Enabling Multichannel Participation through ICT Adaptation

Kawaljeet Kapoor
Brunel University London

Amizan Omar
Brunel University London

Uthayasankar Sivarajah
Brunel University London

ABSTRACT

Online deliberation invests significant sums in priorities co-decided by inhabitants, and is mostly relegated to small and non-influential experiments. There is a gap between ICT solutions and participatory initiatives. E-participation is a broad, undefined space of opportunities that needs to be operationalized to prove if the many theoretical exercises emphasizing on the potential of ICT in increasing deliberative quality of participatory processes and security, are realistic or not. The EMPATIA[1] platform seeks to radically enhance inclusiveness and impact of participatory budgeting processes in increasing multichannel citizen participation by designing, evaluating and making publicly available an advanced ICT platform for participatory budgeting. EMPATIA takes advantage of the fact that it surrounds an established and widespread social practice with clear and adaptable principles recognized worldwide, alongside a community of practitioners and researchers, and ICT tools, which only need to be adapted, refined and integrated into an adequate PB platform.

KEYWORDS:

EMPATIA, ICT Adaptation, Online Participation, Participatory Budgeting, Transparency

INTRODUCTION

Participatory budgeting (PB) represents one of the most successful civic innovations of the last quarter-century. At a time when voter turnout in Europe is low, and public institutions are struggling to maintain trust and legitimacy within a framework of growing budgetary cuts, PB has proved to be a powerful tool. It allows citizens to join in the essential tasks of governing, not only as voters, but also as decision makers (Norris, 2011). Currently, there is limited software designed for, or at least useful for, the implementation of PB. Existing solutions are usually developed for single PB initiatives (Sampaio et al., 2010) or are limited in scope. As a result, most PB initiatives disregard the potential of online participation, and limit themselves to Facebook, twitter, or other forums (Nitzsche et al., 2012). The state-of-the art on ICT applied to PB is thus limited and less advanced than the offline tools. Many PB initiatives adopt improved and sometimes sophisticated forms of deliberative meetings, structured around consolidated methodologies, so that people with different ideas and opinions can meet, debate and collaborate towards common goals. It usually does not happen online, therefore redundancies and individualized participation tend to reduce the quality of deliberation, while new exclusions are created

[1] This project has received funding from the European Union's Horizon 2020 re-search and innovation programme under grant agreement No 687920. Part of this paper has been previously published in EMPATIA deliverables and is being repub-lished with permission of the EMPATIA consortium.

on the basis of different relationships of citizens with resources such as, free time or mobility capacity (OECD, 2003). If many people experiment and take advantage of these meetings and methodologies, they show severe limitations in growth to include the local communities (Bittle et al., 2009). This reduces the PB potential of completing the creation of that "virtuous circle" which is needed to restore trust and confidence of citizens in local institutions. This needs two central components of legitimation: the qualitative one (high level deliberation and in-depth debate of policies and projects advocated by participants), and the quantitative one (number and diversity of participants) (Fernández and Frances, 2012).

EMPATIA (**E**nabling **M**ultichannel **Pa**rticipation **T**hrough **I**CT **A**daptation) is a European commission funded project under the horizon 2020 program that aims at improving this critical gap by studying, designing, implementing, and evaluating new and renewed software tools for PB initiatives, gathered into a common framework. The EMPATIA platform seeks to radically enhance the impact of PB processes and increase the participation of citizens by designing, evaluating and making publicly available an advanced ICT platform for participatory budgeting, which is adaptable to different social and institutional contexts. It will not only improve existing tools, but will also create new software modules to increase the potential of these tools whilst reducing their limitations. The EMPATIA platform will not only ameliorate on-going and already tested PB initiatives (often scattered and not compatible in terms of technological components), but will also integrate their online spaces by defining and implementing new tools, and integrating interfaces and best practices. It reflects the simplicity and capacity of being used by a differentiated range of actors with different cultural skills and degrees of ICT alphabetization and allowing local communities to interact with each other to possibly become a broader European community of practices.

This paper discusses the development of the concept of EMPATIA, a digital platform, which can be useful for not only supporting PB as an isolated experiment of participatory decision-making, but also for larger and interconnected systems of complementary participatory devices. These devices will depend on PB principles as a pivotal pillar for their coordination. Currently, 1400 PB programs in Europe, and over 3000 programs, worldwide, have conventionally been rooted in a series of in- person participatory activities. This includes citizen assemblies and workshops to propose projects and deliberate technical reviews, alongside municipal staff and paper-ballot voting to choose winning projects. Organizers and participants in today's PB processes benefit from a range of ICT enhancements, including those offered by the public sector (including e-government tools and open- data policies). What has been missing so far is a comprehensive platform for PB that integrates the wide range of ICT interventions to support the full life cycle of budgeting processes of all sizes across different cultural and political contexts.

EMPATIA aims at producing the first ICT platform capable of fully encompassing, both the decision-making cycle and the implementation cycle of PB, whose integration is considered indispensable, and a main driver of the self-sustainability process (Dias, 2014). These two cycles are not covered in an integrated manner by the currently available ICT tools, which almost exclusively address only the first cycle. EMPATIA will thus act on both, the front-office side (producing outputs to facilitate and improve the relationship between the experimenting administrations and their citizens) and the back-office side (offering tools for increased efficiency of public administration offices). EMPATIA is structured around seven main objectives - (a) to explore the latent potential of PB, allowing empowerment of existing networks of citizens and communities whilst creating new ones, (b) to research and propose novel advanced voting algorithms capable of tackling the specificities of PB processes, (c) to research and introduce adequate solutions for capturing and improving the social dynamics of PB processes, (d) to develop a comprehensive open-source ICT platform – flexible, modular and easily extendable for supporting public administrators and local communities, (e) to design and implement three PB pilots in communities (Lisbon, Portugal; Říčany, Czech Republic; Bonn, Germany) representing a wide spectrum of administrative capacity and experience with PB, (f) to evaluate the impacts of using the EMPATIA platform on participatory processes, both in terms of concrete process-outputs and wider impacts on the local communities and the public administrations involved, (g) to create innovative business models enabled by EMPATIA to disseminate and exploit the models to assure its sustained continuation.

BACKGROUND

Today, participatory budgeting can be considered an "ideoscape" signifying a political model, which travels globally, but exists via local appropriation (Appadurai, 1991). After first being shaped during the '90s in semi-peripheric Latin American countries, where it contributed to consolidating new democratic institutions (Avritzer, 2009; Fedozzi, 2007; Genro, 1997; Vérgez, 2011), PB spread to Europe and Africa at the end of the millennium, often changing shape and meaning for its local experimenters (Ganuza & Baiocchi, 2012, Hartz-Karp & Walke, 2013; He, 2011; 2012). EMPATIA is expected to surpass existing PB tools and services in exceeding number of ways.

Current platforms and tools only address the decision-making cycle, and only a small subset of its steps. EMPATIA will address not only the full decision-making cycle, but also the subsequent implementation cycle. This will increase transparency, trustworthiness, and political sustainability of the PB process, overall. It will build a platform capable of adapting to wide variations in PB and other participatory processes appropriate to different political and cultural contexts, allowing customization. This will account for differences in legal and technical constraints, administrative capacity, and fiscal circumstances. It will develop, integrate and adapt existing tools and mechanisms (some of them already implemented and available as open-source software) in all steps of the PB process. Technologies such as opinion mining, trend identification, automatic classification, data-visualization, and budget simulators (Peixoto, 2012) could offer critical support to citizens in their participation activities. As such, the proper selection and integration of those technologies and mechanisms will be a key objective of EMPATIA, lowering barriers to participation and increasing the quality and quantity of information available to citizens during all phases of PB.

It will allow researching and incorporating advanced voting algorithms, alongside sophisticated user-ranking mechanisms that allow citizens to develop and manage a self-regulated community capable of online and offline deliberation and collaboration with minimal external guidance by political actors (Allegretti, 2013). EMPATIA will support innovative social dynamics, not only in what relates to the advantages typically expected from PB tools (e.g. citizen empowerment, new channels for communication between citizens and the public authorities, cutting down physical, geographical and time-related barriers existing in in-person participation), but also enabling new ways for the communities to organize and evolve within the PB process. This support will be introduced by adding social-network-type functionalities in PB processes, and by improvements in data collection to allow a more systematic application of best practices and methodological refinements for future PB cycles.

The EMPATIA platform will also enable the integration of co-decisional models and collaborative schemes, favouring discussions and dynamic refinement of proposals, instead of binary or rigid mechanisms of selection or rejection. It will help achieve seamless interoperability between new ICT interventions and existing services and frameworks offered by public, private, or civil society stakeholders, complementing existing processes where possible by linking them to new opportunities for dialogue and citizen participation. This will also allow management and aggregation of contents using advanced selection algorithms, enabling automated processes for clearly and transparently presenting and updating data on citizen proposals and public budgets, distilled through advanced data visualisation and infographics.

The implementation, analysis and validation of the EMPATIA platform is planned to be implemented across three pilots, with citizens of three diverse PB communities – Lisbon (Portugal), Říčany (Czech Republic) and Bonn (Germany). Lisbon is the political and administrative capital of Portugal that has managed citywide PB since 2008 with its methodology changed over the years (Allegretti and Antunes, 2014). Lisbon has privileged online, ICT-based participation mechanisms. Physical meetings associated with the PB process have been marginal, although capable of attracting specific social groups, as for example, elderly citizens. With the Portuguese pilot, EMPATIA wants to tackle this problem by developing and testing suitable solutions. The municipal leaders of Říčany have sought to enhance civic participation through a variety of programs and outreach methods over the past years. The city issues a yearly challenge for its citizens to determine the ten most urgent issues in the community, and propose

concrete reforms in the public fora presided by the mayor and city council. Given the objectives of the EMPATIA platform, Říčany presents significant opportunities as a piloting partner.

Unlike other countries, PB in Germany has been closely connected to online participation right from the start of the spread of PB in the early 2000s. Today, a large majority of German municipalities with Participatory Budgets (about 100 in number) make intensive use of online platforms where citizens can submit and discuss their proposals (Ruesch and Wagner, 2013). As almost half of all municipalities in Germany have run a PB process for at least three times, they have substantial experience with the use of ICT (Ruesch and Ermert, 2014). Nevertheless, there are a number of current challenges regarding online participation in PB, which many municipalities are confronted with, and for which no satisfying solutions have been found yet. The EMPATIA platform will be released as open source and all extensions and improvements to previously existing open-source software will be returned to the community as contributions of the EMPATIA project.

The model proposed for EMPATIA (figure 1) will explore the possibility of integrating innovative collaboration and deliberation of ICT technologies in participative actions. The societal and demographic challenges associated with ICT within PB will be examined and further explored across the three pilots for this study.

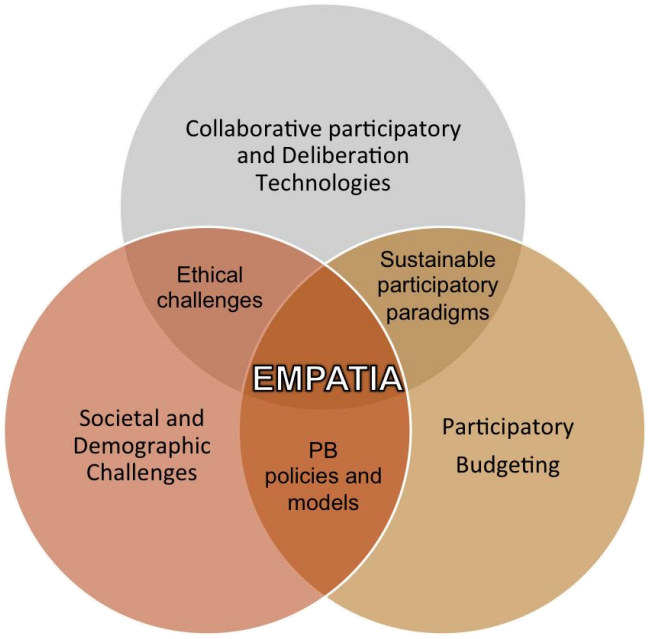

Figure 1 – The EMPATIA model

EMPATIA will achieve (i) increased engagement of citizens in PB processes; (ii) increased quality of such processes in relation to discussion, refinement and voting of candidate proposals; and (iii) usage of EMPATIA's collaborative tools for in-depth analysis of innovative voting systems and PB-related social dynamics. This research will account for important differences between PB and traditional electoral voting, including the complexities inherent in gathering and refining project proposals, which when poorly handled lead to dispersion and distortion of the voting process (Allegretti et al., 2016). Together with collaborative tools for converging and improving proposals, these voting algorithms will improve the quality and representativeness of elected proposals. The EMPATIA platform will include support for social networking using both specific tools and integration with existing social networks, as privileged channels for discussion, collaborative refinement and convergence of PB proposals. Social networking dynamics are expected to reduce the number of proposals that reach the voting stage (promoting convergence), to improve the quality of those proposals (by convergence and collaborative refinement) and the awareness of participants about voted proposals. This initiative shall stimulate a community of developers that stand out from the community of researchers and practitioners of PB, proposing guidelines, such as open interfaces and recommended best practices, to ensure and promote

interoperable software tools useful for increasing deliberation and self-organization around common and shared interests.

EMPATIA will produce a lab-to-market user-centred platform with its first end-users represented by the pilot municipalities mentioned above. Municipalities not only require solid evidence fulfilling privacy, data-integrity and confidentiality requirements, but also a set of integrated tools for enabling the two PB cycles. The system must allow easy and quick retrieval, filtering and voting of proposals, whilst also allowing citizens to add new proposals and contribute to existing ones, all in real time. The EMPATIA framework must be flexible and adaptable to municipalities' needs, while requiring minimal maintenance after initial configuration and deployment. It must also be capable of maintaining adequate logs for auditing purposes, responding to needs for authentication and anonymity, where appropriate.

METHODOLOGY

In view of ICT developments becoming integrated in a PB framework, innovations must be tackled from multiple perspectives and must be considered within the system that encompasses them. Moreover, the interactions of individual innovations within a system may be complex and require iterative evaluation, including implementation and proof-of-concept prototyping activities. Bearing in mind the complexity of different components of the EMPATIA framework, the resulting structure, and its dependencies and interactions are presented in figure 2. The depicted structure reflects both the research and model definition of an innovative PB process resorting to ICT, as well as the separation between the development of ICT technology, where the project will innovate, and the actual demonstration and evaluation of the framework in the defined pilots. All the essential cross-domain aspects required to realise the overall vision of EMPATIA are bundled. Solid arrows represent normal dependencies between phases, while dashed arrows symbolise the feedback of refinement and evaluation results to allow for a continuous information exchange and optimisation of related phases.

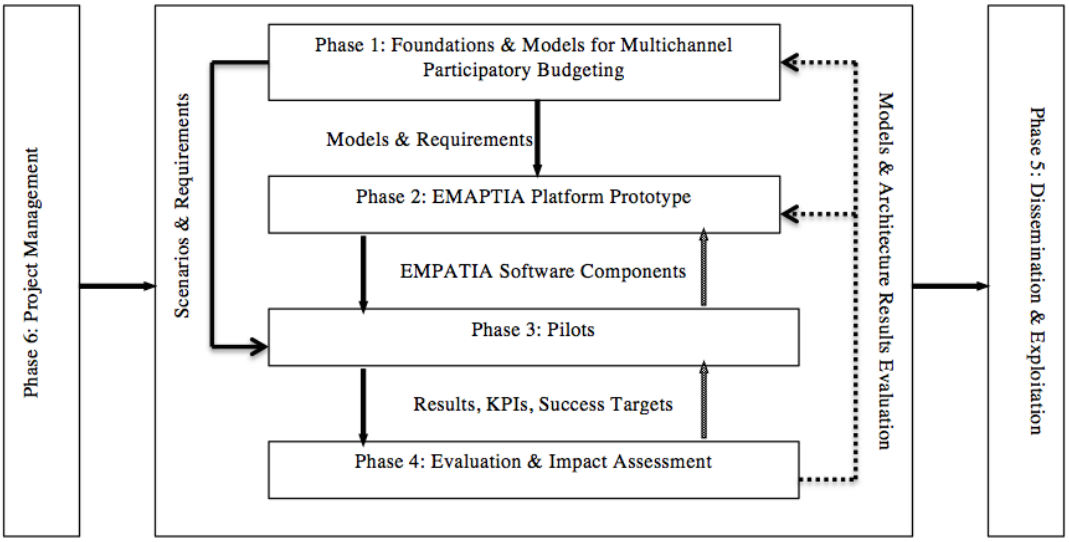

Figure 2: Overall WPs Perspective (conceptual PERT diagram)

Phase 1 researches and provides the foundational scenario, requirements, and PB reference models as fundamental input for the design and evaluation of the EMPATIA platform. The goal of phase 2 is to design the architecture, develop and integrate the various ICT components of the full-fledged EMPATIA PB platform. The pilots will take place in phase 3, where the necessary customizations to the EMPATIA platform will be performed, reflecting the specific necessities of each community. A thorough evaluation and impact assessment will take place in phase 4, which alongside phase 3 will provide the necessary feedback for continued refinement of the theoretical models and technical tools developed by

EMPATIA. Dissemination and exploitation activities take place in phase 5, whilst management activities will be undertaken within phase 6.

Since ICT-based tools have never been used in a consistent and coherent manner to cover the whole lifecycle of PB processes, the current state of art on PB research lacks adequate models and methodologies to encompass the adoption of platforms such as EMPATIA. For this reason, the first activity of EMPATIA will be research and proposal of new PB models and methodologies, derived from extending current models to ICT-enabled scenarios, working with focus groups, in-depth interviews with experts and high-level stakeholders, and detailed analysis of existing PB case studies, each in light of the innovations being introduced by EMPATIA. Altogether, this work will result in a deeper understanding of ICT-enabled multi-channel PB processes, including appropriate reference models, methodologies and possible approaches to address open challenges. General reference scenarios and use cases will also be defined in this scope (Spada et al., 2015).

EMPATIA's digital platform will be designed in accordance with the general requirements derived from this research work, as well as from the specific requirements and pilot use cases developed with each of the three municipal partners. One of the main issues in participatory initiatives and bottom-up decision-making processes is the lack of knowledge made available to citizens, both with respect to the problems those "beyond their own backyard" and the potential solutions (Fung and Wright, 2003). Citizens usually make self-interested claims that are differently perceived by others, sometimes resulting in conflicts. Citizens struggle to access sufficient information on policy alternatives to cast a meaningful vote among a list of candidates, eroding the legitimacy of public institutions and reducing motivation for citizens to meaningfully participate therein.

Bearing this in mind, the EMPATIA platform will exploit existing technologies that until now have been limited to e-government tools, social platforms and marketing applications to enhance citizen participation in the two PB cycles (Decision Making and Implementation). This will also enhance the characteristics of the common arenas which PBs tend to use for promoting mutual listening and shared visions among participants, as well as to take advantage of the positive effects of the "civilizing force of hypocrisy" (Elster, 1998), which emerges where real spaces of collective dialogue are created. The platform will be designed according to a modular framework to easily support future extensions and use cases not yet foreseen, and to promote reutilization of EMPATIA's functionalities in other PB platforms.

Evaluation of the EMPATIA concept and impact assessment will be based on the application of a set of technical and non-technical Key Performance Indicators (KPIs). Two expert steering committees will be appointed to oversee the development, evaluation and refinement of KPIs both at technical and non-technical levels. A set of initial KPIs will be formulated for evaluating the technical and usability requirements based on a comprehensive literature review and focus groups with key stakeholders and structured interviews, questionnaires and user observations of the pre-pilot implementation on the first version of the EMPATIA platform, to refine the initial set of KPIs. The second phase will involve applying these revised KPIs and metrics in the three project pilots, producing a final updated version of the KPIs (Technical, Behavioural, Socio Economic, Political, and Process KPIs) and the EMPATIA evaluation report. The results of these will form the basis of the final recommendations and a "How-to Guide" for designing and implementing ICT-enabled PB processes.

DISCUSSION

Nowadays, PB processes resort to ICT for simplistic tasks such as online or text-based (SMS) voting, in which the actual platforms allow only for the visualisation or individual addition of proposals (Pistoia et al., 2012). As such, these ICT interventions foreclose any meaningful deliberation or collaborative refinement of the proposals themselves. Moreover, these systems are typically monolithic and suited to a single political/administrative context, offering very little room for improvement or extension. The EMPATIA framework addresses these limitations in a concrete and practical fashion, being a foundation for research and development of innovative PB approaches, while exploring the possibilities offered by modern ICT technologies. By applying the comprehensive framework to PB processes in three pilot

municipalities, the EMPATIA platform seeks to achieve inclusion, deliberative quality, efficiency, transparency, integration, replication and adaptation, enhanced evaluation, and marketability.

Inclusion will be achieved by using ICT to reduce barriers to citizen participation in both the decision-making and implementation cycles, including barriers related to digital skills, language, education level, visual impairment, location and time availability. The deliberative quality will be introduced with the use of ICT to enhance the quality of PB deliberation by improving the flow of information. This will enable the exchange of alternative proposals, and use of advanced voting algorithms to more rapidly achieve consensus. Efficiency will be achieved by using ICT to streamline and optimize the investment of time and resources by facilitators and technical staff, so that they provide maximum support to the PB process for the time and budget they commit.

Transparency in the system will be visible with ICT enabling two-way flow of meaningful information between government and citizens at all stages of the PB process, especially, during the implementation, which is often disregarded in current PB practices. At the same time, relate the process to a larger framework of open data for general budgetary issues of the local administration concerned. Integration will also become prominent by incorporating ICT in such a way that online and in-person processes fit seamlessly together, and PB activities are integrated with other governance innovations, including open data and existing e-government tools. Replication and adaptation will become easy with the use of ICT to pave the way towards diffusion of a next generation PB process, which can meet the highest standards of deliberation, selection, and implementation in other contexts and at a bigger scale. By using the EMPATIA platform to record the whole PB process, including decision making and implementation cycles, it will become possible to build extensive datasets of PB processes, both for supporting new PB processes (allowing involved communities to self-assess the impact of their own previous deliberations and to learn from the past experience of other communities), and for supporting more methodical research studies on PB. Marketability will become prominent with the exploration of business models to accelerate and amplify these innovations.

The EMPATIA platform will enable citizens, individually and collectively, to not only access information critical to the sustainability of their community, but also take informed action for the public good. At a time when sustainability challenges are growing in urgency and complexity, EMPATIA will create locally driven, internationally connected ICT networks which lower barriers to information and participation, deepening citizen engagement and trust in public institutions and collaboration to make communities more sustainable. Success of the EMPATIA platform will build on the integration of information, deliberation, and decision-making in the PB processes. Citizens will be both empowered and incentivized, through the process of developing and defending projects, to deepen their understanding of policies that are fiscally and environmentally sustainable for their community. Carefully designed ICT interventions will allow these processes to flow seamlessly. By lowering barriers to entry and tailoring our ICT-driven outreach towards traditionally under-represented sectors of the population, EMPATIA will enable its pilot partners to create larger, more heterogeneous groups of citizens working together to solve common problems.

The sustainability challenges most directly targeted by EMPATIA are social and political: our central hypothesis is that ICT-enhanced PB processes can play a transformative role in the civic culture of a community, as well as in the internal functioning (back office) of the services and departments of involved administrative institutions. As citizens collaborate with their neighbours, virtually and in person, new knowledge will be created on issues of shared importance, knowledge that can be preserved, refined, and shared through ICT-enabled networks. At the same time, if the platform supports better coordination of back-office work related to participatory process, the legitimation of the latter will be increased by perceived efficiency and efficacy of public institutions in delivering the expected results co-constructed with citizens. By combining qualitative and quantitative methodologies, EMPATIA will carefully track and measure how citizens respond to ICT innovations in their PB process, distilling best practices and refining approach in constant dialogue with pilot partners. The final product will be rigorously tested as an open-source platform that can be rapidly taken to scale.

The collaborative and participatory nature of EMPATIA will draw its essence from best practices and self-regulated frameworks used for open-source software development and automated management of

open data. Additionally, it will amplify its impact by embracing social networking platforms in its goal to lower barriers to participation in harder-to-reach communities. The EMPATIA platform will link available open-data sources to enable adequate contextualization and analysis of PB proposals (e.g. demographic data, data from public transport operators, data from local education institutions, data from local utilities, and financial data). Additionally, the EMPATIA platform will also constitute a source of open data, providing a valuable database of PB processes (including proposal building, discussion and voting, and proposal implementation) for supporting new PB processes and scientific research studies.

Any internet-connected device will become a potential portal for a ubiquitous collaborative and participatory framework, providing real-time access to data and outcomes of the pilots and subsequent PB processes. Nonetheless, despite these opportunities, the associated risks such as privacy and confidentiality will be a subject of thorough investigation, resulting in innovative models and flexible configurations for fair and secure PB processes. PB is at its heart, a crowdsourcing exercise, in which everyday citizens, under a clear set of rules and guidance of technical staff make informed, more sustainable decisions than government actors could do alone. EMPATIA will significantly augment the "crowd" aspect capable of taking part in these decisions, increasing its size and heterogeneity, improving its information flow, and offering its new tools for deliberation, decision-making, and implementation. Due to its intrinsic nature, EMPATIA centres itself entirely upon the user, enabling a methodology of co-design and iterative evaluation and implementation of PB proposals, alongside citizen and government partners at every stage of the process. Communities, citizens, municipalities and non-government organizations devoted to PB will be directly involved in the definition of requirements, in the project pilots and the evaluation process.

Other potential usages of the EMPATIA platform will be analysed and evaluated based on several KPIs, such as outcomes of participatory processes using the EMPATIA platform (type of proposals emerging, quality of their elaboration, possibilities of crowd funding, etc.), and increasing participation of citizens in these processes and the perceived quality of those participatory processes (changes in the number and demo-diversity of participants, satisfaction of involved actors, etc.). A core element of the EMPATIA platform will be its open-source modularity. From its inception, the platform will be designed to be interoperable with ICT tools created by developer communities, social entrepreneurs, students and all other stakeholders interested in using technology to enhance community participation and flow of public information.

IMPACT AND PRACTICAL IMPLICATIONS

The EMPATIA outcomes are expected to be of global public good in the field of participatory budgeting and civic engagement. Nonetheless, the technical functionalities and knowhow generated by the project will allow the "spinoff" products and services of commercial value. Therefore, though the EMPATIA results will be broadly available to the public at no charge, our intent is to leverage this project to support self-sustaining, revenue-producing ICT enterprises that will contribute to the economic health of EU countries and beyond. The commercial potential of a transformative decision-making platform is significant for a wide range of users and applications in the public, private, and non-profit sectors. Specifically, the development and rigorous testing envisioned in this proposal will generate the following economically valuable products (a) Advanced decision-making optimization (b) Data visualization & real-time analytics (c) Integration of existing e-services and (d) Connecting ICT developers to new markets. The EMPATIA platform will ultimately serve as a scalable framework that, through its interoperability with other e-government and open-data tools, can connect tool developers and e-government entrepreneurs to a wider network of potential clients easily and profitably.

The sustainability of technology and new knowledge generated throughout the EMPATIA project will depend on the dissemination and exploitation activities, which follow platform development, testing, and evaluation. One important aspect of exploitation relates to the assumed objective of creating business models for the EMPATIA platform. The PB ecosystem will be analysed to better understand the value chains between involved stakeholders and how an open-source tool such as the EMPATIA platform can thrive and evolve, adding value to the process. Based on this analysis, along with the experience of

EMPATIA partners who have already created sustainable businesses around the PB paradigm, and conclusions from the evaluation of the EMPATIA concept, potential business models will be identified and analysed to foster the adoption and progress of the EMPATIA platform and concepts.

EMPATIA has the potential to be far reaching, with impact realised well beyond transactional boundaries to having substantial transformational impact manifested through propagating a culture of transparency and participation. The impact will be on individuals, social groups, and communities at a national/transnational level. Such impact has societal as well as technical effects, with the potential of making a difference to the experiences within a civil society. The underlying expectations of EMPATIA stem back to creating and then advocating a process of democratic deliberation and decision-making; and a type of participatory democracy in which citizens decide how to allocate part of a municipal or public budget. Such engagement where priorities are developed raises the scope of the depth of impact not only by creating a culture change where *all* voices are heard, but also by raising expectations of Government through policy or direct funding resources.

The presented approach and methodology for achieving this goal is expected not only to result in technological advancements in future participatory actions well beyond the historical incremental gains of past, but also to result in measurable augmentation of social impact of such actions. The broader societal and nationalistic impact of EMPATIA is also expected via changes in engagement in the democratic process through grass-root level demonstrations of being able to make a difference in the prioritisation of resource deployment. EMPATIA will demonstrate significant societal impact by creating an infrastructure that empowers real decisions about how to maintain transparency in tax revenues spent across communities. EMPATIA seeks to elevate societal consciousness around engagement in the democratic process by creating mutual trust with local governments and citizen, who can benefit equally from such co-creation of community funded priorities. The ultimate impact of EMPATIA is in changing societies' willingness to pay their taxes by being transparently involved in the spend-and-benefit process.

As Max Weber observed, public administrations have a dangerous tendency to behave as closed systems, developing complex internal protocols, esoteric jargon, and self-protecting power structures that become increasingly disconnected from, and unaccountable to, the populations they are meant to serve (Weber, 1968). As a result, civil servants are strongly incentivized to succeed according to well-established internal criteria and the knowledge bases that underpin them, rather than develop new bases for knowledge and new avenues for serving in the public interest. EMPATIA will help establish a new paradigm of direct and sustained collaboration between citizens and government. ICT tools will lower barriers of citizen participation and facilitate the creation of new knowledge to drive public decision-making. To illustrate the idea, imagine a group of citizens in a neighbourhood who notice that a certain closed-roof parking facility is a centre for illicit drug activity. They develop a proposal to change the design of the parking facility to make it easier for police to detect this activity from the street, and upload this proposal, complete with photos, design sketches, and testimonials, to the EMPATIA platform – allowing their neighbours, including those they may never have met, to add their testimonials and counter-proposals. After selection of the proposal by an in-person PB assembly, representatives of the group meet with the city's technical experts, who are alerted to a new problem, and who provide technical feedback on project cost and feasibility, as well as critical information on government actors and processes necessary to accomplish their goal. As the proposal is refined, voted upon, and implemented, the framework of the PB process enables the merging of "street-level" insights with technical expertise, creating new and relevant knowledge among citizens and civil servants.

PB offers opportunity for this kind of innovative dialogue and EMPATIA will amplify its impact. Citizen proposals will be offered customizable profile pages, a "digital home" that will serve as a focal point to attract other citizens' interest and input; to include links to the relevant public budgeting information, city office contact, and other public documents that allow citizens to inform themselves more quickly and fully; to complement in-person activities such as citizen assemblies and meetings with technical staff, allowing a far wider group of citizens to "participate" in the life of a proposal as new information is shared and commented upon; and to offer civil servants a new source of vital, real-time information from the community, as well as an avenue to communicate directly with the citizens most

engaged on the particular issue, who can then disseminate that information to neighbours and through civil-society networks. In each of these functionalities, the EMPATIA platform will facilitate seamless sharing of new knowledge and support the much-needed transition between a paradigm of segmentation between citizen and the government.

EMPATIA will have a direct social impact at the local level for the three Pilots in Lisbon (PT), Bonn (DE) and Říčany (CZ), as a direct consequence of PB implementation using the EMPATIA tools. Subsequent dissemination and adoption of the EMPATIA platform, components and paradigms will extend this impact to other communities – in some cases, improving PB processes already taking place regularly, and in other cases, supporting the introduction of PB processes for the first time. Academic institutions, national agencies and international organizations have already carried out a significant number of researches on the social impacts of PB (Global Campaign on Urban Governance, 2004). Of the many social impacts attributed to PB available in the literature, the ones mostly influenced by the introduction of collaborative platform and other ICT solutions for PB management are summarized here (Wampler, 2012):

PB increases democratic legitimacy: PB enhances democratic legitimacy via expansion of public debate through delegation of authority to citizens using public resources to promote social justice (Marquetti, 2008) or address "wicked" policy problems, and improve basic state performance. There are two pillars of legitimacy in PB: firstly, PB moves beyond consultative deliberation into the realm of state-sanctioned decision-makers. Citizens are empowered to make specific decisions regarding public resources and state authority. Secondly, PB broadens and deepens active citizen participation introducing new voices into political and policy arenas. The PB deliberative processes provide access to citizens who have not traditionally had access to political power. Traditionally excluded individuals, using an open deliberative format, develop new ideas and issues that are then placed on the policy and political agenda. ICT solutions for PB management can expand the inclusive capacity of PB by providing new channels for communication between citizens and the public authorities and cutting down physical, geographical and time-related barriers existing in in-person participation.

PB empowers the civil society: As has been well established by political scientists and sociologists, weak networks, low information, and the need to mobilize many people often makes it difficult for individuals to organize themselves in pursuit of common interests. PB encourages citizens to organize and debate improvements in their quality of life. Participation becomes a capacitation opportunity capable of developing new skills and promoting active citizenship behaviours. Moreover, once it is consolidated, PB proves to be a means for reproduction and development of knowledge between different generations of participants. For instance, Web 2.0 and works that followed fostered a new dynamism in civil society, activating new organizational processes and promoting new profiles of civic activism (Sivarajah et al., 2015). A new generation of collaborative platform for PB management will be able to interact directly with new organizational process in digital civil society.

PB fosters the reallocation of resources: The expansion of voice and vote to traditionally excluded sectors of the population allows PB to promote social justice, because the participants are steering public resources towards issues most important to them. Integration of ICT can enhance the redistributive factor of PB by introducing new data and information, and new mechanism for visualization and understanding of territorial inequalities (e.g. geo-referenced indexes of quality of life, historical indexes of expenditures, etc.).

PB improves transparency and citizen control: PB transforms the relationship between citizens and local governments, including policy makers and the administrative structure. First, the government needs to adapt its decision-making machinery to the decision-making cycle of PB. Second, bureaucrats and policy experts need to transform how they administer and implement new policies. As a result, PB increases citizens' oversight: there is an on-going conversation amongst public sector and citizens that do not finish with the vote of PB priorities, but follows their process of implementation with a positive impact on the transparency of local government action. In recent years a number of ICT transparency tools have been developed within the public sector (e.g. open dataset, publication of acts, etc.) and in the civil society (e.g. whistle-blowing civic media). PB collaborative platform will mainly increase

transparency on PB outcomes (and consequently on the local government) augmenting the effect of existing ICT transparency tools.

Regulatory frameworks have significant influence over the possible outcomes of EMPATIA. Indeed, PB has to be delivered through active involvement of institutional players (the municipality and the administrative body) that follow organizational and decisional procedures defined by law, and that can change from one country (or region or municipality) to another. It is possible to distinguish between: (i) a first set of framework conditions that could influence the impacts of EMPATIA pilots, as well as the further dissemination and replicability of PB; and (ii) a second set of contextual variables specifically affecting the impacts of technological standards for PB management developed in EMPATIA – these technological standards are currently non-existent, and EMPATIA aims at fostering and influencing their future definition.

In general, PB must take into account the legal framework that regulates the functioning of the local authority involved, whose budget plan will be partially co-decided through civic participation. Various regulations can affect the impact of PB at different stages of both the implementation and decision making cycle. First, the degree of budgetary autonomy of the local authority involved and the related budget planning regulations and procedures have to be considered as a fundamental variable for the design of PB Decision Making cycle and timing (Sintomer et al., 2008). Second variable is the role established by law (often by constitutional law) of the local elected bodies in developing, proposing and approving the public budget. The relationship between PB and elected bodies, and in particular, the mechanisms through which PB decisions become binding on Public Budget cannot alter their legal prerogatives, but have to be designed on top of them (Global Campaign on Urban Governance, 2004). Third variable is the degree of dependency of local authorities from transfer coming from higher tiers of Public Sector (Elgar, 2011) v/s the financial autonomy based on the capacity to raise local taxes and urbanization fees. Current public finance crisis in southern Europe determined significant reduction of transfer from state to local authorities that seriously challenged the survival of existing PB practices. Fourth variable is the existing regulations on Freedom of Information and Data Protection that can differ in each country and directly influence Information Management throughout the PB process in its stages of discussion and, in particular, vote, where identification of participants become an issue (Ruesch and Märker, 2012).

The implementation of ICT in PB introduces another set of contextual variables that could affect the social impact of PB. EMPATIA will interact with the standards adopted by existing Public ICT infrastructure and, where existing, specific law provision related to e-government requirements and ICT standards for the public sector. Contextual provisions on accessibility, privacy protection and freedom of information are key features to take into account in the technological adaptation of EMPATIA to other institutional contexts. While in the pilots these variables will be considered in planning and municipality readiness activities, they may represent barriers to further dissemination and replication of PB practices using the EMPATIA platform. However, it is important to highlight that majority obstacles pertaining to the regulatory framework are reduced within the European context, where EU triggered harmonization mechanisms and re-organization of competencies between different tiers of local authorities have followed common trends of decentralization since the last 20 years (World Bank, 2009).

CONCLUSIONS

This paper discusses the potential of the concept of EMPATIA, a digital platform in achieving extensive progress beyond the state-of-the-art on ICT-enabled Participatory Budgeting. It has a strong innovation potential for becoming a pivotal element in the articulation of wider systems of citizen participation in local governance (Avritzer, 2012). Individualized participation, often responsible for reduced opportunities of interpersonal dialogue and poor outputs in terms of projects and policies produced during the PB processes (Allegretti and Antunes, 2014), will not only be reduced, but through new algorithms will be applied at the voting stage to match similar ideas and opinions of the citizens.

At the same time, EMPATIA platform will intervene in proposing a wide range of solutions to face two other common problems, which today are affecting many PBs adopting online platforms to integrate the offline participatory procedures of voting priorities. The serious problem relates to adequacy of the

voting software, especially in terms of addressing specific challenges of PB processes (fairer and better outcomes of voting processes), and also in terms of granting security and authenticity of the voters (Ferreira, 2010). Also, the frequent lack of transparency and the poor quality of the information distributed by local authorities to support PB related to planning and debate alternatives are matters of priority. The EMPATIA Platform will provide a wide range of opportunities to combine solutions for both issues, allowing forms of modular civic engagement through the use of progressive/incremental approaches for deeper involvement of users in contributing to the quality of deliberation and outputs of the PB processes (Hall, 2012). Especially, EMPATIA will focus on providing opportunities to clarify "a-posteriori" and in understandable ways the use of public budgets, so as to contribute to two important goals. First is to strengthen the control of citizens on executed budget (on the implementation of provision planned during the construction phase of provisional budgets, including the part devoted to PB). The studies on the Index of Municipal Transparency (ITM) done by TIAC in 2013 and 2014 clearly show how few municipalities with PB in Portugal reach high degree of transparency in their budgetary and communication policies (TEI, 2016). Finally, to challenge a worrying phenomenon that literature has recently underlined, which shows that open budgets tend to be more transparent in the phase of disclosing budget formulation than in the phase of exposing budget execution (Andrews, 2013).

References

Allegretti, G. (2013). Os orçamentos participativos sabem escutar? Reflexões para reforçar a sustentabilidade dos orçamentos participativos. *Lima, K., Boson, C.:(2013, eds.),"Orçamento Participativo olhares e perpesctivas", Livraria Paulo Freire Ed*.

Allegretti, G., & Antunes, S. (2014). The Lisbon Participatory Budget: results and perspectives on an experience in slow but continuous transformation. *Field Actions Science Reports. The journal of field actions*, (Special Issue 11).

Allegretti, G., Dias, N., & Antunes, S. (2016). Transformar o território promovendo a cidadania: metodologia em evolução nos orçamentos participativos de Lisboa e Cascais.

Andrews, M. (2013). Opaque Transparency and Transparent Opacity in African Budget Systems. Available at: http://matthewandrews.typepad.com/the_limits_of_institution/2013/09/opaque-transparency-and-transparent-opacity-in-african-budget-systems. Accessed on 31 May 2017.

Appadurai, A. (1991). Global Ethnoscapes: Notes and Queries for a Transnational Anthropology, in R. Fox; Santa Fe, N.M (eds.), *Recapturing Anthropology: Working in the Present* (School of American Research Press, 1991): 191-210.

Avritzer, L. (2009). *Participatory institutions in democratic Brazil*. Washington, DC: Woodrow Wilson Center Press.

Avritzer, L. (2012). The different designs of public participation in Brazil: Deliberation, power sharing and public ratification. *Critical Policy Studies*, *6*(2), 113-127.

Bittle, S., Haller, C., & Kadlec, A. (2009). Promising practices in online engagement. *Occasional paper*, (3).

Dias, N. (2014). Hope for Democracy: 25 Years of Participatory Budgeting Worldwide. *São Brás de Alportel: In Loco Association*.

Elgar, E. (2011). UCLG, *II Global Report on Decentralization and Local Democracy - Local Government Finance: The Challenges of the 21st Century*. Available at: http://www.urb-al3.eu/uploads/documentos/GOLD_II_ang.pdf. Accessed on: 31 May 2017.

Elster, J. (1998). *Deliberative democracy* (Vol. 1). Cambridge University Press.

Fedozzi, L. (2007). *Observando o Orçamento Participativo de Porto Alegre: Análise histórica de dados: perfil social e associativo, avaliação e expectativas*. Tomo Ed.

Fernández, E. G. and Francés, F. (2012). *El círculo virtuoso de la democracia: los presupuestos participativos a debate* (Vol. 278). CIS.

Ferreira, D. E. S. (2010). Inclusão, Participação, Associativismo e Qualidade da Deliberação Pública no Orçamento Participativo Digitalde Belo Horizonte. In *Paper presented IV Congresso Latino Americano de Opinião Pública*.

Fung, A. and Wright, E. O. (2003). *Deepening democracy: Institutional innovations in empowered participatory governance* (Vol. 4). Verso.

Ganuza, E., & Baiocchi, G. (2012). The power of ambiguity: How participatory budgeting travels the globe. *Journal of Public Deliberation*, *8*(2).

Genro, T. (1997). SOUZA, Ubiratan de. *Orçamento Participativo: a experiência de Porto Alegre. São Paulo: Editora Fundação Perseu Abramo*.

Global Campaign on Urban Governance. (2004). *72 frequently asked questions about participatory budgeting*. UN-HABITAT.

Hall, M. (2012). Modular civic Engagement, in *Collaborative Study Lab. Thoughts on civic technology and open government*. Available at: http://collaborativestudy.tumblr.com/post/19354059546/modular-civic-engagement. Accessed on: 31 May 2017.

Hartz-Karp, J. and Walke, I. (2013). Designs diferentes para diversos problemas e oportunidades", in Dias, N. (ed.), *ESPERANÇA DEMOCRÁTICA:25 anos de orçamentos participativos,* 367-377.

He, B. (2011). Civic engagement through participatory budgeting in China: three different logics at work, *Public administration and development*, 31(2), 122-133.

He, B. (2012). Chinese approaches in participatory budge-ting: The experience of Zeguo, *Participatory Budgeting in Asia and Europe* (Palgrave, 2011), edited by Yves Sintomer et al; Thompson, Nivek K. "Participatory budgeting - the Australian way," *Journal of Public Deliberation*. 8(2).

Marquetti, A. (2008). *Democracia participativa e redistribuição: análise de experiências de orçamento participativo*. Xamã.

Nitzsche, P., Pistoia, A. and Elsäßer, M. (2012). Development of an Evaluation Tool for Participative E-Government Services: A Case Study of Electronic Participatory Budgeting Projects in Germany"., *Administraţie Şi Management Public* 18(1), 6-25.

Norris, P. (2011). *Democratic deficit: Critical citizens revisited*. Cambridge University Press.

Nunes, J.A., 2006. Da democracia técnica à cidadania cognitiva: a experimentação democrática nas "sociedades do conhecimento". *Coimbra, Centro de Estudos Sociais*.

OECD. (2003). The Case for e-Government Excerpts from the OECD Report 'the egovernment imperative', *OECD Journal on Budgeting*, 3(1), 61–96.

Peixoto, T. (2012). Directory of Online Budget Simulators/Games. Available at: https://democracyspot.net/2012/09/10/directory-of-online-budget-simulators-games/. Retrieved on: May 30 2017.

Pistoia, A., ELSÄßER, M. and Nitzsche, P. (2012). Development of an evaluation tool for participative E-government services: A case study of electronic participatory budgeting projects in Germany. *Revista» Administratie si Management Public «(RAMP)*, (18), pp.6-25.

Ruesch, M. A., & Märker, O. (2012). Making the Case for Anonymity in E-Participation. *eJournal of eDemocracy & Open Government* 4(2).

Ruesch, M. A., & Wagner, M. (2013). Participatory budgeting in Germany: citizens as consultants. *Relatório para Buergerhaushalt. org*.

Ruesch, M., & Ermert, J. (2014). 7. Statusbericht des Portals buergerhaushalt. org, Bonn: Bundeszentrale für Politische Bildung.

Sampaio, R. C., Maia, R. C. M., & Marques, F. P. J. A. (2010). Participação e deliberação na internet: um estudo de caso do Orçamento Participativo Digital de Belo Horizonte. *Opinião Pública*, *16*(2), 446-477.

Sintomer, Y., Herzberg, C. and Röcke, A., 2008. Participatory Budgeting in Europe: Potentials and Challenges: Participatory Budgeting in Europe," *International Journal of Urban and Regional Research* 32(1).

Sintomer, Y., Herzberg, C. and Röcke, A., 2012. Transnational models of citizen participation: the case of participatory budgeting. *Sociologias*, *14*(30), pp.70-116.

Sivarajah, U., Irani, Z., & Weerakkody, V. (2015). Evaluating the use and impact of Web 2.0 technologies in local government. *Government Information Quarterly*, *32*(4), 473-487.

Spada, P., & Allegretti, G. (2013). The role of redundancy and diversification in multi-channel democratic innovations. *AMERICAN POLITICAL SCIENCE ASSOCIATION (APSA)*.

Spada, P., Mellon, J., Peixoto, T. and Sjoberg, F. M. (2015). Effects of the internet on participation: study of a public policy referendum in Brazil, Policy Research Working Paper 7204 (The World Bank, February 2015).

TEI. (2016). Available at: https://transparencia.pt/projetos/indice-de-transparencia-municipal/. Accessed on: 31 May 2017.

Vérgez, J. C. (2011). *La experiencia de los presupuestos participativos en los entes locales*. Editorial Dykinson, SL.

Wampler, B. (2012). Participatory budgeting: core principles and key impacts. *Journal of Public Deliberation*, *8*(2).

Weber, M. (1968). Politics as a Vocation.

World Bank. (2009). UCLG, I Global Report on Decentralization and Local Democracy Decentralization and Local Democracy in the World (Washington, DC), Available at: http://public.eblib.com/EBLPublic/PublicView.do?ptiID=459485. Accessed on: 31 May 2017.