This paper reports early results of the research component of the project EMPATIA, an Horizon 2020 project focused on the development of ICT tools and methodologies to support Participatory Budgets and Democratic Innovations. Being developed in the first months of the project it does not entail field research methodologies, but relies on the literature review of scientific articles, books and case studies on the key topics of Urban Participatory Democracy, Democratic Innovation, Civic Technology and Collaborative Platforms. Its exploratory purpose is reflected in the open conclusions that postulate a new set of research hypothesis to be tested in future field research.

The paper is structured as follows:

In the first part I will define a conceptual framework to interpret the relation between Urban Participatory Democracy and the Right to the City, analyzing the crosspoint between these two literatures.

In the second part I will present the main challenges introduced by the progressive integration of Information and Communication Technologies (ICTs) in the design and Management of Democratic Innovations (DI), focusing in particular on the case of Participatory Budgeting (PB).

1) Urban Participatory Democracy and the Right to the City

During the last decades the urban dimension became a privileged perspective to study and analyze the impact of neoliberalization over the quality of democracy. The theoretical tools developed in the second part of XX century by the scholars of Critical Urban Theory proved useful to grasp the new centrality of space production as regulator of social and political relations (Brenner 2009). Much of this work concludes that one major consequence of urban neoliberalization has been that the increased power of capital reduced the influence of the public and excluded a growing number of inhabitants from the decision making processes regarding the production of urban space. As a consequence there is a general concern regarding the fact that neoliberalization
threatens urban democracy exactly while decisions over urban space production are becoming increasingly important (Purcell 2008; Harvey 2009). The concern to excavate emancipatory forms of urbanism alternative to contemporary space production dominated by neoliberalization drivers suggested a number of scholars to reinterpret Lefebvre’s formulation of a right to the city (Lefebvre 1967). The complex concept of the right to the city refers to a broad range of civil and political as well as economic, social and cultural rights that have been re-framed under the perspective of the urban dimension.

The concept of Right to the City has emerged as a “widespread formulation of a set of demands to be actively thought through and pursued” (Marcuse 2009), related to the effective implementation of a broad range of civil and political as well as economic, social and cultural rights that have been re-framed under the perspective of the urban dimension. The original concept of Right to the City has been developed by Lefebvre in late 60s. In a popular formulation it is defined as a “transformed and renewed right to urban life” (Lefebvre 1967): a redefinition of social, political, and economic relations that configure the role of the inhabitants in the production and use of the urban space. According to Lefebvre, the Right to the City is like “a cry and a demand” (Lefebvre 1967), a formulation that implies (under an unique umbrella) a dualism between “an exigent demand by those deprived of basic material and existing legal rights, and an aspiration for the future by those discontented with life as they see it around them, perceived as limiting their own potentials for growth and creativity” (Marcuse 2009). In the last years the idea of right to the city has been revived as a keyword in developing alternatives to neo-liberalization from a number of authors that, even if sharing a common theoretical framework, developed distinct interpretation of its concrete content and especially on the possible strategies for its enforcement (Marcuse 2014b). The resulting academic debate has not been free from contradictions and controversies (De Souza 2010). One of the main reasons of this multifaceted complexity of interpretations is to be researched in the inherent dualism between theory and practice that is contained in the idea of the Right to the City. Indeed the Right to the City can be intended as a common framework for the research and analysis of urban politics (to be used for the analysis of the power relations underlying urban governance and its institutions as well a key for the interpretation of urban struggles and social movements taking place in the city environment) but at the same time also as a strategic framework for re-thinking the development of urban politics. In summary: the theoretical definition of the Right to the City requires the development of operational hypothesis for its enforcement (Marcuse 2014a).

In this paper I will adopt a definition that frames of the Right to the City as the combination of two main components: Participation and Appropriation (Purcell 2008).
First, *inclusive participation* is intended as the right of the inhabitants to be included in decision-making processes related to the production of urban space. This definition implies two sub-problems related respectively to the subject and to the venues for decision-making. The first problem is the re-definition of an urban citizenship as a set of rights connected to the condition of inhabitants of a given space. Such citizenship breaks the liberal identification with the nation state (Isin 2002) and it is characterized by two features that define inclusion/exclusion dynamics: it is based on a geographic criteria to identify all the social subjects that are involved in urban space use, including includes not only the residents, but also commuters and other kind of temporary visitors (Martinotti 1999; Baubock 2003), independently by their individual legal status of national citizens or foreigners (Grigolo 2007); it encompasses individual and collective forms of citizenship rights (Beauregard & Bounds 2013). The second problem is the impossibility to identify institutional public decision making as the unique venue for decisions influencing space production. Production of urban spaces implies the coexistence of institutional and non-institutional decisional venues where productive power relations are flexibly organized. It can be useful here remind the contribution of urban regime theories to define urban pluralism as a an “urban regime”, where informal arrangements between political and business elites overcame the centrality of traditional institutions in the influence over the production of urban space. (Davies 2002; Stone 1987) The principle of *asymmetric subsidiarity* (Allegretti 2003) enhanced the creation of extra-institutional decisional spheres managed without public accountability, but still influencing the transformation of the space lived by all the inhabitants.

Second, the idea of a (Re)Appropriation of urban space refers to the right of inhabitants to appropriate urban space for social use, as opposed to the inherent neoliberal pressure toward space commodification. In Purcell and other scholars, the idea of appropriation is interpreted mainly under an agonistic perspective, assuming the inherent conflict between bottom up resistant and resilient spatial practices and (capitalistically) profitable uses of space. In its most straightforward sense, appropriation can be intended then as the right to physically occupy the tangible space, but this is a limited definition. According to the same Purcell, “certainly *appropriation* demands the right to be present in space, but it also requires the production of spaces that actively foster a dignified and meaningful life” (Purcell 2008, p.95). Right of appropriation can be also intended then as the right to occupy the intangible dimension of space with bottom-up produced meanings and interpretations of space, challenging the hegemony of conceived space. Recalling the Lefebvre’s triad (Lefebvre 1991), the *conceived* space is intended as the dominant kind space that enable the marketization of space, the reduction of space to a measurable entity to be valued for profit. An extensive interpretation of the concept of re-appropriation of urban space do not limit to the physical occupation of space but also encompasses the mechanisms through which spatial knowledge is produced and
socialized within a urban society. It can be also intended as the capacity of bottom-up spatial practices to influence the production of conceived space, as represented in rationalized urban plans and management tools.

A large part of the literature on the right to the city tended to emphasize an agonistic model of urban democracy, where social movements are considered as the main driver of the enforcement of the right to the city (Purcell 2006; Harvey 2008; Iveson 2011; De Souza 2010). However, significant attention has been also put in the study of innovative experiments of urban participatory democracy that have been blooming worldwide starting from the 90's (Marcuse 2014a; Purcell 2002; Marcato 2009; Garcia Chueca 2012; Instituto POLIS & Habitat International Coalition, Latin America Office (HIC-AL) 2014; Brown & Kristiansen 2009). I refer here to urban participatory practices where inhabitants are engaged with Local Authorities in co-decisional processes regarding the production of space (generally decisions regarding public spaces). Literature on participatory democracy highlights at least two features that are relevant for the purposes of this paper: on one hand Participatory democracy can deepen democracy by giving voice to those that are commonly underrepresented in local democratic mechanisms, intended as a localized replication of the liberal bourgeois public sphere. Participatory democracy aims to broaden the local public sphere including those counter-publics characterized by a resilient or a confrontational approach toward space use and production (Wampler & Avritzer 2004; Avritzer & Santos 2005; Avritzer 2006). Participatory democracy can contribute to the democratization of space production in so far as it is able to involve in its process those counter-publics that are producers of agonistic spatial practices, excluded by mainstream spatial productive machinery. This definition encompasses those that developed a resilient social use of space (the cry) as well as those that subjectified their resistance to space commodification into confrontational positions (the demand). Inclusive capacity of PB should be reflected in the development within the procedural design\(^1\) of a participatory practice, of specific strategies and actions expressively aimed to the active engagement of counter-publics that do not have voice in mainstream decision-making processes. On the other hand participatory democracy can enable alternative bottom-up processes of spatial knowledge production and sharing. Indeed, territory-based participation can be considered as an epistemic machinery aimed to produce alternative representations of urban space based on the contamination between lay and expert knowledge (Nunes & Carvalho 2013; Fung 2006). Through public participation, spatial knowledge produced in the realm of perceived space is translated (often with complications) into rationalized and measurable representations of space reflected in urban plans, strategic assessment documents or public budgets. The second research hypothesis is that urban participatory democracy can contribute to the democratization

\(^1\) **Procedural Design**, intended as the set of procedures that regulates formally the decision making process of a participatory space.
of space production in as much as its deliberative machinery allows (and fosters) the development of alternative representations of space based on a bottom-up contamination between lay and expert spatial knowledge. Bottom-up epistemic capacity of PB should be reflected in the development within the interaction design² of specific strategies and actions explicitly aimed to foster the interaction between lay and expert spatial knowledge during the stages of agenda setting and development of alternatives.

In summary, the two perspectives aforementioned - inclusion in decision making and socialization of spatial knowledge management – can be considered as two significant indicators of the capacity of participatory democracy practices (and PB in particular) to substantially enforce a new right to the city.

In this perspective the spatial dimension can became a privileged point of view to assess the effectiveness of participatory practices, linking them to a strong set of ethical and political indicators.

Challenges of hybridization

In recent years, the emergence of the new technological paradigm based on information and communication technologies (the consolidation of the network society (Castells et al. 2006)) profoundly and rapidly transformed the context of implementation of PB affecting as well the same procedural and interaction design of those Democratic Innovations. It enabled a new generation of hybrid PBs where traditional in-person participation is combined with new digitized means of interaction, generally structured around an online collaborative platform (Peixoto & Sampaio 2014; Stortone & De Cindio 2014). The hybridization of the urban participatory sphere introduces new challenges in the research on urban participatory democracy and its capacity to enforce a new right to the city according to the two perspectives aforementioned: inclusion in decision making and socialization of spatial knowledge management.

To what extent and in what manner the hybridization of PB affects its mechanisms of social inclusion and spatial knowledge production and management?

This concern is at the center of the activity of the EMPATIA project, a research and innovation project financed by the EU under the program Horizon 2020 and started in Jan 2016. The objective of EMPATIA is to “radically enhance the inclusiveness and impact of PB processes, increasing the participation of citizens by designing, evaluating and making publicly available an advanced ICT platform for participatory budgeting, which could be adaptable to different social and institutional contexts.” (empatia-project.eu).

² Interaction Design, refers to the interface mechanisms through which participants interact in exchanging knowledge and developing plans and projects: the design of an artefact, proposal, an urban plan, etc. through the active engagement of the participants (humans and non-humans).
Between the existing urban participatory democracy practices, EMPATIA focuses on the Participatory Budgeting (PB), a structured mechanism where the inhabitants are engaged in the definition of (part of) the financial priorities of the Local Authority in charge of urban management, generally a Municipality (UN-Habitat 2004; Wampler 2012; Sintomer & Allegretti 2009). PB seems to be a promising case study because of its peculiar relation with the territory, its inclusive attitude and because of the complex and multilevel design that regulates its deliberative procedure. Firstly experimented in Brazil in late 80’s, during the last 25 years PB has been spreading worldwide reaching an indicative number of 3000 cases at world level (Sintomer et al. 2013). While Latin America is the continent where PB has been diffused widespread, around a third of these cases take place in Europe, where PB recently started to be experimented in relevant capitals and metropolises as Paris, Lisbon, Milan, Barcelona, Madrid. Two features of PB strongly highlighted from literature are relevant for the purposes of this paper. The first is the capacity of PB to give voice to inhabitants that are commonly excluded in local representative institutions (UN-Habitat 2004; Wampler 2012). Indeed PB, differently from other kind of Democratic Innovations, aims to a broad engagement of the inhabitants on geographic bases and provides venues for participation accessible for the weakest social segments. The long duration and the articulation for stages of the process and its cyclic structure (PB is repeated yearly) generally enable a large participation with a significant turnover. At the same time, a critical point highlighted in PB literature is the inherent conflict between individual participation and the role of organized groups in the process (Ganuza et al. 2014; Hernández-Medina 2010). The second is the peculiar knowledge management machinery of PB that innovatively combines lay and expert knowledge regarding space (Allegretti 2003; de Souza 2006). Indeed, by discussing financial priorities for urban development the participants of PB are called to develop alternative hypotheses regarding space production and to prioritize them through a complex deliberative procedure. Development of spatial alternatives in PB entails the engagement of a broad number of social, political and technical actors in subsequent stages of refinement of proposals that starts from the identification of a territorial need, proceeds to the detailed definition of an intervention plan and ends up in a vote for the final allocation of public funds. A multilevel analysis of the “technology of participation” of PB can reveal much of the mechanism through which inhabitants are included in spatial knowledge management.

At the current stage of the research just preliminary conceptualization has been reached. Here they are briefly presented including a description of the main key issues according to the two perspectives aforementioned

1) Inclusion
At a first sight, the digitization of PB processes opened new possibilities for the active engagement of new segments of inhabitants (Vaz 2011; Pistoia et al. 2012). New ICT-based processes allowed the reduction of time and geographic constraint of in-person participation by introducing remote and asynchronous means of interaction. Literature highlights the undoubtable growth of the numbers of participants of PB that are delivered through collaborative digitized platforms (Peixoto & Sampaio 2014), and there is enough evidence to assess that the diffusion of PB practice in large cities, metropolis and capitals that took place in the western world along the last decade (and exponentially during the last 5 years) has been enabled by the existence of technological solutions to the procedural design and management of PBs. At the same time uncertain are the outcome in terms of inclusive capacity toward marginalized segments of inhabitants and the lack of reliable data makes it difficult to ground inductive observations in data analysis. ³

PB creates (one or more) participatory spheres whose access is regulated by formal rules and informal barriers that generally reflects the actual power relation underlying the same existence of the process. (Mouffe/Hab debate). Aside the participatory sphere shaped by the PB in the tangible space a new intangible sphere is created, entailing the alteration of those formal and informal rules and the introductions of new barriers and lines of inclusion/exclusion.

IT Skills related barriers represent the most visible example that can obstacle for example the active participation of the elderly or other social groups characterized by low digital literacy. But in addition to those explicit barriers, the biggest challenges are generated by the conflict between multiple spaces of participation, each one engaging a different public and interacting with the other spaces in manners often redundant and conflictive. In this perspective that EMPATIA project started observing PB processes as an articulated system of co-existing channels of participation.

In addition, PB often must coexist with other DI's that overlap and compete for publics or objectives. This fragmentation makes it complex the procedural design of PB and DI's in general. Indeed, the design defines the borders of the “space of Participation” not only by defining the relation between PB and Democratic Institutions, but also between PB and other DI's coexisting in the same public space. The procedural design should consider the complex interactions between different channels within a DI, but also between different DI's themselves, shaping the participatory system of a given context (Spada et al., 2016 use the definition of multi-channel participation). We can refer in this case to the design of multi-channel Democratic Innovations, participatory systems where different channels integrate and collaborate to define and develop a broad range of public policies. An example of multi-channel participatory system is for example the case of the Municipality of Canoas in southern Brasil, where 13 different DI's (ranging from PB to Public hearings, ³ The integration of systematic data analysis into digitized pb processes is one of the objective of EMPATIA.
including individual and collective means of participation) are integrated in an unique
design ("OIDP Distinction ‘Best Practice in Citizen Participation’ | OIDP," n.d.)

Even if there are existing empirical cases of integrated design of multi-channel
participatory system, the research on DI’s generally preferred to isolate a specific practice
and analyze its design and outcomes independently by the interrelation with other
participatory mechanisms taking place in the same context., while a little has been
written on methods and strategies to pursue an ideal institutional design of participatory
systems.

Spada et al. suggest three possible forms of interaction between channels and spaces of
participation: I) Managed Competition: to allow different processes to compete for the
same resources. This is the case for example of coexisting PB on the same urban context
but referred to different institutional scale (ie the PB at city level and the PB at
neighborhood level, as in the case of Lisbon (Dias, Allegretti) ). The risk of this approach is
the increase of tension between the competition moves from agonistic to disruptive; II)
Isolation: The complete isolation of two channels in a phase of a democratic innovation is
another possible form of integration strategy. Isolation might also be particularly useful to
dedicate specific spaces to minorities, as in the case of many youth PB, where the young
population is engaged to participate in a space completely independent and non-
communicant with the adult pb (ie in the case of Boston). On the other hand, isolation of
channels appoints a great responsibility on the organizing entity, that is the only player
able to regulate the access and communication between compartmented chunks of
publics; III) Integration: rational integration mechanisms explicitly designed and
implemented to improve the efficiency and internal legitimacy of multichannel
democratic innovations. These mechanisms should be inscribed in the institutional design
and influence directly the procedures as well as the interaction design. In these three
example it is evident as the main concern of the institutional design of multi-channel
participation regards the risk of mutual de-legitimation of the different DI’s at play.
Overlap between publics, complexification of procedures, increased competition and
confusion on the objectives of participation can alter the delicate relation between form
and substance that is at the base of their Legitimacy. It could happen because a bad
management of complex system enables disruptive and generative competition between
DIs, or simply because the participatory spaces that are not designed to include specific
publics while are not backed by a significant and consistent institutional design, became
empty procedures.

If skills-related barriers are a main concern, it is also important to highlight the uncertain
outcome of the contamination with participatory cultures and behaviors grown and
developed directly within the network society. Social media diffusion paved the way for
the blooming of civic media and groups of civic activists that used ICT to take voice as
organized publics in the local public sphere (Gerbaudo 2012). These can considered as numerous autonomous counter-publics composed by groups of self-organized citizens, including groups aggregated on thematic and geographical criteria. The inclusion of those groups in the local participatory sphere of PB represents both an opportunity (inclusion of counter-publics otherwise non interacting with in-person venues of participation) and a threat (creation of compartmented venues of participation or polarization of the process on limited number of social groups that are strongly organized in the digital environment).

2) Spatial Knowledge Management: New Epistemic

Spatial knowledge management in PB is progressively influenced by the integration of digital methods, technologies and tools for the production of collective spatial representation, with significant implication in terms of loss of autonomy and increased power of “gatekeepers” and technicians in the development of spatial alternatives (Peixoto 2009; Allegretti 2011). The hybridization of PB strongly affects the mechanisms through which spatial knowledge is produced and managed in three main ways.

First, the fragmentation of participation formerly described is reflected in a fragmentation in the construction and development of alternative proposals. As a result, in many PB that allow an independent development of proposals through ICT there are great problems of redundancy and lack of strategies for negotiation and possibility for synergies (Allegretti & Spada 2013). This problem is emphasized by the coexistence with traditional in-person means of engagement that follow different rules and procedures than digitized ones.

Second, the methods for the development of space representations are progressively influenced by the integration of methods and tools for the production of collective spatial representation based on geo-referenced big data. Indeed, the massive diffusion of mobile technology allowed the collection of an incredible number of metadata regarding the relation between inhabitants and territory. These Big Data are nowadays used for the production of urban plans and rationalized representation of space, adding to the strong technical component of urban planning the legitimization coming from the their collective source (Collettivo Ippolita 2007). The effectiveness of those representations and the power of the evidence provided by Big Data risks to condition the capacity to imagine alternative uses of the space. As a result hybrid PBs tends to reduce the component aimed development of alternatives and to emphasize the engagement of inhabitants to the final act of prioritization, generally through a vote online whose number are determinant for the whole legitimization of the PB process. As a consequence grows the asymmetry between lay knowledge of space, the one originated in everyday spatial practices and social use of space by its inhabitants, and expert knowledge and the
capacity of PB to work as a space for the enforcement of bottom-up spatial knowledge is threatened.

Third, the introduction of Digital Platform and ICTs in PB management putted the human-machine interaction at the center of the overall interaction design. With the purpose to attract always more participants and to convince them to continue to interact (Mahnic, 2014) expert and practitioners of PB and other Democratic Innovations are now experimenting new forms of gamification of the interaction experience. Gamification can be described as “the use of design elements characteristic for games in non-game contexts” (Deterding et al., 2011). We refer then to the increasing use of languages, techniques and of a “grammar of human-machine interaction” shaped and defined in gaming environment and particularly established in the videogame industry. The objectives of Gamification are to use game design elements to engage participants in providing information and feedback regarding topics and issues not related with the game environment and to keep them participating on medium and long term by introducing incentives to repeat and extend participation over time. Examples of gamification are for example the introduction of competitive mechanisms based on leaderboards, badges, points, progressive levels, turns, etc. For example many platforms for PB are starting to introduce profile badges, classification of users according to the intensity of participation, possibility to rank and like other’s proposals and other small game elements that already pervade the user experience in the web 2.0. The tendency is still limited for PB but much advanced for other kind of DIs (Lerner, 2014) and already experimented in a number of other public policy sectors (Hamari et al., 2014; McGonigal, 2007). According to advocates of gamification the integration of behavioral incentives based on games can engage people in providing information regarding their opinion and preferences relevant for decision making on important issues. As a consequence “participation becomes more attractive, effective, and transparent. Game design can make democracy fun – and make it work” (Lerner, 2014). The critics of gamification (Bogost, 2013) focus of the behavioral consequences of a system of incentives disconnected by the actual objectives of engagement. The “operational conditioning” of game-based design would overcame other drivers of the participants, by orienting the interaction to obtain satisfaction from the game results. (Ippolita, 2016). In this way an external epistemic mechanisms based on psychological incentives risks to steer the exchange of knowledge between participants, reducing their autonomy. Moreover, it is not easy modify the setting of a gamified interface and a participant is introduced in the logic of the game without having room to connect the direct interaction with the higher procedural dimension of design.
Conclusions

Using Lefebvre's vocabulary, it is possible to conclude this paper formulating two correspondent new hypothesis:

First, the multiplication of channels of engagement do not necessarily lead to a better inclusion of marginal social actors and counter publics. The fragmented urban participatory space risks to be filled by those players that are already strong in urban regimes, while the ultra-individualized means of participation promoted by the diffusion of ICT do not actually allow the inclusion of instances collectively created outside of the participatory sphere.

Second, the systematic integration of ICT in urban participatory democracy alters its capacity to challenge conceived space by developing spatial alternatives grounded in lay knowledge and “everyday's experience” while at the same time increase the dependency from rationalized conceptions of space produced through the interaction with machines and algorithms that only a limited number of super skilled people is actually able to govern and control.

At what extent and in what manner it is possible to counterbalance this tendency? What design strategies can avoid the competition or the compartmentation of parallel participatory spheres? What kind of skills and methods should be developed and implemented in order to remove the invisible discursive constrictions that envelope the new digital participatory spheres?

These questions require necessarily a more detailed data analysis of actual hybrid and multi-channel process. As described in the introduction the paper represent a preliminary result of an ongoing project that will deliver research activity on these fields along the next years under the framework of EMPATIA project.


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