Beniamino Murgante Sanjay Misra
Maurizio Carlini Carmelo M. Torre
Hong-Quang Nguyen David Taniar
Bernady O. Apduhan Osvaldo Gervasi (Eds.)

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Preface

These multiple volumes (LNCS volumes 7971, 7972, 7973, 7974, and 7975) consist of the peer-reviewed papers from the 2013 International Conference on Computational Science and Its Applications (ICCSA2013) held in Ho Chi Minh City, Vietnam, during June 24–27, 2013.

ICCSA 2013 was a successful event in the International Conferences on Computational Science and Its Applications (ICCSA) conference series, previously held in Salvador, Brazil (2012), Santander, Spain (2011), Fukuoka, Japan (2010), Suwon, South Korea (2009), Perugia, Italy (2008), Kuala Lumpur, Malaysia (2007), Glasgow, UK (2006), Singapore (2005), Assisi, Italy (2004), Montreal, Canada (2003), (as ICCS) Amsterdam, The Netherlands (2002), and San Francisco, USA (2001).

Computational science is a main pillar of most of the present research, industrial, and commercial activities and plays a unique role in exploiting ICT innovative technologies; the ICCSA conference series have been providing a venue to researchers and industry practitioners to discuss new ideas, to share complex problems and their solutions, and to shape new trends in computational science.

Apart from the general track, ICCSA 2013 also included 33 special sessions and workshops, in various areas of computational sciences, ranging from computational science technologies, to specific areas of computational sciences, such as computer graphics and virtual reality. We accepted 46 papers for the general track, and 202 in special sessions and workshops, with an acceptance rate of 29.8%. We would like to express our appreciation to the Workshops and Special Sessions Chairs and Co-chairs.

The success of the ICCSA conference series, in general, and ICCSA 2013, in particular, is due to the support of many people: authors, presenters, participants, keynote speakers, Workshop Chairs, Organizing Committee members, student volunteers, Program Committee members, International Liaison Chairs, and people in other various roles. We would like to thank them all. We would also like to thank Springer for their continuous support in publishing ICCSA conference proceedings.

May 2013

David Taniar
Beniamino Murgante
Hong-Quang Nguyen

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Co-creating Urban Development: A Living Lab for Community Regeneration in the Second District of Palermo

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Abstract. The characterisation of urban 'smartness' emerges as a product of social mobilisation, which marks the pathway towards collective technology adoption and policy innovation. This paper highlights the didactic and critical aspects that relate to the use of participatory solutions – namely the electronic Town Meeting and others, such as weblogs and the "Planning for Real" scheme – which start within the dimension of social animation and serious gaming and are only later oriented to urban planning. The Palermo pilot of the PARTERRE ICT-PSP project, based on the Territorial Living Lab approach, documents one possible transition from the stage of a free relationship with scenarios and visions, to the definition of a social demand for planning, specifically within the framework of a real experience of the citizenship life. From a policy making perspective, Participation in planning does not come to an end but continuously tends to a gradual improvement, both in the quality of the projects and in those cohesion factors, which lead to the constitution of spontaneous partnerships.

Keywords: Urban Planning, eParticipation, Living Labs.

1 Introduction

The EU funded project PARTERRE [1] recently demonstrated the potential for spatial policy design and territorial development of two e-Participatory solutions:

1. The Electronic Town Meeting - eTM, a deliberative democracy methodology and platform combining the advantages of small group discussion with electronic voting in public assemblies [2]; and
2. The DEMOS-Plan solution for the management of formal and informal consultations of citizens and stakeholders in the context of spatial planning.

Key features of the eTM are that:

- The participants are briefed in detail, several days before the event, on the topics to be dealt with – which makes the discussion informed and politically correct;

B. Murgante et al. (Eds.): ICCSA 2013, Part III, LNCS 7973, pp. 294–308, 2013.

During the day, they can see their opinions reflected in the summaries of contributions that are continuously displayed on a maxi screen – which makes the discussion inclusive and improves the climate of collaboration;
- At the end of the day, the participants receive an "instant report" summarising what was discussed during the assembly and including the results of the voting sessions – which enhances their confidence in the utility of the whole exercise;
- The observed satisfaction rate is always about 90% in any survey – which contributes to restoring the reputation of the public agency that organized the event.

Key features of DEMOS-Plan are that:

- All public authorities and agencies involved in the process take benefit from documented savings in the printing and shipping of maps and accompanying documents to the other parties being consulted;
- The solution enables workflow management and can be easily integrated into the existing IT infrastructure of the agency;
- Both formal (i.e. mandatory by law) and informal (optional, e.g. pre-emptive) consultations of citizens and stakeholders can be handled by the system;
- Every participant can receive a formal response to their application or contribution by the public body in charge of the process.

The main aim of the PARTERRE project was to refine the two technical solutions introduced above within a number of pilot environments (Hamburg, Germany; Larnaca and Voroklini, Cyprus; Sicily and Tuscany, Italy; the Turku Archipelago, Finland; Ulster, UK) that have involved real citizens and businesses in discussions on real planning and programming issues, in compliance with the Territorial Living Lab approach [3].

The latter is a variant of the more popular Living Lab approach, which was born in the ICT research domain and officially endorsed in 2006 by the Finnish EU Presidency as a new, truly European model of "co-creation of innovation in public, private and civic partnership". Briefly, the term Living Lab broadly refers to a set of quantitative and qualitative methodologies and tools for the ideation, design, development and validation of innovation together with (and by) the end users within real-world environments. In these open settings, people are taken across the different roles played during a normal day and allowed to contribute on a peer basis with the developers in prototyping, evaluating and testing novel ICT solutions; thereby, innovation becomes human-driven, in contrast to technology-driven. Further to that, trial activities go on round the clock: this means that solution developers get the opportunity to gain understanding of a new product or service in its 24/7 usage dimension. Differently from User Centred Design, end users are integrated within all stages of product/service development, from ideation to design, from development to validation, from testing to evaluation.

Scientific ancestors of the Living Lab concept possibly include: the late William J. Mitchell from MIT Medialab, who is said to be the inventor of the term itself, born in an urban planning and architecture design context; Eric Von Hippel, again from MIT, with his elaboration of the 'Lead Users' paradigm; Henry Chesbrough from Berkeley,

known by many as the 'father' of Open Innovation theory; and the Canadian business strategist Don Tapscott, who first introduced the notion of 'Prosumer' (i.e. Consumer + Producer) as key actor of the globalised markets in the Web 2.0 era. From an initial, purely technological (and especially ICT pervasive) field of experimentation, Living Lab applications are now increasingly migrating towards broader socio-economic, environmental and even governance related contexts, including the co-creation of open data, open government and innovation policies. In this sense, Living Labs may represent a valid instrument to support territorial development policies, by assuming three possible configurations [4]:

1. As vertical tools for promoting user driven research, development and innovation in a given application domain (such as eHealth, eInclusion, or eParticipation);
2. As intermediaries between citizens, governments and other stakeholders of the PPPP (Public Private People Partnership) that supervises the whole experiment;
3. As behavioral and improvement guidelines for public administration officials, wanting to exploit the 'mixture' of technological, social and organizational innovation to valorize local intellectual capital and to increase available knowledge for development.

In this paper, we report about the way the PARTERRE project implementation has adopted and adapted the Territorial Living Lab approach to establish and manage eParticipatory trials in the respective thematic domains. We will particularly focus on one of the pilots, which took place in 2011-2012 in the City of Palermo, Sicily, culminating with the celebration of an Electronic Town Meeting (eTM) on 18th February 2012, together with a representative sample of the population of the Second City District of Brancaccio. We will analyse the role played by the Territorial Living Lab Sicily in promoting social mobilisation and by the chosen PARTERRE ICT solution in supporting and structuring people's participation to a bottom-up instantiation of the process planning. We will draw lessons that are possibly worth considering in the reflection on both the future of urban planning and of eParticipation in Europe.

2 A Big Question

The recent evolution of urban planning practice has certainly added new facets to the historically well-enforced interest of private citizens and local businesses in being individually included in the spatial planning process as far as its implications directly have impact on their property or building or development rights. Namely, it has created or strengthened a sort of "extended interest" of the local community and its organized representatives (which we sometimes call "civil society") in taking active part to major planning decisions for the defense of collective rights, such as the quality of air, soil and water, or the preservation of cultural and architectural heritage, or the possibility to run a successful business in a service rich environment.

Conventionally, the former interest has been declined by the public authorities in charge mainly as a right to participate in the *concluding* stage of planning – after

some preliminary decisions have been taken on zoning and destination of land and formal consultations must be run with the affected people as required by extant legislation – while the latter has emerged mainly as a right to be informed and informally consulted during the *initial* stage of planning, when strategic visions of the future and alternative development scenarios are laid down and discussed by the elected officials in charge of taking decisions about them.

Protecting both of these interests requires the adoption of different participatory tools. In fact, the "individual right" to formal participation basically relies on transparency and open access to the information contained in the drafted plan: such as the publication of accurate, complete and comprehensible maps, datasets, and documents, which enables any citizen to gain the necessary knowledge of the planning proposals, in order to interact with the competent public authority more efficiently and effectively. Conversely, the "collective right" to informal participation in planning, which obviously needs to be exercised with the same transparency and accessibility as the other, requires a further layer of "enabling tools" to be enforced and become effective: tools that actually stimulate and organize the public debate in order to build consensus on a common perspective towards the future.

This shifts the focus from information sharing to shared visioning, by far a more complex issue, which requires new methodologies and tools, able to blur the information boundaries that normally separate urban designers/experts from ordinary citizens – the ones who "know how" from the ones that "do not" – including the latter in all stages of the planning process: from the discussion on alternative options, to the construction of alternatives and the making of selected choices.

In support of this view comes the growing perception and awareness of "vision sharing" as a precondition for acceptance and ultimately legitimization of the decisions taken according to that same vision. Following Innes and Booher [5], a list of motivations for public participation in decision-making may include:

- Making fairness and justice advance in the community;
- Ensuring legitimacy of public decisions;
- Collecting public preferences to take them into account in decisions;
- Incorporating citizens' "localised knowledge" in the decisions affecting them;
- Fulfilling the requirements for public participation that are in scope of extant legislation on planning.

Apart from law requirements, we can split the remaining purposes in two groups:

a. Reputational gains, including compliance with broader legitimization, accountability or simply visibility goals of the government agency involved (and its elected or employed officials);
b. Content related gains: in fact, it is well known that public participation regularly increases the quantity and quality of results. It helps take richer decisions that go beyond the narrow stakeholder interests and improve over the logic of "short term" and "short sightedness".

A third group of motivations have started to emerge, however, from the practical experience we report about in this paper, and which has to do with the implications of a wider community acceptance for the chances of good implementation of any given plan or programme. This should be facilitated, rather than not, by the fast and

pervasive diffusion of ICT (Information and Communication Technologies) in the practice of urban planning, as much as in other contexts of government and daily life.

The big question surrounding this paper, as others in the same research stream (e.g. [6, 7]), is why the advantages of enhanced participation are not yet extensively and systematically gathered within the EU planning processes. This even despite the considerable push received from the Community policy in that regard. For instance, the URBAN I programme – based on the UK Neighborhood Initiative of the 1980's – has been for countries like Italy and France the first occasion to structurally include participatory urban design principles in their respective legal frameworks. Or the diffusion and establishment of the "acquis communautaire", particularly in, but not limited to, the New Member States joining the Union from Eastern Europe at the beginning of 2000's, has promoted a more uniform vision as it is now included in the so-called Territorial Agenda of the EU, as well as in the ESDP (European Spatial Development Perspective) and in the SEA (Strategic Environmental Assessment) concept and procedure.

In fact, the original inspiration that motivated PARTERRE has been that "spatial planning and environmental assessment are in the best position to achieve a paradigm shift in the way electronic participation and social capacity building are practised in Europe. This for at least three good reasons:

- Their legal framework is completely defined at EU level, based on a reasonable distribution of competences across Member States, Regional and local institutions, and on a sustainable combination of mandatory and optional participation procedures;
- The migration from 'offline' to 'online' participation can be supported by a sound business model, showing up the efficiency and quality advantages usually advocated by supporters of electronic democracy for other key processes of public administration;
- A multitude of successful trials exist in this domain – some of which funded by the EC under the ICT Framework Programmes, ERDF/INTERREG and/or the Preparatory Actions on eParticipation – which have demonstrated the above advantages, not only in a political sense, but also in a financial perspective". (see [1], p. 5)

3 Exploring the Potential of Living Lab Partnerships

There are three possible working hypotheses built into the PARTERRE project regarding the potential of Living Labs for spatial planning (henceforth: SP) and strategic environmental assessment (henceforth: SEA):

1. SP and SEA are compatible with the kind of institutional partnership-based innovation that Living Labs represent and the evolution of the PARTERRE local partnerships should be evidence of this;
2. The Living Lab approach for user-driven innovation is as an integral part of the PARTERRE driven planning model, and the dynamics of co-design processes in the pilot projects should be evidence of this;
3. The Living Lab approach can provide significant added value to the conventional "eParticipation in planning" model and the work carried out in the pilots should be evidence of this.

These three assumptions can be supported on the basis of the PARTERRE results, as a baseline upon which a broader evaluation of impact can be performed. In this Section, we specifically look at the likely impact of Living Lab Public-Private-People Partnership (henceforth: PPPP) formation processes on SP and SEA.

In our perception, SP ans SEA are both moving in a direction that increases the complexity of the thematic issues addressed as well as towards both vertical and horizontal topic integration. Ever broader partnerships are formed both to set the agenda and to identify priorities, although this exercise is often carried out as a distinct moment from citizen focused participatory processes.

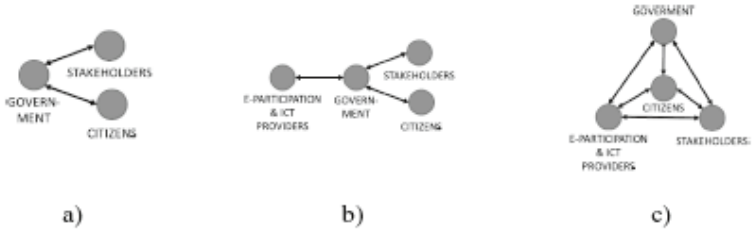

Fig. 1. a) "Traditional" Partnership Model in SP and SEA; b) Traditional" e-Participation Partnership Model; c) Living Lab PPPP Model For SP And SEA

In turn, eParticipation generally works by introducing ICT tools and the associated methodologies for participation into this trend, generally maintaining the partnership structure, aiming to increase the ability of governments to "listen" to stakeholders in participatory processes.

As stated previously, the Living Lab approach introduces ICT into the equation but also different forms of partnership. Traditional Living Labs have ICT and the development of new products and services as their starting point, and generally follow a "triple helix" model (University, research centre, public authority), while Territorial Living Labs introduce ICT into more territorially driven partnership models with a greater role for citizens, in part as a means of sparking off innovative dynamics among the actors.

This second model is clearly more amenable to integration into SP and SEA processes, as it aligns with the trend towards an ever-greater institutional role for the citizen at the centre of the model.

The key evaluation question that arises here is thus the degree to which Living Lab partnerships emerged or evolved throughout the PARTERRE project and the link between these dynamics and developments in the SP and SEA processes. It is interesting to note that although all of the pilot sites have ultimately become part of the European Network of Living Labs (ENoLL), and two in fact did so during the PARTERRE project's lifetime, not all of the formally constituted Living Labs did follow the Territorial approach.

The partnerships for the pilot projects depended to a good degree on the baseline technology being piloted. Namely, DEMOS-Plan provides a more functional added value to the formal planning process and therefore implies the engagement of all those directly involved in its management. The eTM addresses more sectorial and strategic aspects, as well as involving a significant preparatory and outreach phase, so it is natural that it implies the engagement of a broader variety of stakeholders.

Table 1. ENoLL Living Labs in the PARTERRE Pilots

Pilot setting	PARTERRE Partner	Living Lab name	ENoLL year of entry	Partnership model
Ulster	TRAIL	TRAIL	2007	Triple helix
Turku	TUAS	Turku Archipelago	2006	Territorial
		TUAS	2009	Triple helix
Palermo	UNIPA	TLL-Sicily	2007	Territorial
Tuscany	RT	eToscana	2009	Region-driven
Hamburg	Hamburg	TuTech Innovation	2011	Business-driven
Cyprus	VCC	TLL-Kypros	2010	Territorial

Table 2. Impact of Living Lab Partnerships on SP and SEA

Pilot setting	Nature and role of partnership	Potential impact in follow-up
Ulster	Multiple inter-sectorial partnerships for strategic sectorial planning.	Stakeholders' "whetted appetites" for collaboration and participation.
Turku	Broad citizen participation as part of consolidated tradition	Openness of municipalities undergoing change to new approaches.
Palermo	Pilot aligned with bottom-up aggregation of community partners.	Emergence of a permanent partnership for the pilot area, also based on potential for realization of ideas and effective incorporation into the new City plan.
Tuscany	Institutional partnership for multi-level planning.	Institution of regional "Cabina di regia" (coordination panel).
Hamburg	Focused on extended implementation of BOP.	Incorporation into ordinary planning procedures.
Cyprus	Defined by need for new strategic plan.	Replication of eTM through permanent partnership.

A final aspect is the impact of the PPPP developed in the PARTERRE Living Labs on the SP and SEA processes and their potential for the future. While it is premature to fully assess the institutionalization processes after more or less a year after pilots' execution, it is possible to interpret the first signals coming from the partnerships.

We can thus conclude that Living Lab partnerships do have emerged from the PARTERRE project, sometimes but not necessarily based on pre-existing Living

Labs, primarily as a means for capitalisation of outcomes and governance of the future planning and implementation stages.

4 Living Lab Co-design Processes in PARTERRE

In this section we look at the likely impact of Living Lab user-driven innovation on SP and SEA through the co-design processes occurred in the PARTERRE pilots.

Generally, Living Lab co-design processes are considered in relation to an ICT based product or service being designed or developed. This aspect is addressed in PARTERRE WP3 "Platform Customisation and Integration", where for example the Living Lab co-design process has strongly influenced the development of DEMOS-Plan as a multi-lingual eParticipation platform. Here instead the issue of concern is the degree to which Living Lab co-design processes introduce innovation into the planning model itself.

Intuitively, this innovation is not necessarily the same thing as increasing citizen interaction with government, an innovation already widespread in spatial planning, but rather the Living Lab-type interaction between all of the stakeholders involved, driven by citizens. The way this unfolds depends much on the ICT solution being tested in the different PARTERRE pilots, since eTM and DEMOS-Plan have very different processes with different degrees of margin for Living Lab co-design processes.

Of course, the conventional planning model does not need to be entirely re-designed; there are many aspects that require innovation, such as a need for ownership in order to speed up implementation, while there remain many aspects where it is useful to reinforce existing methods, especially related to citizen participation. The Living Lab co-design processes are thus of interest primarily where their innovations bring added value to planning, which we can summarize as follows:

Table 3. Added Value of Living Lab for Innovation in Planning

Pilot setting	Innovation nature and role of co-design process	Living Lab added value for innovation in planning
Ulster	Co-design of agenda setting and thematic development of multiple sectorial eTM pilots.	Increased ownership, cross-sectorial coherence.
Turku	Co-design of village planning practices and procedures in municipal re-organization.	Recognition of value of village planning and tenant democracy.
Palermo	Pilot aligned with bottom-up aggregation of community partners.	Consolidation of shared value and relevance to City planning process. University designs based on eTM outcomes.
Tuscany	Institutional partnership for multi-level planning.	Coherence and consensus in planning process.
Hamburg	Focused on extended implementation of BOP rather than innovation in planning.	Relevance to stakeholder needs.
Cyprus	Defined by need for new strategic plan.	Discovery of positive value of participatory process.

From the above table, it can be seen that the specific added value of Living Lab co-design processes was quite different in the different pilot settings, much as a function of the purpose of the pilot and the "innovation need" of the planning process in question.

We can conclude that the Living Lab co-design processes in PARTERRE appear to adapt to the specific contexts and settings of eParticipation in planning, shifting the innovation potential in the direction of those aspects of the SP and SEA models where innovation is mostly required.

Now in order to assess the added value of the Living Lab approach for conventional eParticipation, we present in more detail and then discuss the results of the Palermo pilot of PARTERRE.

5 The Palermo Pilot of PARTERRE

The starting point of the experience was created by local cultural associations with a request for help to the University of Palermo, Faculty of Architecture, in relation to the problem of gaining access to the Castle of Maredolce [8, 9, 10, 11], located in the Second District of Brancaccio, which had been restored by the competent regional authorities along a period of more than twenty years, but was somehow "guarded" by the local affiliates of criminal organizations. These prevented the population from using the Castle and its surrounding park, and more importantly from giving a different external image of the Brancaccio District than that of delinquency and Mafia (right there, about twenty years ago, the Catholic Priest Don Puglisi had been killed by some anonymous murderers).

Initially, the University took some action in response to the request received, by looking upon the Castle. However, it soon became clear that the proposed issue had to be placed into a wider framework, and specifically within the broader topic of urban regeneration, to be meant as an instantiation (and maybe a turning point) of all accessibility-related problems that affect Palermo, the inland and Eastern Sicily. Here, the term "accessibility" has to be understood both in a physical sense (e.g. as lack of transportation, social services, services for enterprises, etc.) and as immaterial aspect (e.g. lack of quality education, evidence of denied identity rights, social marginality, etc.). Likewise, the actions undertaken by public institutions (such as the Regional Office for Cultural Heritage, the Department of Fine Arts, Local Police and School) to increase "accessibility" to the Second Municipal District - although sometimes very productive – had showed a lack of cohesion, both between the institutions involved and with the neighbourhood associations, parishes, and stakeholders in general.

The listening phase carried out by the eTM organising committee led to identify the following five priorities for urban and community regeneration: a) Restore the cohesion of groups; b) Rationalize the economic activities of Brancaccio; c) Create a network of ecosystem components; d) Reuse the Maredolce Castle for a new identity of the neighbourhood; e) Reconnect the Brancaccio District to overcome the current urban and rural marginal conditions.

These propositions were collected and organized so as to become the knowledge base of the eTM (Electronic Town Meeting) held in Palermo on 18th February 2012. The outcome of the eTM was the production of a programmatic document, voted by all the participants, which was formally handed over to the Municipality of Palermo in August, to accompany the General Directives of the City Council in preparation for the new

urban plan, and to contribute to the participatory activities that are embedded in the SEA process, which will accompany the formation of the new General Master Plan.

In addition to cultural heritage and tourism stakeholders, the people who attended the eTM were invited from all the main economic, social and religious expressions of the District of Brancaccio: small industry, handicrafts and trade, but also representatives of the Church and the self-help communities. A further contribution to the definition of a complete and shared model of intervention was provided by a "Planning for Real" [12] experiment, which involved University students, professors and relevant members of public administration in Palermo, to produce a structured list of real projects "from the City, to the City". These have mapped the following key issues: Accessibility, Housing; Policy-Making; Public Safety; Architectural Design; Social Solidarity; Environment and Agriculture; Water and its responsible use.

The thematic focus of the PARTERRE pilot was to help societal actors in the territory of the Second Municipal District of Palermo – an area characterized by the dominant presence of Mafia – to initiate the qualification and urban regeneration process of this and other similar neighbourhoods located in the South-Eastern part of the City. Where a Living Lab already exists, like in this case, or could be created from scratch, the endowment of social capital would be reinforced by the emergence of the PPPP and through carrying out a number of concrete activities for awareness creation and elicitation of individual and collective requirements within the population involved.

Evidence collected from the Sicilian pilot largely confirms this assumption, leading to a bottom-up approach to urban re-design, supported by participatory ICT solutions (namely the eTM, but also an Internet weblog that accompanied the entire process). This gave life to a new kind of co-created planning process in a weak and peripheral urban context [13, 14, 15], involving a number of key steps:

1. Social mobilisation of local community actors;
2. Engagement of citizens and stakeholders in territorial development issues;
3. Building of partnership relations in relation to planning priorities and agendas;
4. Participatory activities to capture new potential for the spatial context;
5. New institutional arrangements to capture those change processes;
6. Associated spatial arrangements to the strategic ones;

In this framework, technology has played a triple role:

a. Promoting functional efficiency (i.e. what we expect of technology);
b. Stimulating collective creativity (by mapping local actors' expectations, enabling open and transparent debates, empowering the participants themselves)
c. Transforming human and institutional relations (by the legitimisation of new rules and processes, challenging the status of information with respect to power, and reshaping current network structures).

The problem of efficacy after participatory processes also emerges during strategic planning [16]. The coordination that was carried out in Palermo between institutional actors on the one hand and the participant NGOs, private businesses and general public on the other hand, can constitute a new and innovative framework of urban and territorial transformation [17, 18, 19, 20]. To reach this kind of multi-actor coordination it may be necessary to pursue the (very difficult) integration of policies and programmes [21] not only in economic sense, but also in spatial planning [22]. The implementation of ICT

based on social innovation demands, can help processes of deliberative democracy [23, 24] grow, especially in weak and peripheral urban contexts.

6 Smartness and eParticipation

Quoting a Kevin Mattson's book on the Progressive Era in America - which ran from the end of 19th century through the 1920's - Amin and Thrift [25] propose seven principles of direct democracy in the context of planning, namely: have courage of experimenting in response to real needs by a combination of idealism and pragmatism; set out clear objectives for the purpose of regulation; enhance civic culture as well as social autonomy; implement projects of social transformation that work in a public dimension to change behaviours through training; give to participants the power of control and involve their creative energies; mix sociality with political activity; institutionalize the emergent processes; recognize local actions in the framework of institutional policies.

The principles of Amin and Thrift show some pre-conditions for the achievement of political objectives, in terms of direct democracy, which can also be seen as particularly appropriate to inform the "Smartness" of a City. In fact, a City can also be viewed as a rapid movement of thoughts and practices that technology can only partially capture and determine. In order to function properly, a Smart City does not only require the adherence, either manifest or hidden, of its key institutional actors: social bodies, public agencies and their representatives, who are normally supported in the formulation of their wills within "participatory urban governance platforms". It also needs to get the political consensus and active engagement of (a wide majority of) the population as a whole. This seems especially to be the case for spatial transformation effects, which are largely produced because of a myriad of micro-decisions that socio-economic actors take "from the inside out" of their fields of influence and expertise, using the knowledge base available here and now, and interacting with each other in many ways [26, 27]. The aim to frame and control the actions of these "spatial transformation agents" by the followers of the traditional, "decision-centred" vision of planning [28], not only collides against the evidence, but even prevents from taking benefit of the convergent actions of this multitude, who can be seen as an additional key component (besides ICT infrastructure and policy) of an extended concept of City Smartness [29, 30].

In the case of Palermo eTM, the power of social capital [31, 32] and its mobilization have proven crucial to determine the process and influence the outcomes of a successful planning experiment, which was indeed seen like a revolution in public decision making for this marginalised part of the City.

Therefore, a new sense of Smartness is appreciable within the Living Lab experience of Palermo, which also brings some implications for the knowledge exchange occurring in specific co-creative ecosystems [3, 33] including the pilots supported by the ICT-PSP programme [34]. The final outcome of this integration of the territorial Living Lab approach into spatial and strategic planning at City level will be the so-called PARTERRE service [5], candidating to take advantage of sustainable eParticipation methods and tools to strengthen and consolidate service outcomes in an evolved Smart City environment. As a comprehensive framework, the concept remains open to the future incorporation of additional eParticipation solutions, using

Living Lab co-design for their optimal take-up and to maximize innovation of local government policies and services.

The typical case of regulatory frame within the rational action in respect to the aim is constituted by the freely agreed decision; the association is the institution that is based on the decided order or, where a binding apparatus permanently penalizes the original agreement, the institution [22].

The set-up of a citizenship highlights the central role of the achievements of participation, together with its constitutive limits: positive aspects are given by the co-creativity that is implied in the relations, both advanced and emerging, between individuals and groups. Negative aspects are represented by the necessity of sectorial authorisation for the achievement or even only implementation of project paths aiming at shared objectives. The difference between institutional planning and other approaches (place based programs, strategic/integrated plans, etc.) was discussed in several occasions and by many disciplines [36, 37, 38] but the hypothesis of an open, plural and shared social interaction oriented to inform institutional planning, is preferred to strategic planning as a better way of planning.

The relationship between participation and negotiation [39] and its central role within the practices and policies for integration, particularly in local development, are much wider issues however. Participation and negotiation, actually used in the world of public decision-making [40], represent diverse universes of discourse. Mazza [41] explained that in defined ideas of society, citizenship, equality and democracy, the different tools for negotiation and participation are eminently and inherently political, whatever the intents, objectives and outcomes as well the level of awareness of involved actors.

7 Conclusions

We started this paper by asking ourselves the somehow rhetoric question of why the advantages of public participation (and particularly eParticipation) are not yet extensively and systematically gathered in the spatial and strategic planning processes at EU level. An instrumental answer can be a certain lack of awareness from the public authorities in charge. In that respect, Community policy can play an extraordinary role for the creation and enlargement of "mandatory spaces" for civic engagement in a revised governance system at Member State level in Europe. Just to make a trivial example, the "right to information" principle introduced in Article 2 of the Aarhus Directive (2003/35/EC), as well as in most national planning systems, could be easily reinforced in such a way that the use of electronic media becomes a "standard means of publicity". Eventually, this might pave the way to introducing the new principle that "electronic participation tools, where available" should integrate the technical means available to the purpose of engaging citizens or stakeholders in thematic consultations and deliberative sessions on territorial development.

An additional contribution to awareness rising has come from the PARTERRE project through its pilot experiments, which demonstrated the potential of the Living Lab approach for spatial planning and environmental assessment in three key directions:

- Living Lab partnerships allowing to improve citizen participation and stakeholder relationships, which leads leading to greater ownership of planning outcomes and thus smoother implementation.

- Living Lab co-design processes allowing to address innovation needs in planning processes where they emerge, particularly in the integration and prioritisation of stakeholder interests.
- Living Lab tools and methods being complementary to eParticipation solutions for planning, leading to an integrated PARTERRE service concept [7] covering the entire process and its iterative cycles.

With the Sicilian pilot in particular, it has been possible to use the European funding for the methodological and technical support of a spontaneous partnership between self-organising local actors and an intermediary organisation such as the University of Palermo, with the primary goal of building concrete and shared visions of the future from within the Brancaccio District population and contributing to shape the new Master Plan of the City. Associations and movements of one of the most degraded neighbourhoods of the City of Palermo gained the University support in promoting local energies to contrast the trend of decline and to fight against the Mafia by a symbolic appropriation of the main landmark of the District – the Maredolce Castle. To this purpose, a gradual construction of a public-private-people partnership (PPPP) was achieved, which leveraged the existing experience of the Territorial Living Lab (TLL) Sicily, borrowing its model of governance and plans for the future.

The Palermo pilot of the PARTERRE ICT-PSP project, based on the Territorial Living Lab approach, documents one possible transition from the stage of a free relationship with scenarios and visions, to the definition of a social demand for planning, specifically within the framework of a real experience of the citizenship life. From a policy making perspective, participation in planning does not come to an end but continuously tends to a gradual improvement, both in the quality of the projects and in those cohesion factors, which lead to the constitution of spontaneous partnerships. In this sense, the Living Lab PPPP gains a political, not only socio-technical, dimension, which has to be assessed for the sake of transferability and replication within the different legal frameworks of EU27 Member States, in its capacity of promoting and protecting the various interests and rights - of businesses, citizens and other stakeholders - on a peer basis with government officials and policy makers. These different aspects shaped the expectations of the PARTERRE partners concerning the role of Living Labs in the co-creation of urban development as well as the construction of local partnerships for the Palermo pilot.

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