Systems.’ We study local sustainability planning processes under the label of Local Agenda 21 (LA21) in Italy. A model is proposed in which the integration of resources explains the engagement of municipal authorities with LA21-type processes that are implemented within a networking structure. Two types of resources, municipal (or internal resources), and relational resources, are considered. Relational resources stem from: (1) dyadic relations with higher levels of government (HLG), and (2) network relations (municipality-HLG-municipality). The model is tested by considering the perceptions of local authorities who are in charge of LA21 processes in Italy. The results show moderate/low engagement with LA21 processes, which is explained by moderate/poor levels of relational resources. Our findings indicate that local authority engagement with LA21-type processes requires a systemic perspective, where HLG and municipalities integrate and combine their resources and create new purposefully-led resources through regular and intense interactions.

Keywords: Local Agenda 21, Italy, private resources, relational resources, municipalities, engagement, Resource-based view.

JEL Code: Q56, Q57, Q58

Towards Territorial Sustainability Systems: A step forward

1. Introduction

Municipal spaces are viewed as having advantages in terms of making the concept of Sustainable Development (SD) operative (Betsill and Bulkeley, 2006). The rationality behind this idea is primarily based on three assumptions. First, the municipal sphere facilitates an integrated, down-to-earth, embraceable, and interrelated perception of multidimensional problems (O'Riordan and Voisey, 1998; Evans et al., 2006; Shaw et al., 2014). Second, the proximity between public and private actors in municipal space makes it easier for local authorities to interact with citizens, businesses, and other stakeholders in order to know their views and interests and adopt pragmatic and consensual solutions (Lafferty, 2001, p. 10-11; Evans et al., 2006; Betsill and Bulkeley, 2006). Third, the meeting of SD aspirations is dependent on the everyday activities of citizens, businesses, and other local stakeholders in their most immediate local context (e.g. energy consumption and waste production) (Solecki et al., 2013). Therefore, as suggested by Ostrom (2010), it may be better to encourage polycentric efforts than to focus only on global efforts (which are indeed a necessary part of the long-term solution).

From the resource-based view (RBV), on which we build for the purposes of this research, the above assumptions could be summarized by stating that municipalities have distinctive resources/competences in terms of having a comprehensive understanding of multidimensional SD problems, and searching for participative solutions and implementing them, when compared with higher levels of government

(HLG), which manage larger and less graspable territorial spaces and are not so close to their citizens (Barney 1991; Dyer and Singh, 1998; Wernerfelt 1984).

However, important local SD practices, such as participative strategic planning, are not broadly engaged in by local authorities in many countries (Echebarria et al., 2009; Evans et al., 2005; Velasquez, 2001). We argue that while municipalities have distinctive resources/competences that make them particularly suitable for defining and deploying local SD practices, they lack other resources that are essential to implement such processes in a way that satisfies local authority aspirations and stakeholder expectations. On the basis of the RBV, we propose that municipalities need relational resources from: (1) resource-rich partners (usually HLG), who are willing to share some of their proprietary resources; and (2) networking resources, which emerge from multi-scalar interactions (in our case, municipality-HLG-municipality). Policies addressed to promote local SD should therefore adopt a systemic perspective in which municipalities are not left alone but are backed up with relational resources (for related views see e.g. Velasquez, 2001; Barnett and Campbell, 2010; Betsill and Bulkeley, 2006; Bulkeley and Betsill, 2013; Ingold and Fischer, 2013; and Chen et al. 2014).

To confirm the appropriateness of our view we study a networking structure that was addressed to promote Local Agenda 21 (LA21) implementation in Italy. A network is an appropriate context to assess the relative salience of internal and relational resources as both types of resources are expected to be present, to a degree at least, within it. LA21 was proposed at the Rio de Janeiro World Summit (Brazil, June 1992) and was intended to make the SD concept operative (Eckerberg and Lafferty, 1998). On the basis of prior literature (Eckerberg and Lafferty, 1998; O'Riordan and Voisey, 1998; Evans et al., 2005; Echebarria et al., 2009), we define LA21 as a municipality-led, community-wide participatory effort to establish a comprehensive medium-term local

strategic plan for tackling environmental, social, and economic issues that lead to quality-of-life improvement. LA21 is 'by nature a planning and democratization reform' (Lafferty and Coenen, 2001, p. 287).

We found moderate/poor levels of relational resources that led to moderate/low engagement with LA21. These findings indicate that formal networks may differ in their level of relational resources (e.g., degree of interaction, learning and trust), and, as consequence, in the level of engagement they generate. As not all termed networks have the same relational properties we provide some criteria that could guide network-building.

The remainder of the paper is structured as follows. The next section describes the specific context of this research. The third section deals with the conceptual background that serves as a basis for this study. The fourth section develops the model and hypotheses that were tested. The fifth section deals with the methodological issues. The sixth section describes the model specification. The seventh section refers to the results of the empirical test. The final section presents discussion and conclusions.

2. Research context: Italian LA21 network

A preliminary step of this research was to choose an appropriate network as object of study. The networking experience of Mediterranean countries captured our attention. Mediterranean countries were characterized as laggards in terms of LA21 spread in pioneering studies (Lafferty and Coenen, 2001). However, LA21 processes significantly grew in the early 2000 in Spain and Italy. These countries had poor baseline conditions for LA21 spread (in terms of municipal resources and SD tradition), and the emergence of LA21 processes was associated with the promotion of formal networks (Sancassiani, 2005; Echebarria et al., 2004, 2009). While both countries could

provide an appropriate context for this research, we finally chose Italy as prior research on LA21 in Italy is scarce.

In order to promote LA21 implementation in Italy a formal networking structure, known as the Italian Coordination for Local Agenda 21 (Il Coordinamento Agende 21 Locali Italiane), was promoted in 2000 by the Ministry of Environment to spread LA21 processes in Italy.

While the network is mainly addressed to support LA21 initiatives at a municipal scale, Italian LA21 processes have been implemented at different institutional levels: municipal, neighborhood, associations of municipalities, provincial, regional schools, and national and regional natural parks (Sancassiani, 2005).

Figure 1 shows the evolution of membership between 2001 and 2012. In 2012 the association had 495 members, of which 347 were municipalities. Overall, membership grew between 2000 and 2008, and dropped after that, reflecting a slowdown in the interest aroused by LA21 processes in Italy.

(Figure 1)

A typical LA21 process includes the following steps: (1) Official support given by local authorities to the Aalborg Charter; (2) Opening of the civic forum addressed to define priorities both in terms of areas of special interest and of knowledge gathering; (3) Elaboration of an environment state report, understood as a tridimensional diagnosis of the current situation; (4) Start of thematic work-tables in which the priority problems and their possible solutions are underlined (following the European awareness scenario workshop methodology); (5) New plenary sessions of the civic forum in which the results of the thematic work tables are presented, and a local action plan, which includes specific projects that have to be addressed, is proposed and approved by the forum; and

(6) Official adoption of the local action plan, implementation of the projects included in the plan, and monitoring of the results. As in other contexts, LA21 processes in Italy involve different activities such as a situation analysis, scenario definition, the devising of action plans and programs, implementation, monitoring, and feedback.

LA21 processes are supposed to lead to important benefits in the form of: improved exchange of information, problem prioritization, more informed solutions, better coordination and integration of actions, improved capacity for project implementation, and greater acceptance of consensual solutions (Bryson and Alston, 2011). There is supposed to be a certain degree of cooperation and exchange of experience among the local communities involved in the LA21 practices.

However, some important difficulties in implementing LA21 processes have been identified, which include: lack of (stable) resources; dependency on calls for tenders; difficulties for participants in accepting obligations and implementing duties; difficulties in securing continuing political support as well as continuous and active cooperation from the actors involved; long periods between the project idea and its implementation; and difficulties in the integration of LA21 objectives and projects in sectoral policies.

Despite these difficulties, previous literature (Sancassiani, 2005) suggest that a significant number of environmental projects has been initiated and implemented in the areas of waste disposal and recycling, urban planning, water, transport and mobility, energy, air, and biodiversity. Projects have been focused on improving management of resources in tourism, organic farming, services, and labor and jobs. Projects have also been initiated and implemented in socio-economic fields such as education, communication, stakeholder participation, social cohesion, cultural heritage, and health and security. The LA21 processes have stimulated, to a degree at least, new perspectives

such as co-responsibility and active citizenship, and have promoted the empowerment of citizens including women and young people.

3. Theoretical Background

This research is basically rooted in the RBV of organizations and LA21-related literature. This section is addressed to provide a summary of these views and to establishing their links with this research.

3.1. Resource-based view (RBV)

Resources, broadly understood, are any assets that an organization might draw on to help it achieve its goals or perform well on its critical success factors (Bryson et al., 2007). Resources include basic resources and higher-order resources (Madhavaram and Hunt, 2008). Higher-order resources are understood as bundles of basic resources, made up of combinations of tangible and intangible basic resources that fit together coherently in a synergistic manner to enable organizations to meet their goals. They are also usually referred to as competences and/or capabilities (Evans et al., 2006).

Competences/capabilities, therefore, connote a subset of resources and consist of abilities, sets of actions, technologies, or processes that help an organization perform well against important goals or critical success factors (Bryson et al., 2007). For instance, money, experts, methodologies, specialized knowledge, reputation, and trust are all resources, whether they be basic or second-order resources/competences.

The study of organizational resources has a long history. Schumpeter (1942) argued that organizations that are rich in resources are better able to survive environmental turbulence. And Selznick (1957) was the first to identify and label distinctive competence as a particularly valuable resource for organizations. He

suggested that a key role for managers is to identify, invest in, and protect such resources.

These seminal ideas have been developed more recently in the RBV of the firm. The RBV defends the crucial importance of resources for organizational survival, growth, and overall effectiveness (Barney 1991; Wernerfelt 1984) and focuses on scarce, valuable, and imperfectly imitable resources as the only factors capable of creating sustained performance differences among competing firms. Distinctive competences are one such resource.

The RBV primarily adopted an inward looking approach by assuming that complete control or ownership of resources is necessary to achieve competitive advantage (Wernerfelt, 1984). More recent studies have recognized the importance of resources stemming from dyadic relationships with partners and from network structures, which represent relational resources, on organization's outcomes (Arya and Lin, 2007; Lavie, 2006). The relational view (Dyer and Singh, 1998), in particular, emphasizes common resources that alliance partners cannot generate independently.

Relational resources stem from the focal organization's network ties and are heterogeneously distributed among organizations because their emergence is viewed as a context-dependent and path-dependent process. Given that relational resources are difficult to imitate, they can form a significant basis for sustainable competitive advantage (Gulati, 1999). Overall, studies on relational resources have found that they have a potential to generate extensive value for interconnected organizations (Shan et al., 1994). Some scholars (e.g. Rothaermel, 2001) argue that relational resources provide more value when they are complementary (i.e. firms perform better if they are connected with partners with dissimilar rather than similar resources).

The RBV is arguably the dominant approach to strategy research and teaching in North America and Europe (Bryson et al., 2007). However, the systematic consideration of the RBV in not-for-profits contexts is relatively scarce. Prior LA21 studies refer to resources, such as SD tradition, financial support or social capital, to explain adoption and/or intensity of LA21 processes (e.g., Lafferty and Coenen, 2001; Evans et al., 2005; Kern et al., 2007) and contribute important insights to our research. However, this is the first study that makes explicit the use of the RBV as a research framework (i.e. resources are categorized according to the RBV, conceptualized and measured, and are the core of the research).

3.2. LA21

LA21 literature is extensive and provides a relatively coherent body of knowledge. We know that LA21 implementation may be perceived by municipal authorities as a complex endeavor (Lafferty and Coenen, 2001; Evans et al., 2005; Echebarria et al. 2009). As a consequence, patterns of implementation are diverse in terms of timing and intensity (Eckerberg and Lafferty, 1998; Kern et al., 2007), and LA21 processes are far from fitting the initial ambitions of the LA21 proposal in terms of LA21 spread (Lafferty, 2001; Echebarria, et al., 2009), stakeholders' participation (Evans and Theobald, 2003; Eckerberg and Dahlgren, 2007), integration of ecological, social and economic issues (Evans et al., 2005; Eckerberg and Dahlgren, 2007), and long term orientation and monitoring (Evans and Theobald, 2003).

Lafferty and colleagues (Eckerberg and Lafferty, 1998; Lafferty and Coenen, 2001) conducted pioneering studies on LA21 at a pan-European level. They found state patterns of implementation that were diverse. Leading countries were characterized by the confluence of favorable conditions, both external and internal to the municipalities. Under the label of external conditions they include certain state government reaction in

the form of boost and support, some degree of middle-level (regional) coordination, and the pre-existence of an SD tradition and a participatory culture. Internal conditions refer to political autonomy, human and financial resources availability, a history of environmental concerns and actions, and interested and motivated local politicians and civil servants (Lafferty and Coenen, 2001).

These seminal ideas were extended in later studies. Evans et al. (2005, 2006) conducted another pan-European project that involved 40 towns and cities. They improved our knowledge by emphasizing the salience of governing– and governance–related characteristics at a municipal level, in the form of institutional capital (understood as those organizational, knowledge and leadership resources that enable and promote governmental action in the pursuit of local sustainability) and social capital (viewed as the collective capacity that has been built or exists within a local community). They emphasized the relevance of key individuals in the municipalities and the social linkages within the municipal territory.

Further studies stressed the salience of inter-territorial learning and networking. Kern et al. (2007) studied diffusion patterns of LA21 processes in Germany and found that neighborhood effects lead to concentric circles of LA21 adopters. They suggested that neighborhood effects may be amplified by multilateral institutionalized policy transfer. In the case of Germany, institutionalized policy transfer was generated by regional (Länder level) governments, through the creation of transfer agencies. The mission of transfer agencies is to spread ideas, knowledge, and best practices through ‘multilateral relations in a multilevel system’ (Kern et al., 2007, p. 607).

The salience of networking was emphasized by several studies conducted in countries with a relatively high SD tradition, such as Swedish (Eckerberg and Dahlgren, 2007) and Norway (Aall, 2012), and in countries with low SD backgrounds such as

Italy (Sancassiani, 2005), Spain (Echebarria et al., 2004, 2009), Turkey (Varol et al. 2011), or Peru (Miranda, 2004).

Thus, Eckerberg and Dahlgren (2007) found that municipalities that were members of a Swedish inter-municipal network, so-called the Eco municipality association, performed better in terms of LA21. Echebarria et al. (2009) explained how the creation of regional networks by regional governments was crucial to address the reasons by which municipalities had not initiated LA21 processes (i.e. lack of knowledge, financial and human resources, and high perceived risk).

Some research efforts have been addressed to test cause-and-effect-type relationships by using statistical tools. Garcia-Sanchez and Prado-Lorenzo (2007) conducted a pan-European survey at a municipal level that yielded 105 responses. The survey was addressed to explain the degree of advancement of LA21 and the percentage of the workload completed. A factorial analysis was performed to build five orthogonal main explanatory factors that could be cross-categorized as internal resources (resources available, integration, political stability and political ideology) and partner resources (promotion and support). All explanatory factors considered showed to have a significant effect on the outcome variables.

Barrutia et al. (2011) developed a model addressed to explain the attitude of local authorities towards LA21 processes. The model was tested in a regional network in Spain. Internal factors (such as the presence of key individuals) and external factors (such as higher levels of government' support) showed to have a statistically significant effect on attitudes towards LA21.

Hoppe and Coenen (2011) used a secondary source, the Local Sustainability Meter, to study a sample of 137 municipalities in Holland. By considering the

significance of correlations they showed that being a LA21 frontrunner was correlated with municipal size, the regional government (province) where the municipality is situated and membership of international networks influences the local sustainability outcome positively.

Kveton et al. (2014) evaluated the contribution of LA21 to the implementation of SD in practice in the Czech Republic by distinguishing municipalities with and without LA21. They found that municipalities with LA21 seemed to perform better in some environmental and economic indicators.

A major contribution of our research is its comprehensiveness. We consider a comprehensive range of explanatory factors that include internal, partner and networking resources, and statistically assess the relative salience of these factors for explaining engagement. As shown above, most prior research focuses on internal and/or partner resources (Lafferty, 2001; Evans et al., 2005; Garcia-Sanchez and Prado-Lorenzo, 2007; Echebarria et al., 2011) and neglect resources stemmed from networking (e.g. level of interaction among peer municipalities and among municipalities and HLG, learning levels, enjoyment/affective attachment, and trust). When networking resources are considered, they are operationalized as a yes/no question (i.e. being or not a member of a network), and, therefore, there is a potential to improve networking resources metrics (Eckerberg and Dahlgren 2007; Echebarria et al., 2011; Hoppe and Coenen, 2011).

We focus on networking resources and take particular care in conceptualizing them and building sound metrics (i.e. six factors that are measured by 20 items). Previous studies on LA21 networks provide useful insights to identify networking resources. Thus, Mehta (1996) suggests that networking can significantly contribute to the diffusion of information and the creation of a ripple effect. Miranda (2004) argues

that both educational services and technical assistance lead to substantial improvements in implementing LA21. Barrutia et al. (2007) suggest that municipalities gain an opportunity to share risk and learn from others by participating in networks. However, prior LA21 research does not provide a systematic study of networking resources and their metrics. Therefore, we had to build on other research streams.

4. Model development

The model to be tested is depicted in figure 2. Its purpose is to explain the engagement of municipal authorities with LA21 processes. As explained in detail in Section 3, the RBV (Arya and Lin, 2007; Barney 1991; Dyer and Singh, 1998; Gulati, 1999; Lavie, 2006; Wernerfelt 1984) led us to consider two types of resources when explaining engagement with LA21 processes: (1) Internal resources of municipalities and (2) Relational resources. In turn, building on the relational view of RBV two types of relational resources are considered: (1) resource endowments from HLG (or partner resources); and (2) new resources generated from networking activities or networking resources (see left side of figure 2).

(Figure 2)

The logic underlying the model is grounded on Public Management literature (Bryson et al. 2007; Bryson and Alston, 2011) and User Acceptance Models (Venkatesh et al., 2003).

Overall, literature on public management proposes that public authorities are orientated towards satisfying stakeholders' expectations. It is argued that in an era of scarce resources, declining organizational slack, and increased skepticism in relation to public organizations, meeting public purposes and satisfying stakeholders are becoming problematic tasks (Bryson and Alston, 2011). As a result, an important key to success

for public organizations is identifying and building strategic resources to produce the greatest public value for key stakeholders at a reasonable cost. Without continued attention to these resources, public organizations will find it difficult to achieve their goals, create public value, respond effectively to changes in their environments, or justify their existence (Bryson et al., 2007). Therefore, public organizations should be willing to enter into multi-scalar arrangements to achieve the resources needed for producing public value and obtaining a desirable fit with the environment (Eisenhardt and Martin, 2000).

User Acceptance Models (Venkatesh et al., 2003) are addressed to explain the rationality by which actors engage with activities that are perceived as new and relatively complex. Overall, this literature emphasizes the importance of expected performance, behavioral control, and facilitating conditions as drivers of engagement (i.e. people engage with activities that they may carry out with expected success, reasonable effort, and low uncertainty). Drawing on User Acceptance Models, we propose that municipal authorities will engage with LA21-type tools when they consider that they have the resources needed to apply them successfully.

Having explained the logic behind the model, we will address the concepts of engagement with LA21, internal resources, HLG resources and networking resources, and discuss the inclusion of several control variables.

4.1. Engagement with LA21 processes

The outcome variable considered in this research is municipal authority engagement with LA21 processes. We conceive engagement as a positive and even enthusiastic rational and affective state resulting from evaluation of all the aspects associated with LA21 processes (Bakker et al., 2008). Engagement may be

considered a strong form of adoption. We are not interested in understanding the factors that explain the (yes/no) adoption decision, but the factors that affect the level of engagement of adopters. Engagement is important due to two reasons: (1) local authorities may adopt an innovation in search of legitimacy and not fully engage it (Walker, 1969); and (2) affective states, such as engagement, have proved to be an antecedent of behavior (i.e. strong day-to-day involvement in pro-sustainability activities) (Lam et al., 2004). While some barriers could exist between engagement and action, engagement is a necessary pre-condition.

Engagement is associated with: satisfaction, meeting expectations, perception that the benefits of undertaking the activity are higher than costs, and intentions to continue with the LA21 and intensify it over coming years. It could be argued that a set of indicators that include evolutionary data on specific LA21 goals (e.g. reduction in energy consumption or increasing recycling levels) should be considered. Unfortunately, such a panel of municipal indicators is not available. However, this limitation does not invalidate the results of this research, as engagement with LA21 could be a necessary step towards meeting SD goals (Lam et al., 2004; O'Neill et al., 2013).

4.2. Municipality resources

On the basis of previous research on LA21 (Lafferty and Coenen, 2001; Kern et al., 2007; Echebarria et al., 2009), we focus on three of the HLG characteristics that have a relevant effect on municipal attitude towards LA21: the SD tradition in the municipality, the presence of key individuals at a local level, and the local authorities' attitude towards participation.

SD tradition refers to prior experience of addressing SD issues at a local level. Prior experience has been consistently stressed as a precursor of engagement, both in LA21 research (Lafferty and Coenen, 2001; Eckerberg and Dahlgren, 2007; Gram–Hanssen 2000) and in user acceptance models (Venkatesh et al., 2003). LA21 research has provided several examples of municipalities that stand out in terms of SD tradition and have shown a successful adoption of LA21 in an easy and natural way (see, e.g. the Danish Albertslund case, Lafferty and Coenen, 2001). The underlying idea of user acceptance models literature is that people undertake activities they may carry out with expected success and reasonable effort/uncertainty (behavioral control), which should be linked to prior experience (Venkatesh et al., 2003).

The *key individuals* are local politicians or influential senior officials who go for LA21 processes even without any in–depth knowledge of them, either because of their goals (SD), the tools employed (participative planning), or the actors that promote them (e.g. United Nations or national governments). Several LA21 researchers have highlighted the presence of key individuals (also referred to as local catalysts or local firebrands) in outstanding municipalities (Evans et al., 2006; Hoppe and Coenen, 2011). Lafferty and Coenen (2001, p. 290) suggested that local firebrands are ‘key in getting many LA21 processes up and running.’ Similarly, Evans et al. (2006) found numerous LA21 experiences in Europe where mayors or other local authorities had even adopted unpopular decisions in order to prioritize long–term SD goals.

One differentiating component of LA21 is *citizen participation* (Coenen, 2009; Lafferty and Coenen, 2001). LA21 engagement requires a favorable attitude towards participation by municipalities (Coenen, 2009, p. 158). However, important attitudinal barriers towards citizen participation seem to exist (Adolfsson-Jörby, 2002; Barrutia et

al., 2007). For some municipalities, effective citizen participation may constitute an element of rupture with traditional practices (Feichtinger and Pregernig, 2005).

In short, it is expected that internal resources, in the form of SD tradition, presence of key individuals, and favorable attitude towards participation positively affect municipal authorities' engagement with LA21-type tools.

4.3. Higher Levels of Government (HLG) resources

In our research context, HLG resources (or partner resources) refer to the resource endowments from HLG that are made available for municipalities that decide to join the network/association promoted by the state government and also supported by some regional and provincial governments. As explained in Section 2, support from HLG is needed due to the lack of resources of most municipalities (Lafferty and Coenen, 2001; Kern et al., 2007; Fidélis and Moreno-Pires, 2009; Aall, 2012; Chen et al., 2014).

On the basis of previous research regarding LA21 processes (Kern et al. 2007; Evans et al. 2006; Echebarria et al., 2009; Barrutia and Echebarria, 2011), we focus on five resources that have been shown to have a relevant effect on network success: comprehensiveness, complements, means–end integration, participation in decision–making, and reputation.

Comprehensiveness is defined as the extent to which relevant actors with resources for meeting SD (state government, regional governments, and so on) are working in coordination to foster LA21 (Echebarria et al., 2009). As an optimum, each partner should provide, in accordance with its abilities, one or more of the ingredients vital to the network success. Comprehensiveness has not been commonplace in the experience of LA21 implementation. For instance, Evans et al. (2005, p. 115) found

limited evidence of support from state governments in Europe. Municipalities mostly had SD links with the regional and European levels.

Complements are constituted by financial support, training and human resources provision, and so forth. Collaborative governance literature emphasizes the importance of complements to induce collaboration (Ansell and Gash, 2008). Thus, O’Leary and Bingham (2009; p. 38) found that one of the most important factors for participation in collaborative experiences is resources availability (especially of an informational kind). This conclusion is consistent with studies of LA21 implementation, which point towards the need for support from HLG (Lafferty and Coenen, 2001; Sancassiani, 2005; Kern et al., 2007; Baker and Eckerberg, 2008; Echebarria et al., 2009; Aall, 2012). HLG could contribute, for instance, training and methodologies, and spread good practices.

We define **integration** (adequate support lines—goals) as the extent to which the means (lines of support) are properly designed to cover LA21 ends (Echebarria et al., 2009). Integration should not be taken for granted, as shown by studies of LA21 implementation (Eckerberg and Dahlgren, 2007; Echebarria et al., 2009). Integration has proved to have an effect on the attitude of local authorities towards LA21-like tools (Barrutia and Echebarria, 2011).

Consensus-oriented decision-making (**co-decision**) is a key element of collaborative governance processes (Ansell and Gash, 2008). Ansell and Gash use the term ‘consensus-oriented’, as meetings may not succeed in reaching consensus. In any event, participation in decisions may be viewed as a new source of power, as municipalities may influence network decisions and activities (Evans et al., 2005, p. 114; O’Leary and Bingham, 2009, p. 34).

The relevance of **recognition** as a source of satisfaction with tasks has been emphasized by Exchange Theory (Cropanzano and Mitchell, 2005). Gruen et al. (2000)

suggested that the value derived from collaboration is by nature ambiguous, and recognition confers an unambiguous value.

In short, it is expected that partner resources, in the form of comprehensiveness, complements, means–end integration, co-decision, and recognition positively affect municipal authorities' engagement with LA21-type tools.

4.4. Resources emerging from networking

Resources that emerge from interactions in collaborative governance contexts are termed, for the purposes of this research, networking resources. We build on prior literature addressed to explain the reasons by which people devote time and effort to interact in networks (Dholakia et al., 2004; Chiu et al. 2006; Nambisan and Baron, 2009). This literature focuses on the nature of the interactions and the resources that actors achieve by interacting in networks, in the form of new/additional resources to meet their goals/aspirations.

We distinguish between *vertical* (HLG-to-municipality) and *horizontal* (municipality-to-municipality) *interactions*. Interactions are associated with other resources in the form of learning, enjoyment, reputation and trust (Dholakia et al., 2004; Chiu et al. 2006; Barrutia et al., 2007).

Learning resources refer to LA21–related learning, that is, an improved understanding of the design of LA21, its underlying processes, and its implementation. The LA21 network holds valuable collective knowledge of LA21 and its implementation, generated and shared through continued member interactions (Dholakia et al. 2004; Lebel et al. 2009; Nambisam and Baron, 2009; Bos et al., 2013; Fazey et al. 2014).

Learning is particularly important in the context of LA21 (Mehta, 1996; Kitchen et al., 1997; Miranda, 2004; Evans et al. 2005, p. 117-118; Baker and Eckerberg, 2008). Chapter 28 of Agenda 21, devoted to LA21, gives little guidance as to how local communities should proceed with a LA21 process. Although some general LA21 methodologies have been developed (e.g. Hewitt, 1995), each community has to find its own appropriate way, capable of matching its specific cultural, economic, social, geographic, and demographic characteristics (Baker and Eckerberg, 2008). Therefore, learning is a crucial resource for appropriate LA21-related adaptive management (O’Leary and Bingham, 2009; p. 200).

Reputation resources stem from rises in reputation or status and the achievement of a sense of self-efficacy (Katz et al., 1974). By regularly interacting in the network, municipalities and their representatives may enhance their expertise-related status among peer municipalities and network promoters (Dholakia et al., 2004). Through their rich and recurrent contributions, LA21 municipal representatives may enhance their capacity to influence the behavior of their peers towards LA21 as well as the network rules, strategies, and goals (O’Leary and Bingham, 2009; p. 38).

Network membership may also be a source of **hedonic or affective** resources, providing exciting as well as mentally stimulating experiences (Katz et al., 1974). Studies on brand communities show that participants derive considerable pleasure from conversing with one another about the product, its features, and the peculiarities of the usage context (Chiu et al. 2006). The problem-solving that underlies many of the interactions in an LA21-support focused network could also be a source of mental or intellectual stimulation leading to hedonic resources (Nambisan and Baron, 2009; O’Leary and Bingham, 2009; p. 268).

Trust refers to an individual's expectation that members in a network will follow a generally accepted set of values, norms, and principles. Trust has been recognized as both an important antecedent of network performance (as it is a prerequisite for regular, cooperative and intense interactions which lead to the emergence of new resources available for all network members) and a result of interactions that are able to create value (Cardenas and Ostrom, 2004; Chiu et al., 2006; Chen et al., 2014). Therefore, trust is a crucial network resource (Chiu et al., 2006).

LA21 literature has also considered trust as both a pre-condition for appropriate LA21 implementation (Evans et al., 2005, p. 112) and a result of interaction for implementation purposes (Kitchen et al., 1997; Selman, 1998). Owen and Videras (2008) studied 66 developing and industrialized countries and found that the levels of trust and the levels of LA21 spread are positively associated. Local authorities build on trust relations to gain control of LA21-related issues and improve performance.

In short, it is expected that networking resources, in the form of regular and intense interactions, learning, enjoyment, reputation, and trust positively affect the engagement of local authorities with LA21.

4.5. Control variables

Prior research has identified several variables related to the municipality and respondent profile that could affect engagement, which include: municipality size, respondents' experience, and whether politicians as opposed to senior officials are involved (Lafferty and Coenen, 2001; Adolfsson-Jörby, 2002; Kern et al. 2007; Echebarria et al., 2009; Hoppe and Coenen, 2011). However, the positive or negative direction of this effect has not been clearly established.

A negative relationship between municipality size and engagement might be expected as small municipalities could face more limitations in terms of human, financial, and knowledge resources (Kern et al. 2007). However, Barrutia and Echebarria (2011) found a non-significant relationship which they interpreted in the sense that some core activities of LA21 such as citizen participation could be more complex in large municipalities.

Likewise, experts might be expected to have greater skills and knowledge of LA21 processes and, as a consequence, show greater levels of engagement (Evans et al. 2005; Venkatesh et al. 2003). However, they could also be more skeptical about poorly backed LA21 processes in the real world. We tentatively include these variables in the model specification.

As a last point, senior officials who are usually linked to environmental issues might perceive, *ceteris paribus*, greater levels of engagement than politicians. In contrast, senior officials may have more in-depth knowledge of day-to-day real-world LA21 practices and be more aware of the difficulties of engaging with LA21 processes without the required resources (Adolfsson-Jörby, 2002).

5. Research methodology

From a methodological perspective, this research adopts postpositivism assumptions (Creswell, 2014). Postpositivists argue that scientific research should follow a specific process that includes the next steps: (1) beginning with cause and effect thinking to build a literature-driven model; (2) developing/adapting valid and reliable measures; and (3) using representative samples and predetermined instruments that yield statistical data that either supports or refutes the theory.

This approach was followed in its integrity in this research. In this section we discuss the survey administration process, and the development of the measures and their psychometric properties (i.e. validity and reliability).

5.1. Survey Administration

To test the model we considered the municipalities belonging to the Italian LA21 Network/Association. A list of 347 municipalities belonging to the network constituted our sampling frame. In each municipality, we identified the person in charge of LA21 processes (so-called LA21 coordinator) and contacted her/him by phone. These people were selected because: (1) they are the most knowledgeable people in the municipality when it comes to LA21-related issues, and (2) they are influential in the decision-making processes in their municipalities. Confidentiality was guaranteed.

In the end, 108 (out of 347) LA21 coordinators (senior officials or politicians) completed the questionnaire. We did not force a higher number of responses due to three reasons: (1) 108 responses reflect the target population with a confidence level higher than 95% and a margin of error lower than 10% which are usually considered as acceptable for scientific research; (2) We considered it inappropriate to force responses from people without the expertise and motivation needed to complete the survey properly (e.g. some municipalities/coordinators suggested to us the name of a non-expert to complete the questionnaire and we rejected this possibility). All LA21 coordinators were contacted several times, which implies that all sample units had the same chance to be included in the sample.

We took care over representativeness in terms of municipality size, as this variable has been considered important in prior LA21 research (Kern et al., 2007). Our sample is representative of the network in terms of municipality size as shown by the

chi square goodness of fit test ($\chi^2 = 6.456 < 7.815$, 5% level, 4 - 1 degrees of freedom; see table 1). We also considered the geographic characteristics of the network in terms of Italian zones (North, South, Centre and islands) (see table 1). The average experience of municipal coordinators with LA21 is 7.7 years. The respondents are mostly senior officials (95), while a smaller number are politicians (13).

(Table 1)

The expertise of municipal coordinators that were interviewed (i.e. they are experts in relation to the attributes considered in the survey), the high representativeness of the sample (i.e. they are representative of the whole population considered), and the guarantee of confidentiality (i.e. they are not afraid to speak their minds), contribute to the validity of this research as a whole.

Other forms of bias could exist in survey research. For instance, respondents could tend to be positive regarding LA21 advantages to justify their prior decision of implementing LA21 and be network members. However, the self-assessment of engagement with LA21 rated relatively low (mean = 5.67; Std. Dev. = 2.4) instead of high. While it could be too optimistic to ensure that there is no bias in this research, the procedures we followed were guided by psychometric literature and addressed to minimize bias risk (Nunally and Bernstein, 1994).

5.2. Measurement development

The verification of the model was carried out on the basis of local authority perceptions. We conducted a survey to collect perceptual-attribute-level ratings (e.g. we collaborate with promoters). Likert-type scales with scores between 0 (completely disagree) and 10 (completely agree) were used. These data were aggregated to generate dimension-level ratings (e.g. vertical interaction). Finally, we empirically examined the

effects of dimension-level ratings on endogenous construct (i.e. engagement). Tables 2 and 3 summarize the measures used and their sources for all the study constructs, as well as the descriptive statistics.

(Tables 2 and 3)

The measures for the study constructs were mostly adapted from existing scales (to fit the study context). Municipal resources in the form of the presence of key individuals, the SD tradition and the attitude towards participation were measured with items adapted from Barrutia and Echebarria (2011) as well as three partner resources: comprehensiveness, complements and integration. The remainder partner resources, in the form of integration and recognition, were assessed with four items adapted from Carson et al. (2007).

We did not find psychometrically-driven work addressed to measure networking resources in previous LA21 literature. As a consequence, the measures for networking resources were mostly adapted from scales found in networking literature. Thus, horizontal interaction was assessed with three attributes adapted from Nambisan and Baron (2009). Three items adapted from Nambisan and Baron (2009) and Chiu et al. (2006) were used to measure the construct enjoyment. Reputation was assessed with three attributes adapted from Dholakia et al. (2004) and Nambisan and Baron (2009). And trust was measured with three items from Chiu et al. (2006).

The outcome variable, engagement with LA21, was assessed with six attributes from Lam et al. (2004) and Barrutia and Echebarria (2011).

Due to space limitations the specific items used to measure our first-order-factors/constructs are summarized in tables 2 and 3. For instance, means–ends integration was measured by using two attributes referring to general perception of

general means–ends adequacy and appropriate support lines (Barrutia and Echebarria, 2011). Trust was assessed by using three items referring to meeting promises, behavioral consistency, and overall trust (Chiu et al. 2006).

5.3. Validity and reliability of the measures

We use self-report multiple-item scales. These scales should be psychometrically sound (i.e., valid and reliable). As developing valid and reliable scales is a complex task, psychometricians recommend to adapt preexistent scales when possible (Nunally and Bernstein, 1994), what has been done for the purposes of this research. In addition to this caution we used several procedures to help to ensure the validity and reliability of our scales.

The concept of scale validity includes three forms of validity: concept, construct and nomological validity.

A scale exhibits content validity when is consistent with the theoretical domain of the construct (i.e., items are representative of the construct they are proposed to measure). In order to achieve content validity the selection of the items and their final wording were carried out in several steps. These steps were addressed to assess the logical consistencies between the concepts to be measured and the items used, ease of understanding, sequence of items, and contextual relevance. First, researchers met to discuss the scales content and devise a preliminary questionnaire. Second, a pretest of the questionnaire was performed using three experts in the SD area. The comments collected from these experts led to several minor modifications of the wording and the item sequence. Furthermore, a pilot study was conducted involving five people in charge of LA21 processes in Italy. Comments and suggestions on the item contents and structure of the instrument were also solicited in this stage. As is recommended by

psychometric literature (Nunally and Bernstein, 1994), we provide information so that readers may evaluate content validity. Thus, section 4 includes a concept for each of the fifteen first-order factors. And a summarized description of the items and their sources is offered in tables 2 and 3.

As was suggested by Nunally and Bernstein (1994) construct validity requires that each scale shows internal consistence (convergent validity) and external divergence (discriminant validity). The convergent validity of the scales was verified by utilizing Cronbach's alpha (Anderson and Gerbing, 1988). As we adapted items from existing scales, first-order factors behaved as expected. The fifteen first-order factors used in this research showed high-levels of convergent validity, with Cronbach's alpha ranging from .814 to .983 (see tables 2 and 3).

Discriminant validity (i.e. our constructs measure different concepts and do not overlap) was assessed by calculating the confidence intervals around the correlation between each pair of constructs (\pm two standard errors) and verifying that none of them included the value of 1.0 (Anderson and Gerbing, 1988).

Finally, nomological validity refers to relations between constructs; they should behave as expected in prior literature. Overall, table 4 shows that the correlations between constructs are as expected. For instance, all correlations between engagement and the explanatory factors are positive and significant. It was expected as these factors were selected after an in depth literature review.

Reliability refers to the stability (i.e., the measure employed repeatedly on the same individuals yield similar results), equivalence (i.e., the measure employed by different investigators yield similar results), and homogeneity (i.e., all items of the measure be internally consistent) (Nunally and Bernstein, 1994). Stability testing is

usually not performed in academic research as it is a complex task that requires repeated measures on the same respondents, who may be unwilling to accept them. Equivalence was tested by comparing the responses obtained by three different interviewers, what yield not significant differences. Homogeneity has been shown above when discussing validity (see tables 2 and 3). Reliability is usually shown by using preexisting scales and checking that they behave similarly than in previous studies (in terms of item homogeneity and correlation with other constructs), as was done in this research. For instance, some constructs of this study are derived from Barrutia and Echebarria (2011); overall, these constructs behave similarly in both studies.

6. Model specification

The proposed model reflecting the assumed linear, causal relationships among the constructs was tested with the data collected from the validated measures.

We used factor analysis and OLS to test the proposed model. To explore the relationship between the outcome and the explanatory variables we used two different methodological approaches.

Approach (1) modeled municipal resources (M unRes) and relational resources, in the form of HLG resources (HLGRes) and networking resources (NetRes), as determinants of the outcome variable: engagement with LA21 processes [Eng] (equation 1). The three explanatory higher-order factors were modeled as a summated scale of all first-order factors in line with the clusters considered in section 3 (see Figure 2). Thus, municipal resources were determined by key individuals (KeyInd), tradition (Trad), and attitude towards participation (Part). HLG resources were explained by comprehensiveness (Compr), complements (Compl), means-ends integration (Int), co-decision (Co-Dec), and recognition (Recogn). Finally, networking resources were modeled as being determined by vertical

interaction (VerInt), horizontal interaction (HorInt), learning (Lear), enjoyment (Enj), reputation (Rep), and trust (Trust). Control variables were also considered: Inhabitants (Ihab), respondents' experience (Exp), and whether a senior official or a politician was involved (SO). A dummy variable was created whereby politician = 0 and senior official = 1.

Our model specification was as follows:

$$(1) \text{Eng}_i = \alpha_1 + \beta_{11} (\text{MunRes}_i) + \beta_{12} (\text{HLGRec}_i) + \beta_{13} (\text{NetRec}_i) + \beta_{14} (\text{Inhab}_i) + \beta_{15} (\text{Exp}_i) + \beta_{16} (\text{SO}_i) + \varepsilon_{1i}$$

In approach (2), we directly modeled all first-order factors and control variables as determinants of engagement. Then equation (1) was reformulated as:

$$(1') \text{Eng}_i = \alpha_1 + \beta_{11} (\text{KeyInd}_i) + \beta_{12} (\text{Trad}_i) + \beta_{13} (\text{Part}_i) + \beta_{14} (\text{Compr}_i) + \beta_{15} (\text{Compl}_i) + \beta_{16} (\text{Int}_i) + \beta_{17} (\text{Co-Dec}_i) + \beta_{18} (\text{Recogn}_i) + \beta_{19} (\text{VerInt}_i) + \beta_{110} (\text{HorInt}_i) + \beta_{111} (\text{Lear}_i) + \beta_{112} (\text{Enj}_i) + \beta_{113} (\text{Rep}_i) + \beta_{114} (\text{Trust}_i) + \beta_{115} (\text{Inhab}_i) + \beta_{116} (\text{Exp}_i) + \beta_{117} (\text{SO}_i) + \varepsilon_{1i}$$

We used a stepwise regression process to test the model. A well-known limitation of this approach is that variables that are significantly correlated with the outcome variable might be excluded from the final solution due to high correlation with other explanatory variables (multicollinearity). However, this approach is very useful for identifying individual predictors that prove to be singularly important for explaining the outcome variable.

7. Results

Stata 12 statistical software was used to analyze the model. A first step consisted of analyzing descriptive statistics. The results are reported in tables 2 and 3.

An interesting finding was that the items measuring municipal resources offered larger and relatively more homogeneous scores (lower standard deviation) than the

remaining items. In particular, the construct ‘attitude towards citizen participation’ achieved the highest score out of all the constructs considered (7.58).

The lowest average scores were attached to some of the variables addressed to measure relational resources. In particular, municipalities clearly perceive that resources provided by HLG (partner resources) are insufficient: complements (3.01), means-end integration (3.45), comprehensiveness (4.26), and co-decision (4.34) achieved very low scores. Networking resources are also shown to be scarce in terms of LA21 coordinators’ perceptions. Thus, the interaction level inside the network is very weak particularly where interaction between municipalities (3.65) is concerned, which is consistent with low levels of learning (4.5) and trust (4.95).

Likewise, correlations between factors were checked (see table 4). Interestingly, the outcome variable (engagement) is positively and significantly correlated with all variables measuring relational resources. Most correlations between explanatory variables were also significant and some of them relatively high. The correlations of engagement with internal resources are not significant.

(Table 4)

We also checked for normality by using the Shapiro–Francis test. Most factors showed to be normal; some factors, however, appeared as non-normal. In consequence, we used the robust regression method to test the model.

Table 5 summarizes the OLS estimation results by using the two approaches. In approach (1), which uses second order-factors, HLG resources ($\beta = .41$; $p < .05$), networking resources ($\beta = .37$; $p < .05$), and respondent profile in terms of being a senior official as opposed to a politician ($\beta = -1.66$; $p < .01$), have a significant effect on engagement with LA21 ($R\text{-sq} = 53.75\%$; $p < .01$). In approach (2), which uses

first-order factor scores, two relational variables, trust ($\beta = .47$; $p < .01$) and means-end integration ($\beta = .25$; $p < .01$), and the control variable senior official/ politician ($\beta = -1.66$; $p < .01$), have a significant effect on engagement with LA21 ($R\text{-sq} = 57.92\%$; $p < .01$).

(Table 5)

The results regarding control variables are consistent in approaches 1 and 2. The only control variable that has a significant effect on both approaches is whether a senior official is involved as opposed to politician. This result may indicate that politicians are more willing to engage in LA21 despite resource limitations, probably due either to a greater degree of idealism or lack of awareness. The respondent's experience might not have an effect as most respondents have enough experience to conduct LA21-type processes. In addition, positive effects, stemming from the higher knowledge of experts, might be outweighed by negative effects from more realistic views and fatigue derived from implementing processes with unstable resources and/or diminishing resources over time due to economic crisis. The non-significant effect of municipality size is discussed in the next section.

8. Discussion and conclusions

Overall this research is part of a large body of research addressed to make the SD concept operative at a local level in order to meet global SD aspirations inside a polycentric perspective of sustainability. We do not consider the local government as an isolated gladiator but as part of a network of local authorities and HLG that share goals and resources and are able to create new resources by interacting in service-by-service encounters. We adopt a networking perspective because prior research has shown that networks have particular properties for boosting local authorities' interest in implementing LA21-like tools.

Our research question is: What factors explain the engagement of local authorities with LA21-like tools in a networking context? The outcome variable, engagement, is an internal perception of local authorities. Engagement matters as it is an antecedent of behavior (i.e. strong day-to-day involvement with LA21-like tools).

To answer the research question we adopt a systematic (postpositivist) perspective. First, we need to respond to an umbrella question: What mental mechanisms explain the engagement of local authorities with LA21-like tools? We built on user acceptance models to find an answer. User acceptance models suggest that people engage with activities that they may carry out with expected success and reasonable effort/uncertainty. This view led us to propose that local authorities engage with LA21-like tools when they have the resources necessary to implement them successfully and with acceptable effort/uncertainty.

This proposal centered our attention on theories that focus on resources and, particularly, on the RVB of organizations. Two types of resources, internal and relational resources, are considered by the RBV. Unfortunately, the RBV focuses on firms and does not provide a list of the resources that should be considered in our specific non-for-profit research context. We needed to build, therefore, on prior literature on LA21 and other related literatures (such as collaborative governance and networking research) to identify the internal and relational resources that should matter in our specific context. We then had to propose a specific model in which the integration of internal and relational resources explains the engagement of local authorities with LA21-type processes. Finally we needed to find and adapt specific metrics to our constructs/variables and test them in a real-world context.

By developing the above explained process this research contributes new theoretical insights and policy approaches.

From a theoretical perspective we make a first contribution to the RBV. RBV is one of the most widely used frameworks for explaining competitive advantage and the outstanding performance of private companies. However, RBV has only been marginally considered to explain success in not-for-profit contexts. Another limitation of the RBV is that it has traditionally focused on internal resources. The consideration of relational resources was added recently. Our research bridges the above gaps by showing that: (1) RBV may be crucial to explain the achievement of complex aspirations (i.e. SD-led change) in not-for-profits contexts (i.e. municipalities and HLG); and (2) in not-for-profit contexts, relational resources may be even more important than internal resources, due to resource limitations, resource fragmentation, and the complexity of public aspirations.

In particular, our findings indicate that local authority engagement with participative and strategic planning addressed to meet complex SD goals, including interrelated environmental, social, and economic dimensions, demands significant relational resources stemming from resource pooling and combination, and intense and regular interaction. When relational resources fail, we cannot expect the engagement of complex LA21-type processes, as managers are uncertain about possible results or are dissatisfied when processes are undertaken and results do not meet expectations. Our aggregated findings (approach 1) show the importance of the two types of relational resources for engagement: (1) HLG resources (or partner resources); and (2) the resources emerging from networking.

Second, our research contributes to prior LA21 literature by devising and testing a comprehensive model in which a wide range of internal, partner and networking resources are considered. In particular, networking resources have been neglected or weakly measured in previous LA21 literature.

Internal resources and the control variable municipal size do not have a significant effect on engagement. This could be considered as an unexpected result as most prior LA21 research emphasizes the importance of internal resources and municipal size for LA21 adoption. However, this research is not addressed to explain why municipalities decide to adopt LA21 or be a member of a LA21 network. The factors explaining these decisions could be different than factors explaining engagement with LA21 processes inside networks. Thus, internal resources and municipal size could be important for making the (yes/no) decision of initiating an LA21-type process (adoption), as a threshold of resources might be imperative to manage the process (e.g. a person with full-time dedication). This view is consistent with the fact that small municipalities are clearly underrepresented in the network. Municipalities with fewer than 5000 inhabitants represent 70.4% of Italian municipalities and only 30.8% of the members of the network. However, as our research shows, once the adoption decision is made, engagement could be mostly explained by other variables different to internal resources and municipal size.

When individual variables are considered (approach 2) two variables emerge as particularly explanatory predictors of engagement, among a wide list of fourteen resources. The first is means-end integration. This variable emphasizes that the resources contributed and/or promoted by HLG, in the form of financial, human, and knowledge resources (e.g. methodologies and best practices), are smartly defined for the purposes of LA21 implementation (i.e. the ends pursued and the resources available to meet those ends are fully coherent). The second is trust. The prominence of trust is consistent with a great deal of previous research which stresses the highly beneficial effects of trust in relational contexts (e.g. Cardenas and Ostrom, 2004).

A third contribution refers to the specific context of this research, Italy. Prior international scientific research on LA21 processes in Italy is very limited. As far as we know only Sancassiani (2005) studied and reported LA21 experiences in Italy. He analyzed the results of a national survey. Overall, our findings tend to be less positive than Sancassiani's, this probably being due to the effects of the financial crisis in Italy, which has reduced the resources available for SD goals. However, some limitations of LA21 processes remain unchanged. Thus, in Sancassiani's survey, LA21 coordinators were asked to respond regarding the changes that would be necessary for improving LA21 implementation. They demanded coordination of policies at various levels, better integration between LA21 plans and other sector plans, financial resources, active stakeholders, and more training, information, and incentives. They also emphasized the scarcity of financial resources and lack of commitment of HLG.

From a policy perspective, our findings suggest that systemic approaches are needed to promote local SD planning processes (i.e. a group of interacting, interrelating, and interdependent parts that integrate, combine, and create purposeful-led resources). Thus, HLG could promote interscalar intergovernmental networks as a first step towards national sustainability systems. Our findings offer some guidance in identifying the criteria that should guide network-building. These guidelines include: (1) seeing networks from a resources integration perspective; (2) focusing on contributing complementary resources and creating new emergent resources that stem from rich and recurrent interactions; (3) promoting trust; and (4) integrating means and ends when designing complements to the LA21 tool. Our findings also suggest that not all self-called networks have the same properties. A genuine network capable of generating high levels of engagement needs to be rich in terms of relational resources.

This study focuses on the municipalities that are members of the network. Therefore, extrapolating our results to all Italian municipalities should be done carefully.

Our findings may be affected by the specific context we study and by path-dependency. However, in our view, this characteristic might not affect our finding that engagement with LA21 processes depends on the resources provided by the partners (HLG) and the new resources that emerge from regular, intense, and rich interactions (i.e. relational resources). In any event, more research in different contexts is needed to advance our understanding as to how RBV could be used to promote SD-led change.

We adopt an intra-country perspective. However, international cooperation has proved to be very important for LA21 processes and other SD-related processes (e.g. Betsill and Bulkeley, 2006). Further research could consider international linkages.

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Figure 2: Model

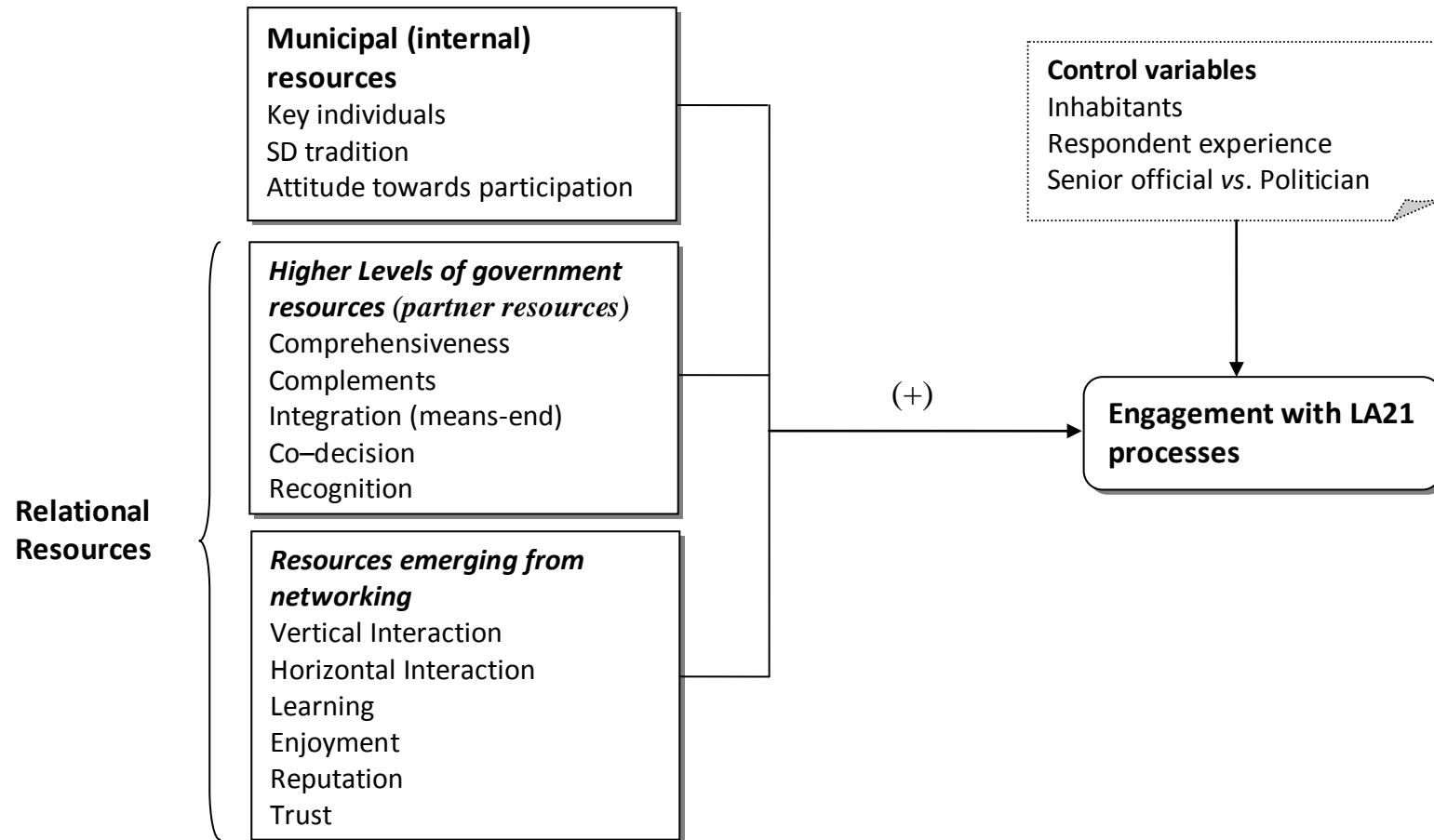


Figure 1: Members of the Italian LA21 Association

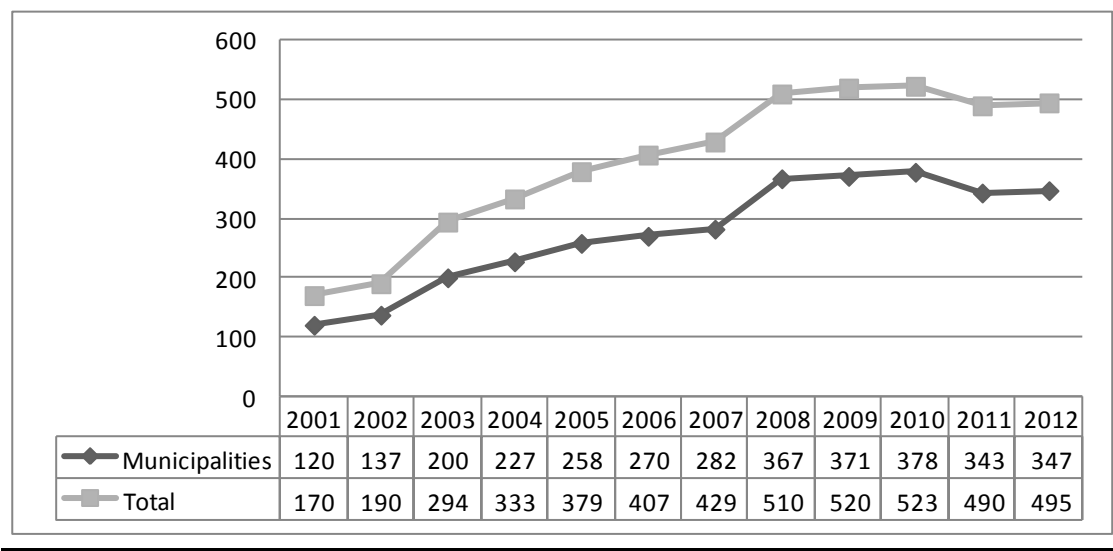


Table 1. Representativeness of the sample

	Members	%	Respondents	%
Inhabitants				
<5000	107	30,8	24	22,2
>=5000 & <20000	104	30,0	33	30,6
>=20000 & <100000	111	32,0	38	35,2
> 100000	25	7,2	13	12,0
Total	347	100	108	100
Zones				
North	119	34,3	46	42,6
Centre	46	13,3	21	19,4
South	44	12,7	9	8,3
Island	138	39,8	32	29,6
Total	347	100	108	100

Note: Chi-square (Inhabitants) = 6.456 < 7.815 (5% level; 5 - 1 degrees of freedom)

Table 2. Constructs measuring ‘municipal resources’ and ‘Higher Levels of Government (HLG) resources’

Factor/item	Source (adapted from...)	Mean	Std. Dev.	Alpha*
<i>Municipal (internal) resources</i>				
Key individuals	Barrutia and	7.05	1.97	.941
Influential individuals	Echebarria, 2011	6.03	2.87	
Reference models		6.07	3.02	
Tradition	Barrutia and	6.08	2.36	.923
We are an SD benchmark	Echebarria, 2011	7.08	2.09	
Long SD tradition		7.04	2.01	
Attitude towards participation	Barrutia and	7.58	1.69	.814
Advantages > Disadvantages	Echebarria, 2011	7.28	1.99	
Participation worth the trouble		7.90	1.70	
<i>HLG resources (partner resources)</i>				
Comprehensiveness (actors)	Barrutia and	4.26	1.98	.846
Promoters’ work is coordinated	Echebarria, 2011	5.14	2.78	
No-one missing		4.66	2.45	
All relevant HLG are supporting		3.63	2.27	
Promoters collaborate		3.79	2.17	
Complements	Barrutia and	3.01	2.63	.950
A lot of support at present	Echebarria, 2011	3.03	2.57	
Easily accessible support		2.97	2.78	
Quality support		3.44	2.74	
Integration (means–ends)	Barrutia and	3.45	2.66	.928
General means–ends adequacy	Echebarria, 2011	3.46	2.78	
Adequate support lines		5.39	2.12	
Recognition	Carson et al., 2007	4.52	2.31	.913
LA21 activism is recognized		5.90	2.33	
LA21 activism is appreciated		4.15	2.49	
Main political leaders recognize LA21 activism		3.86	2.62	
Positive feedback		5.41	2.72	
Co-decision	Carson et al., 2007	4.34	2.21	.874
We participate in decision–making		3.43	2.79	
Forums to jointly decide		5.21	2.70	
Ways to participate in decision–making		4.52	2.65	
Participation is encouraged		4.18	2.68	
People participating are supported		3.95	2.64	

* Cronbach’s alpha = Scale reliability coefficient; Std. Dev. = Standard Deviation

Table 3. Constructs measuring ‘networking resources’ and ‘engagement with LA21’ (outcome variable)

Factor/item	Source (adapted from...)	Mean	Std. Dev.	Alpha*
Networking resources				
Vertical interaction	Barrutia and	4.80	2.58	.949
Fluid relationships with promoters	Echebarria, 2011	4.69	3.05	
Quality promoters		4.89	2.60	
Benchmarks		4.51	2.73	
We collaborate with promoters		5.00	2.88	
We contribute ideas and experiences		4.89	2.88	
Horizontal interaction	Nambisan and Baron,	3.65	2.83	.959
Frequent contacts	2009	3.93	2.95	
Phone conversations, emails, etc.		3.80	3.06	
Meetings		3.25	2.83	
Learning	Chiu et al., 2006;	4.50	2.69	.963
We get important information	Nambisan and Baron,	4.76	2.79	
We learn	2009	4.46	2.84	
We resolve problems		4.11	2.79	
Enjoyment	Dholakia et al., 2004;	6.04	2.75	.983
It's nice to share aspects of LA21	Nambisan and Baron,	6.03	2.79	
It is exciting to share LA21 issues	2009	6.08	2.73	
It's fun to solve LA21 problems		6.04	2.80	
Reputation	Dholakia et al., 2004,	6.69	2.42	.964
Reinforces our reputation	and Nambisan and	6.54	2.51	
Reinforces our credibility	Baron, 2009	6.52	2.47	
We influence others		7.04	2.46	
Trust	Chiu et al. 2006	4.95	2.37	.978
Meet promises		4.84	2.44	
Are consistent		4.87	2.43	
You can trust them		5.09	2.38	
Outcome variable				
Engagement with LA21	Lam et al., 2004;	5.67	2.34	.932
Benefits > costs	Barrutia and	5.63	2.54	
LA21 worth the trouble	Echebarria, 2011	5.85	2.45	
Very satisfied		5.25	2.54	
Meet expectations		5.12	2.40	
We intend to continue		6.29	2.75	
We will intensify over coming years		5.96	2.78	

* Cronbach's alpha = Scale reliability coefficient (bold); scale reliability without the item (regular).
Std. Dev. = Standard Deviation

Table 4. Factor correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
ENGAGEMENT (1)	1													
Key individuals (2)	0.166	1												
Tradition (3)	0.136	.3221*	1											
Participation (4)	0.188	.4503*	.4026*	1										
Comprehensiveness (5)	.5293*	.4088*	-.0400	.2263*	1									
Complements (6)	.5272*	.2763*	.1900	.0900	.4462*	1								
Integration (7)	.6090*	.2807*	.0300	.1550	.6185*	.7105*	1							
Recognition (8)	.6638*	.4710*	.2122*	.2885*	.6285*	.6205*	.6550*	1						
Co-decision (9)	.5421*	.2115*	.0700	.1230	.5741*	.4966*	.6424*	.7555*	1					
Vertical interaction (10)	.6023*	.3984*	.1962*	.2417*	.4103*	.5537*	.5551*	.6217*	.4265*	1				
Horizontal interact. (11)	.4745*	.2146*	.2207*	.1973*	.1900	.3454*	.3415*	.3757*	.3558*	.6922*	1			
Learning (12)	.5578*	.4066*	.1900	.2410*	.3191*	.4866*	.5399*	.5690*	.4330*	.6494*	.6163*	1		
Enjoyment (13)	.3861*	.6453*	.2521*	.3876*	.4051*	.3712*	.3846*	.5697*	.2860*	.4777*	.3043*	.6123*	1	
Reputation (14)	.2385*	.5844*	.2992*	.4260*	.3114*	.2124*	.2686*	.4596*	.2268*	.4169*	.2354*	.3984*	.7990*	1
Trust (15)	.6203*	.4953*	.3278*	.4022*	.4667*	.4032*	.4605*	.7179*	.5898*	.5219*	.4246*	.6267*	.6252*	.5473*

* Significant at 5% level

Table 5. Determinants of engagement with LA21

<i>Approach (1): Stepwise regression using higher-order factors</i>				
<i>Engagement with LA21</i>	Standard Coefficient	Standard Error	t	P> t
Partner resources	.41*	.17	2.31	.025
Networking resources	.37*	.18	2.06	.045
Politician vs. Technician	-1.66**	.47	-3.47	.001
Constant	3.45**	.67	5.13	.000
R ²	.5375			
<i>Approach (2): Stepwise regression using first-order factors</i>				
<i>Engagement with LA21</i>	Standard Coefficient	Standard Error	t	P> t
Trust	.47**	.10	4.61	.000
Integration	.25**	.09	2.70	.001
Politician vs. Technician	-1.67**	.56	-3.00	.004
Constant	3.95	.66	5.91	.000
R ²	.5792			

** Significant at the 1% level; * at 5%. Robust regressions.