





### **Innovation and digital technology to re-imagine Participatory Budgeting as a tool for building social resilience**

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#### **ACKNOWLEDGEMENTS**

Thank you to all the UN-Habitat team. Especially, we would like to express great appreciation to all colleagues, who released their comments and suggestions make this publication more knowledgeable and insightful.

Knowledge & Innovation Branch/ERSKI

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# Contents

Message from the Executive Director.....	4
Preface.....	6
Executive summary.....	7
Introduction.....	10
<b>SECTION 01</b>	
Social resilience and participation: an overview.....	13
<b>SECTION 02</b>	
Participatory Budgeting and social resilience: the value of their integration in governance practice.....	17
<b>SECTION 03</b>	
Innovation and digital technologies: new ways for leveraging people’s voices in PB.....	27
3.1 Online and Offline platforms for PB.....	30
3.2 Social media and Mobile apps.....	34
3.3 Artificial Intelligence: potential innovation to strengthen PB.....	41
<b>SECTION 04</b>	
Lessons learned and recommendations on the nexus between PB, digital technology and social resilience.....	44
Conclusion.....	48
References.....	49

# Message from the executive Director



The COVID-19 pandemic continues to impact our world, forcing us to reflect on our role in society. As the United Nations Human Settlements Programme (UN-Habitat), we too should revisit our technical and advisory support to governments and communities to enable them to better respond to the crisis. As a UN Agency, we strive to provide integrated and innovative solutions to facilitate a sustainable, inclusive, and efficient recovery process. The negative effects of the pandemic are experienced most among the urban poor and those living in overcrowded environments, where there is often poor access to basic public services such as clean water and sanitation, and unprotected forms of mobility.

In April 2020, UN-Habitat responded immediately to the growing requests from national and local governments for assistance, mobilising available resources to respond to various requests to initiate and scale-up community preparedness, outreach, and hygiene support across 13 countries. With the strong support of donors, UN-Habitat

worked together with vulnerable communities to realign some projects at the country and city levels for immediate emergency response.

In alignment with Secretary-General's Report on "Shared Responsibility, Global Solidarity: Responding to the socio-economic impacts of COVID-19", UN-Habitat launched the "UN-Habitat COVID-19 Response Plan" in May 2020. To date, this Plan has attracted USD 30 million in funds that have been deployed to help cities and communities in over 74 countries respond to the impacts of the pandemic. Together with the Secretary-General's Guidance on COVID-19 in an Urban World, UN-Habitat's efforts have contributed to a broader coordinated response to the pandemic, highlighting the important role of local governments in the mitigation of the socio-economic impact of 'locked down' economies.

In this framework, UN-Habitat presents additional efforts to produce cutting-edge knowledge, facilitate knowledge sharing, promote best practices, and develop institutional incentives for learning. This is particularly important to create conditions for a sustainable response to the crisis with good governance, improved resilience and recovery, and the capacity to deliver adequate solutions in response to the pandemic, and the resultant urban crisis.

This report prepared by the Knowledge and Innovation Branch of UN-Habitat, provides evidence, best practices, and policy recommendations on Participatory Budgeting and social resilience. It provides examples to illustrate how this participatory process generates multiple effects for the social resilience of communities, which is vital to



responding holistically to COVID-19. The report also demonstrates how Participatory Budgeting is a flexible tool, with the ability to strengthen how cities respond in times of crisis. More importantly, this report highlights how new technology has the potential to shape innovative models of local governance, making citizen-government interaction and engagement more open and effective. Local governments can benefit from frontier technologies by deploying new digital tools and applications to implement new local policies. This report also highlights the importance of digitalisation. In times of crisis, rapid response can be inclusive so long as citizens can be engaged through digital means. Technology is a powerful tool to ensure that no one is left behind in terms of participation and budgetary allocations.

Digitalisation of citizen engagement offers immense opportunities, leveraging citizens' voices, and ensuring access to inclusive public goods for the local community thereby improving living conditions for all. We have an opportunity to utilise the information and capacity of inhabitants to react quickly to this crisis and ensure that cities are better prepared for the future.

Cities must combine both online and offline mechanisms to develop better connections among urban dwellers and public institutions to increase the effectiveness in coordination. This way, we can be more inclusive in our response to natural and human-made shocks.

UN-Habitat, through the Participatory-Habitat initiative, encourages the use of Participatory Budgeting as generates the exchange of ideas and the development of proposals to benefit civil society, the private sector and public administrators. To achieve resilient and inclusive cities we need city leaders and all stakeholders to take coordinated action to build back better and stronger after the COVID-19 pandemic. As we rebuild, let us not forget the fundamental principle of the United Nations - putting people at the centre of development and ensuring that no one, and no place, is left behind.

I would like to thank the authors and the UN-Habitat team for contributing their knowledge and expertise to this publication.



**Ms. Maimunah Mohd Sharif**  
Under-Secretary-General and Executive Director,  
United Nations Human Settlements Programme  
(UN-Habitat)

# Preface

It is with immense pleasure that I introduce the report, “Innovation and digital technology to re-imagine Participatory Budgeting as a tool for building social resilience”. This report provides solid evidence on new people-centered approaches using technologies to have an impact on the sustainability, inclusiveness and resilience of cities.

The report advises that the potential of Participatory Budgeting, especially the subsequent downstream benefits that can be generated, remains still unexplored. Participatory Budgeting makes possible the rapid adoption of local actions and the allocation of financial resources that result from the direct interactions between urban dwellers and government. The authors propose innovative ways to engage with Participatory Budgeting as a driver to disseminate relevant information, increase awareness, and mitigate the risks and impacts of natural, health, and economic shocks in a more effective manner.

Moreover, the increasing use of digital technologies and platforms, mobile apps, social media, and others, offers immense opportunities for engaging with the different stakeholders, in order to enhance and accelerate the interaction between people and government, influencing decision-making process in a more effective way.

The report offers insights on new inclusive practices and tools, and how the approach to Participatory Budgeting provides a pathway towards improving future social resilience and preparedness for city response and recovery. Participatory Budgeting is as a good governance tool for city leaders, urban managers, practitioners, and other stakeholders.

We thank all people that contribute to the preparation of this report, and UN-Habitat teams for their invaluable support. In these challenging times, we need new ideas, solutions and knowledge to inspire action and ensure a rapid response to the current crisis to safeguard the well-being of present and future generations.

**Eduardo Lopez Moreno R., Ph.D.**  
Head - Knowledge and Innovation  
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Programme (UN-Habitat)

# Executive summary

Many significant natural and human induced shocks have affected humanity over the last few decades, with the COVID-19 pandemic being by far the most devastating.

In response to the pandemic, UN-Habitat launched the COVID-19 (2020) response plan, which reinforces the role of collective participation in making policies more effective for all. It reiterates the importance of strengthening relationships between citizens and local governments, exploring new pathways to making participation more effective, and embedding the process within a resilient policy framework. The report underscores the importance of building resilience in communities - from being able to work together effectively and with various authorities and systems such as the health system, to understanding the needs of various communities in a time of prolonged crisis. Resilience in particular, requires public concern, knowledge, and skills, and the report emphasises the importance of increasing the ability of citizens to prevent, adapt, and take appropriate actions.

Ongoing research by UN-Habitat on participatory budgeting suggests that it has the potential to trigger other benefits in cities for local authorities and communities. It emphasizes the distinctive quality of Participatory Budgeting (PB) as a tool capable of generating multiple impacts on cities, governments, and local communities, making it a promising tool for disseminating information, increasing awareness, and in the context of building community resilience, mitigating the risks and impacts of natural, health, and economic shocks. This results in more effective adoption of local actions and allocation of financial resources through citizens' direct interactions with government.

Examples from around the world indicate that there is a link between all these five drivers and PB practices.

The main contribution of this publication is to:

**highlight the value of PB as an approach which contributes directly to the social resilience of towns and cities; and**

**offer local and national authorities a new governance model for which fosters initiatives to strengthen social resilience.**

Key lessons learned from the qualitative analysis of case studies:

- The multiple external benefits generated by PB support local institutions in allocating funds and implementing resilient actions at the local level, while ensuring the spread of information, awareness, knowledge, and decision-making processes shared by all. This requires rethinking PB as a multi-dimensional tool rather than just a traditional participation tool. PB may benefit from new technologies which impact performance and stimulate top-down and bottom-up digitalization of citizen participation.
- Digital technologies offer a tremendous opportunity to build strong social resilience based on novel forms of collaboration between local government and citizens.
- National governments and city leaders are key target groups of this report which provides insights into the nexus between PB and social resilience. It explores the potential benefits of digitalization and innovation in

participatory decision-making processes through different tools associated with PB.

- The recommendations made in this report can help local and national urban managers to undertake initiatives that generate positive outcomes for all through PB for city leaders, in terms of strengthening participatory governance models, fostering a culture of innovation, building capacity and increasing knowledge on a digitalized model of local governance and building capacity of local communities to understand and engage in local governance processes. These components help create better governance in times of multiple uncertainties.
- The digitalization of local governance must be approached carefully within a framework of digital rights. Digital technologies can reduce the barriers to participation, but also increase them for some. The governance model proposed incorporates digital rights in conceptualizing and implementing PB.
- To select technologies relevant for PB, local governments should take into account numerous local factors. Education and digital skill levels, uneven internet distribution and infrastructure, and the capability of local government officials to manage data and ideas are critical issues for successful implementation.

Key recommendations for city leaders included in this report are that:

- Local policy should be oriented to take advantage of the potential and multiple benefits that can be generated by PB, especially in regard to citizen participation which in turn, promotes social resilience. PB could, therefore contribute to managing expectations around COVID-19 responses.
- Multiple impacts of PB have a positive correlation with strengthening inclusive governance models through new avenues for participatory engagement and reciprocal dialogue between authorities and their communities. New technologies to promote PB offer entry points that can make a difference in terms of local resilience policies, especially in times of global pandemics.
- Good governance through the PB approach requires the combination of offline and digital tools to engage local communities, increase preparedness for response and recovery, and strengthen social resilience. Digital approaches to PB suggest that innovative local policies that embrace technology can accelerate cutting edge approaches to implementing PB globally, and fostering new levels of social resilience.





# Introduction

The resilience of cities and communities in facing disasters such as the COVID-19 pandemic is a global priority and a key topic on both national and local agendas

**The United Nations and other multilateral organizations have taken a people-centred approach in the global effort to support response and recovery for the most vulnerable communities in middle and low-income countries.**

The UN-Habitat (2020) COVID-19 Response Plan<sup>1</sup>, emphasizes the important role of collective participation in making policies more effective for all. This approach is aligned with the New Urban Agenda<sup>2</sup>, as well as relevant international human rights instruments such as the Universal Declaration of Human Rights, that place people at the center of development. As citizens are the main right-holders of the city, their engagement and empowerment should be the foundation for sustainable and resilient urban development (UN-Habitat, 2018).

In this framework, the Social Resilience Guide on PB of UN-Habitat (2018) offers suggestions for implementing city-level policies with more robust citizen engagement.

Social resilience requires analysing three sets of capacities which people and societies have or must develop to make their cities more resilient:

**to maintain continuity**, people and societies need coping capacities understood as reactive and absorptive measures to cope with and overcome immediate threats;

**to adapt positively**, people and societies need adaptive capacities which allow them to be proactive and preventive, learning from past experiences, anticipating future risks and adjusting their livelihoods accordingly;

**to transform**, people and societies need transformative capacities that make effective use of assets and support from economic, political, and social arenas; that allow them to be active participants in decision-making and decision-implementation processes; and that support consolidation of an institutional landscape that improves their individual welfare, and fosters societal robustness in addressing future challenges and crises.

This approach highlights the importance of citizen participation for resilient policies and suggests new pathways to restoring the relationship between citizens and local governments using a tool such as PB as the entry point. Building outwards from centralized policies, this citizen-centric model increases social resilience through information exchanges, communication processes and stakeholder mobilization, resulting in heightened awareness, knowledge generation and capacity building from the PB perspective.

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<sup>1</sup> The UN-Habitat COVID-19 Response can be retrieved from: <https://unhabitat.org/un-habitat-covid-19-response-plan>

<sup>2</sup> The New Urban Agenda has been translated to more than 30 languages, including the six United Nations official languages, as well as the most widely spoken languages in the world such as Hindi, Bengali or Portuguese. These translations reach more than eighty percent of the world's total population calculating the languages by total number of speakers. The complete New Urban Agenda can be retrieved from: <http://habitat3.org/the-new-urban-agenda/>

**From this perspective, the key exploratory question driving this report is to better understand the potential value addition of the nexus between social resilience and PB.**

A key question that emerges is:

**“given the track record of PB, how can it be used in an innovative way to strengthen the social resilience in cities?”**

To address this question, UN-Habitat (2018) has used the framework of good governance as an entry point for analysing this nexus. As a good governance component, participation is key to promoting effective resilience (Sarzynski, 2015). Moreover, “citizens and governments are devising new ways of relating to each other and working together” (UN-Habitat, 2018), experimenting with new approaches to make participation processes more effective.

UN-Habitat understands that good governance is underpinned by a series of core values:

- Accountability;
- Equity and inclusiveness;
- Transparency;
- Observance of the rule of law;
- Responsiveness;
- Effectiveness and efficiency;
- Participation.

In support of good governance models, UN-Habitat introduces new evidence on civic engagement based on a framework that uses the potential multiple capacities of PB to increase social resilience and fosters a culture of innovation, providing new tangible entry points for engagement, building capacity and increasing knowledge on digitalized model of local governance.

Building on this, the report provides an original theoretical framework to shape and support new models of local governance with additional evidence of innovative processes and digital tools which may reduce barriers and increase efficiency of the participation process in general, and the performance of PB specifically. It focuses on cutting edge approaches to implementing PB at a local scale globally by investigating mobile apps, social networks, digital platforms, and Artificial Intelligence (AI).

To that end, this report aligns social resilience guidelines (2018) with new ideas on PB, including how innovative digital technology can be used to improve the performance and the quality of participation and urban governance – to promote social resilience.

The report is divided into key sections:

- Part 1 provides an overview on social resilience;
- Part 2 explores the link between resilience and participation;
- Part 3 investigates the digital technologies for leveraging people’s voices in PB and finally;
- Part 4 proposes a series of recommendations for urban managers on how PB can be used as a tool to promote social resilience.

## BOX 1. Key Questions guiding the report

### **Why does civic participation remain a priority for sustainable development?**

*Lessons learned from COVID-19 point to the importance of restoring the connection between local governments and citizens and of providing a range of entry points for participation to promote social engagement and resilience. For this reason, it is necessary to strengthen pathways to making the decision-making process more inclusive, transparent, effective, and accountable. The priority is to increase knowledge, awareness, and actions for tackling the current and future challenges that require the cooperation and participation of all stakeholders.*

### **Is PB only a mechanism to allocate financial resources?**

*No, this is more than a financial tool. This requires shifting from this way of thinking toward a more complex and multi-disciplinary people-centred model of governance. Indeed, this kind of participation is a complex governance tool, by which the citizens may propose and generate projects, and discuss and take actions during the decision-making process.*

### **What might be the innovative elements around this nexus between PB and social resilience?**

*Although PB is not a new tool for local policies and started in Porto Alegre three decades ago, this is a new way of thinking and approach to governance from multiple angles, including resilience, equality, inclusiveness, technological and prosperity of cities.*

### **What are the main innovative ingredients of this approach?**

*There are two main ingredients. Firstly, it introduces a new policy framework for using PB external benefits to increase social resilience, helping cities and communities to respond to and recover from the COVID-19 crisis and future shocks more effectively.*

*Secondly, it is closely related to developing a culture of innovation, building capacity, and increasing knowledge on digitalized local governance and future strategies to foster the new idea of digital rights based on new technologies (e.g., digital platforms, mobile apps, AI, etc.).*



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# 01

## Social resilience and participation: an overview

A resilient policy requires the development of adaptive capacities (Stark, 2014), and other cultural and structural changes in public administration to improve the collaborative and harmonious model of governance. The United Nations Convention on Climate Change (UNFCCC)<sup>3</sup> states that public participation is a critical element to develop bottom-up strategies targeting the preparedness, response, and recovery aspects of resilience. The Sendai Framework for Disaster Risk Reduction 2015-2030 (UNDRR, 2015) highlights the need to integrate socioeconomic factors, policies, and technologies to strengthen resilience and mitigate vulnerability.

The United Nations Office for Disaster Risk Reduction 2019 annual report points out the necessity of implementing integrated and inclusive economic, structural, legal, social, health, cultural, educational,

environmental, technological, political, and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.

Following these guidelines, innovative practices to increase urban resilience are increasingly common in the urban development community.

**Public engagement processes, public awareness programs, educational projects and capacity building programs are becoming primary means of accelerating community's participation in cities' resilience strategies.**

<sup>3</sup> Retrieved from: <https://unfccc.int>



Some of these initiatives are addressed by the social resilience report of UN-Habitat (2018). The analysis considers cities' capacity to give inhabitants an effective voice and consider them as active partners in building resilient actions. The report makes clear that in order to:

**“leave no one behind”: resilience initiatives must focus on those who are most vulnerable and in disadvantaged situations, and tackle multi-dimensional poverty in the cities.**

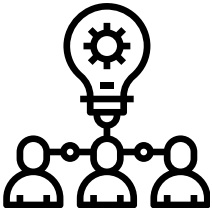


**Figure 1. Expected outcomes from UN-Habitat approach**



Source: adapted by authors from the Social Resilience Guidelines (UN-Habitat, 2018)





**The importance of social resilience for UN-Habitat (2018) is based on the role of communities as contributors to tackling the challenges of sustainable urbanization and as co-creators in fostering innovative, inclusive and sustainable cities and communities.**

Various global projects in different parts of the world have underscored the value of planning in a participatory manner (e.g., Haiti, Belize, South Africa, Kenya, Ethiopia, and Saudi Arabia) as have case studies in literature from Vietnam, Chile, Holland, Australia, Italy and Uruguay (Sarzynski, 2015; UN-Habitat, 2020).

Governance literature focussed on inclusion highlights the value of a participatory approach to developing resilient policies using the community-based adaptation (CBA) approach.

The latter model “is emerging as a means for promoting public participation in assessments, fostering community self-reliance, and raising awareness of vulnerability vis-à-vis climate impacts in areas such as disaster planning and public health” (Carmin et al. 2011).

This form of participation allows for leveraging peoples’ voice into the urban resilience strategy while fostering best practices at the local level. Initiatives in India, Indonesia, Thailand, Vietnam, Bangladesh, and the Philippines show how civic engagement can build capacity and knowledge frameworks for more intervention and development strategies (Carmin et al. 2011).

**Collectively, these experiences emphasize that building a culture of civic engagement can improve the knowledge, resource, and learning capacities for effective institutions and policies to increase resilience in urban settings.**







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# 02

## Participatory Budgeting and social resilience: the value of their integration in governance practice

PB continues to be a promising mechanism for democratic participation. It is a:



**“process through which people make decisions on the destination of all or a portion of the public resources available or are otherwise associated with the decision-making process”**

(Cabannes, 2019).

Since the first experience in 1989, in Porto Alegre (Brazil), local institutions in many parts of the world have rapidly adopted PB to connect citizens with decision-making processes. As a governance instrument, it accounts for more than 6,000 experiences listed across at least 40 countries in 2019 (Cabannes, 2019).

## BOX 2. Participatory Budgeting mechanism: the initiative of UN-Habitat

UN-Habitat awarded the City of Porto Alegre's PB experience with the "best urban practice" prize.

Over the last 30 years, PB has proved to be a tangible instrument that allows for concrete outcomes and progressive transformations at the community level. Yet, only a handful of cities are implementing PB. In this context, UN-Habitat promotes and supports a new framework and approach to PB for scaling up this democratic exercise through the Participatory Habitat initiative.

This initiative aims to:

**build and connect** a PB city's networks through a dynamic platform that can be continuously enriched by implementing cities, NGOs, other UN Agencies, the academia and the general public;

**make existing (un)documented experiences** more accessible in the UN official languages to support reducing language barriers that limit PB's opportunities and potential as a transformative governance tool;

**analyse and contrast** the differences and similarities of distinct contexts of cities that implement the Participatory-

Habitat initiative. Primarily, cities in the low and middle-income countries, and within them, cities with the lowest institutional capacities, would be able to adapt the initiative to their local needs and benefit from this new approach;

**support** taking concrete actions to achieve Agenda 2030 for Sustainable Development;

**build** a partnership of citizens, the public and private sector, as well as the academia and civil society to ensure that every citizen in every city effectively exercises the right to participate in public affairs.

**PB has the distinctive quality of “increasing local governments’ performances in addressing systematic and process barriers, and integrating social, ecological, and economical aspects of development”** (UN-Habitat, 2020).

This quality generates multiple impacts on cities, governments, and local communities which may be defined in a broad sense as positive broader impacts (Cabannes, 2019).

These include:

**building** trust in communities;

**diffusion** of information and (new) knowledge through the PB processes;

**promotion** of civic culture as citizens and governments proactively engage in dialogue;

**improvement** to inclusive decision-making processes as citizens are actively engaged;

**contribution** to promoting harmonious and peaceful societies as in general, citizens are more peaceful when they feel engaged in governance processes.





The following table summarises the additional impacts generated by adopting this tool as evidenced from case studies in Penang (Malaysia), São Paulo (Brazil), Rosario (Argentina), Curahuara de

Carangas (Bolivia), Huaccana (Peru), Mangaung (South Africa), Yaoundé (Cameroon), Chengdu (China), Cascais and Caminha Municipality (Portugal), Borbona (Italy), Madrid (Spain)<sup>4</sup>.

**Table 1. PB and external benefits**

Why PB matters for social resilience	Main external benefits
Gives access to information and supports (new) knowledge as communication channel.	Supports new civic culture and empowers citizens with knowledge.
Provides opportunity to a population without distinction to be part of a direct decision-making process.	Fosters equal opportunities for all, including marginalized and disadvantaged social groups. It is not just an informative process but rather a transformative one.
Improves government’s responsibility and accountability for allocating public goods. Promotes good practices for managing and operating local services.	Creates the basis of transparent governance and effective local policy and supports aligning budgetary matters with international human rights principles.
Fosters dialogues between local government and citizens around sustainable urbanization.	Improves the decision-making process and promotes best practices for sustainable, prosperous, and resilient cities.
Promotes harmonious society, breaking down the barriers between government and citizens, and between citizens.	Reduces social conflicts based on local-level responsiveness to citizen preferences and generates social awareness of the different needs and preferences of the different groups and people that form communities.

Source: authors' own elaboration

<sup>4</sup> For information on the case studies, please see: <https://unhabitat.org/exploring-the-role-of-participatory-budgeting-in-accelerating-the-sdgs-a-multidimensional-approach>

### BOX 3. Positive spillovers: Open Budgets and the case of Palo Alto

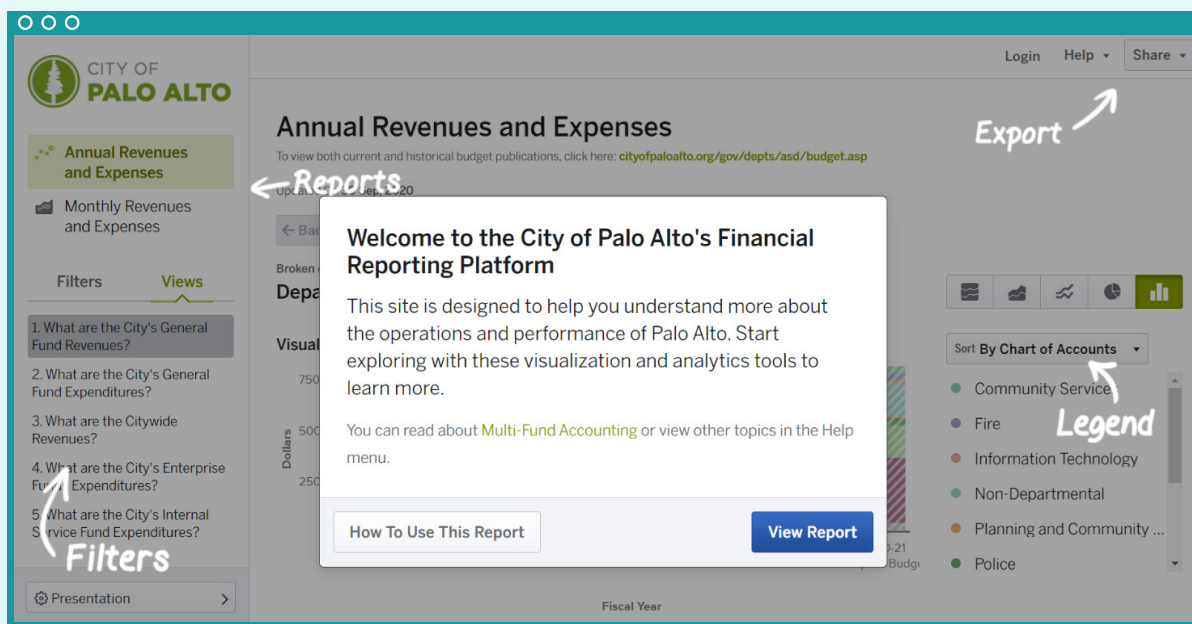
PB can generate multiple impacts, while the internet can help facilitate transparency and engagement in public budgeting processes.

However, many cities are not aware of the potential benefits of using online tools for the achievement of e-democracy (Caba, Rodríguez, & López 2007).

Some Governments are already using digital technologies to improve open budgeting. The City of Palo Alto, in the southern USA is one of the public institutions currently using OpenGov software and provides evidence of how digital technology can facilitate budget transparency.

**OpenGov** is a cloud platform to help governments allocate resources, increase efficiency, improve public engagement, and make data and information readily available. The cloud-based solution was built to power more effective and accountable government. The following figures show the Palo Alto website, explaining the City's revenue and expenses.

Figure 2 and 3. Palo Alto Open Budget Digital Platform



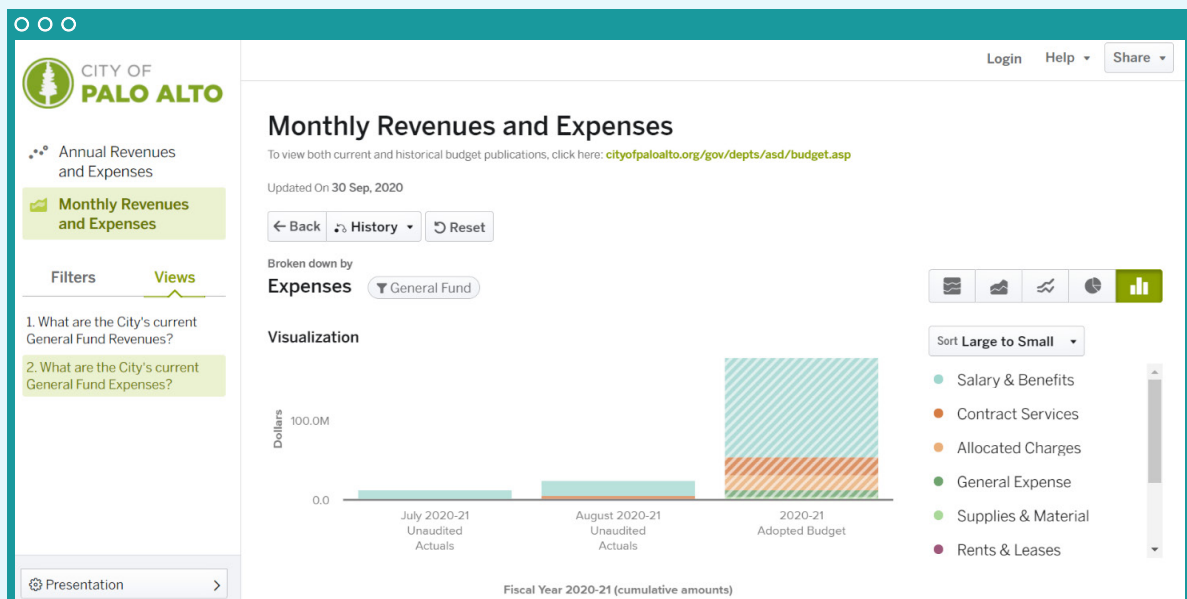
Source: retrieved from <https://paloalto.opengov.com/transparency>

Budget transparency refers to the information available to the public about the government's fiscal policy-making process. It refers to the clarity, reliability, frequency, timeliness, and relevance of public financial reporting and the openness of such information (International Monetary Fund, 2018).

Thus, the latter and its elements should be accessible online. In the case of Palo Alto, the website introduces how to navigate it, access the budget reports, use the filters and legends, and export the data and information.

Overall, it contains a series of useful guidelines to facilitate understanding of the website's functionality.

The City of Palo Alto did not develop the software used for reporting on their budget. OpenGov has developed this software. According to the information available on its website, it was founded in 2012, and over 1,000 public agencies from 48 states in the United States of America have used it to report on their public finances.'



Source: retrieved from <https://paloalto.opengov.com/transparency>

## BOX 4. Open Budget: The city of Philadelphia

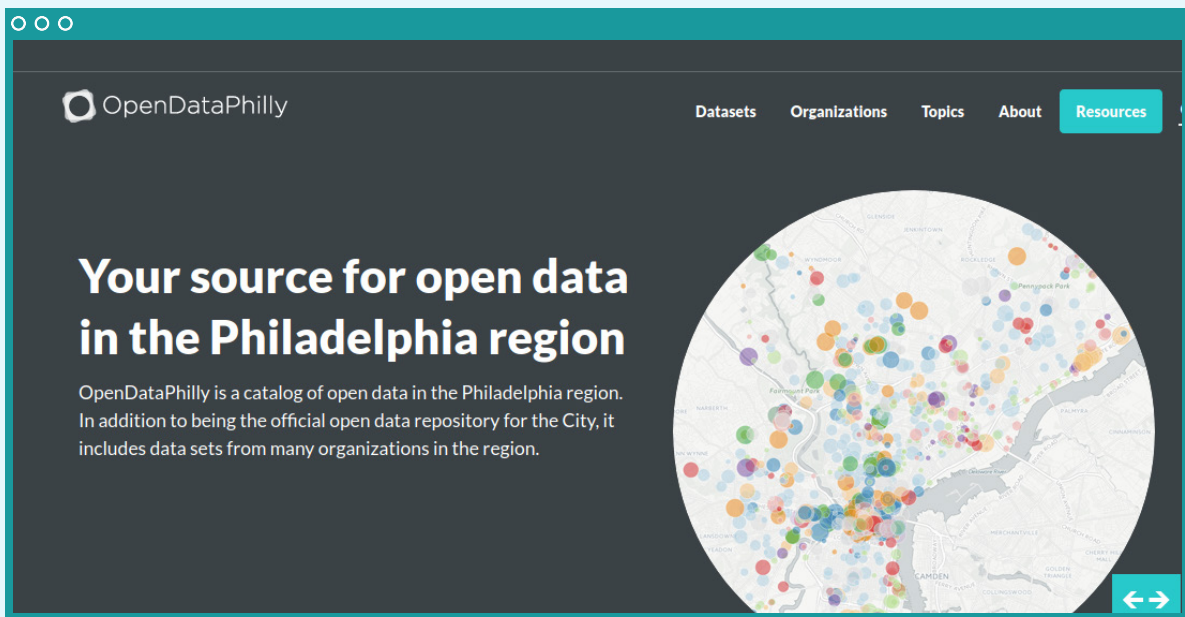
Another tool for open budgets was built by the City of Philadelphia's Office of Innovation and Technology, based on a project by OpenData, the Swiss division of the Open Knowledge Foundation. This project's main objective was to increase transparency by

making city government data easier to use and accessible to all.

These digital platforms for reporting seem more suited for scholars, researchers, and practitioners rather than common citizens (Thornton & Thornton, 2012).

To overcome some of the challenges faced by ordinary citizens in understanding and engaging with the government in relation to public finances, PB supports dissemination of knowledge related to public finances, so that citizens can be better informed.

Figure 4, 5 and 6. The images below have been extracted from the OpenPhilly website



Source: <https://www.opendataphilly.org/>

## BOX 4. Open Budget: The city of Philadelphia

The screenshot shows the OpenDataPhilly dataset page for 'Employee Salaries & Overtime'. The page includes a sidebar with the organization logo (City of Philadelphia) and a main content area with a title, a disclaimer, and a note about the data's purpose. There are also links to related visualizations and a discussion group.

**Employee Salaries & Overtime**

Followers: 4

Organization: City of Philadelphia

**City of Philadelphia**

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**Employee Salaries & Overtime**

This data does not necessarily represent current salaries of employees and is intended for informational purposes only. Formal requests to document salary details or other personnel information should be made through the [City's Human Resources department](#).

Salaries and calendar year-to-date overtime for all City employees, including elected officials and Court staff.

Notes: Since employee counts fluctuate throughout the year, the sum of annual salaries does not reflect the total budgeted amount. Also, \$0 annual salaries represent part-time, temporary, or seasonal employees paid by the hour.

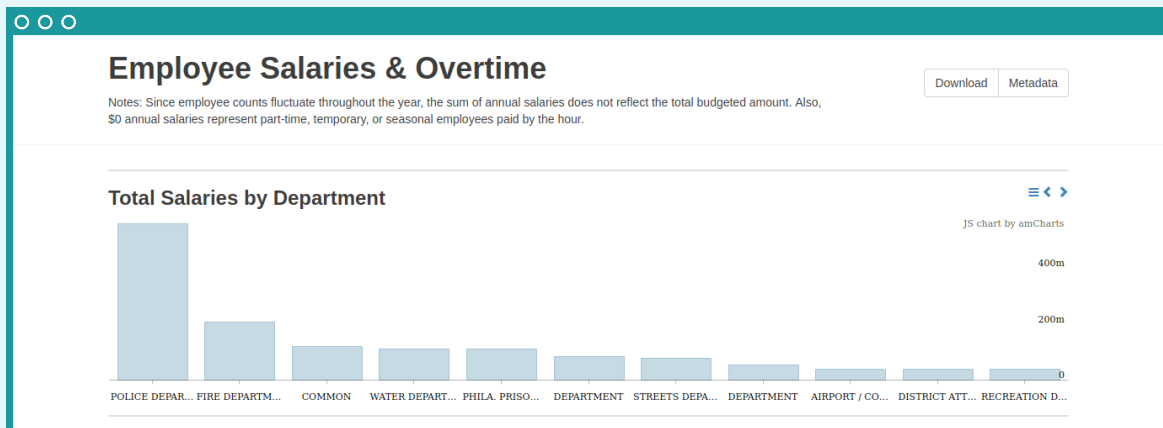
Trouble downloading or have questions about this City dataset? Visit the [OpenDataPhilly Discussion Group](#)

[City Employee Salaries & Overtime Visualization](#)

[Inquirer Data Hub - Philadelphia City Payroll](#)

Searchable databases

Source: <https://www.opendataphilly.org/dataset/employee-salaries-overtime>



Source: <https://data.phila.gov/visualizations/employee-salaries>





UN-Habitat’s approach to resilience underscores the importance of public engagement and empowering stakeholders by increasing their knowledge and skills, thereby enhancing their ability to prevent, adapt and take actions.

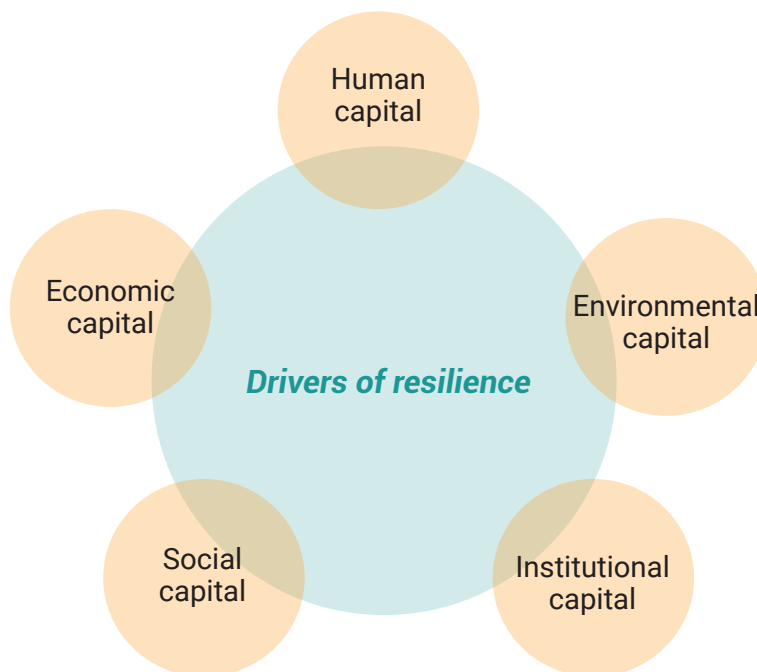
**PB is thus a promising tool for disseminating information, increasing awareness, and mitigating the risks and impacts of natural, health, and economic shocks by making possible the adoption of local actions and allocation of financial resources through direct interactions of citizens with government.**

Consideration should therefore be given to how PB might be moved from a participatory tool for allocating financial resources, to one which generates multiple external benefits that educate, inform, and allow citizens to engage actively (UN-Habitat, 2020).

The connection between social resilience and PB’s external benefits is strengthened by evidence from a recent study highlighting the fact that the city’s resilience is led by human, social, economic, institutional, and physical capitals (Esteban, 2020).

These are considered the five drivers that strengthen the resilience-at-large (see Figure 4).

Figure 7. Drivers of resilience



Source: Authors elaboration from Esteban, 2020.

Examples from around the world indicate that there is a link between all these five drivers of resilience and implementation of PB. Figure (5) shows the rationale behind this correlation.

This report elaborates how PB can:

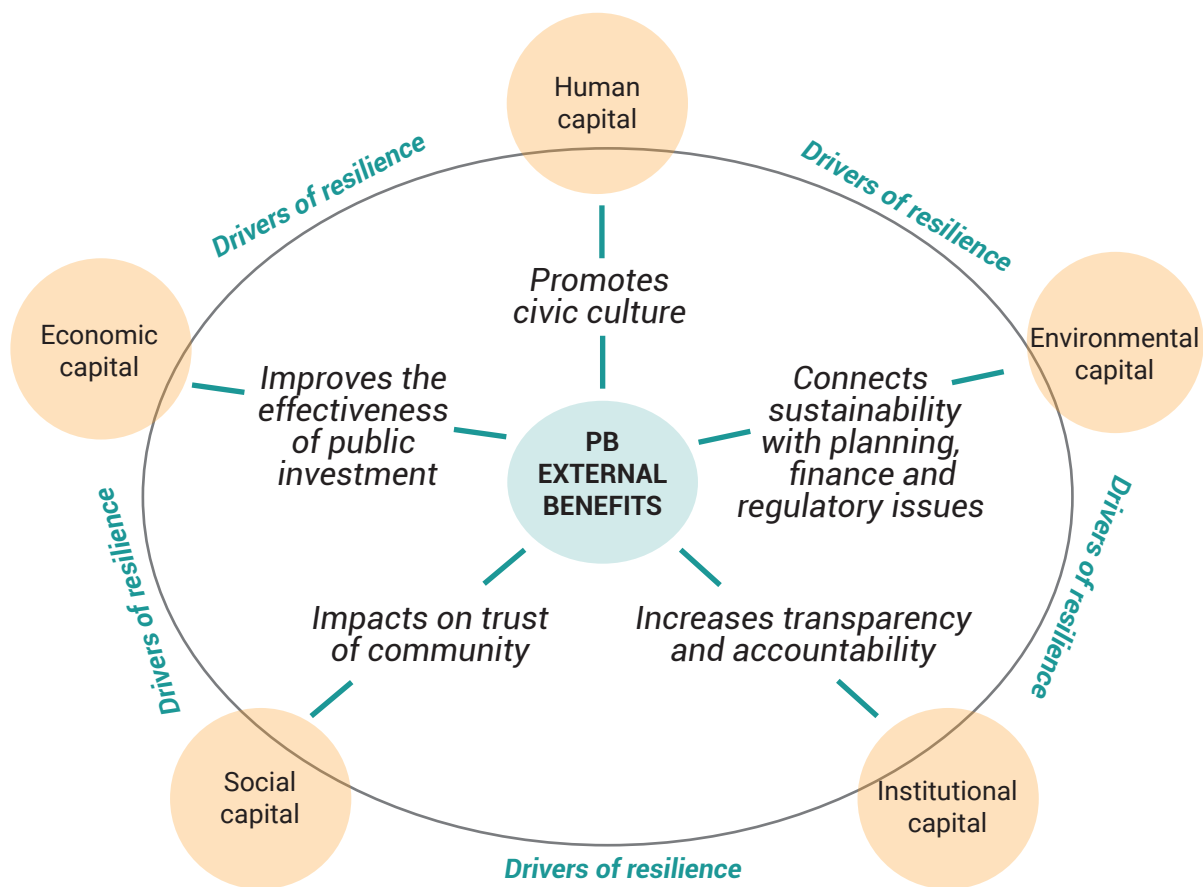
**promote** civic culture and new knowledge among the people, impacting human capital;

**connect** sustainable criteria with planning and regulatory issues, influencing the adoption of sound environmental policy at the local level (environmental capital) positively;

**generate** a positive climate of trust between citizens and government, increasing the social capital;

**realize** the actions of government, performing better for the entire society and its economy.

**Figure 8. Drivers of resilience and PB external benefits: how the mechanism works**



Source: Authors elaboration from Esteban, 2020.

The analysis suggests that compared to other forms of participation, PB and its potential impacts make a significant contribution to government policy making.

Local governments may adopt PB to make decisions more participatory, inclusive, stable and durable.

The following section of the report explores new approaches and instruments for implementing PB. It explores recent innovations and technological applications (e.g., online platforms, mobile applications, and artificial intelligence) that support the adoption of PB initiatives globally.



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# 03

## Innovation and digital technologies: new ways for leveraging people's voices in PB

The transfer of knowledge through information and digital technologies is leading the process of innovation in local governance and in many national governments around the world.

**Open innovation and technologies are becoming popular because they can make for easier and faster interactions and quicker public participation.**

In addition, they foster innovative ideas and changes to local and national policies. Online participatory tools refer to two main technologies:

**web-based tools** that are particularly designed for public engagement (e.g., Digital platforms, MySideWalk, and PlaceSpeak); and

**social networking sites** (e.g., Facebook, Nextdoor) that are not specifically designed for citizens engagement but can be used for participatory scopes as seen in many cities around the world (Kleinhans et al. 2015).

Online participatory tools are diverse and have a variety of functions. For instance, MySideWalk and PlaceSpeak provide interactive online discussion forums; and NextDoor facilitates neighbours' social interaction (Afzalan et al. 2017). Although each one of these instruments have different qualities, they provide opportunities for consensus-building or learning among diverse stakeholders (Goldstein and Butler, 2010), mobilizing actions (Brody et al. 2003), and engaging local knowledge (Corburn, 2005). The innovation process offers a wide array of tools for local governments to conduct PB. The literature suggests that considering citizens' characteristics and skills, and their attitudes towards technology can help guide urban managers in their decision making.

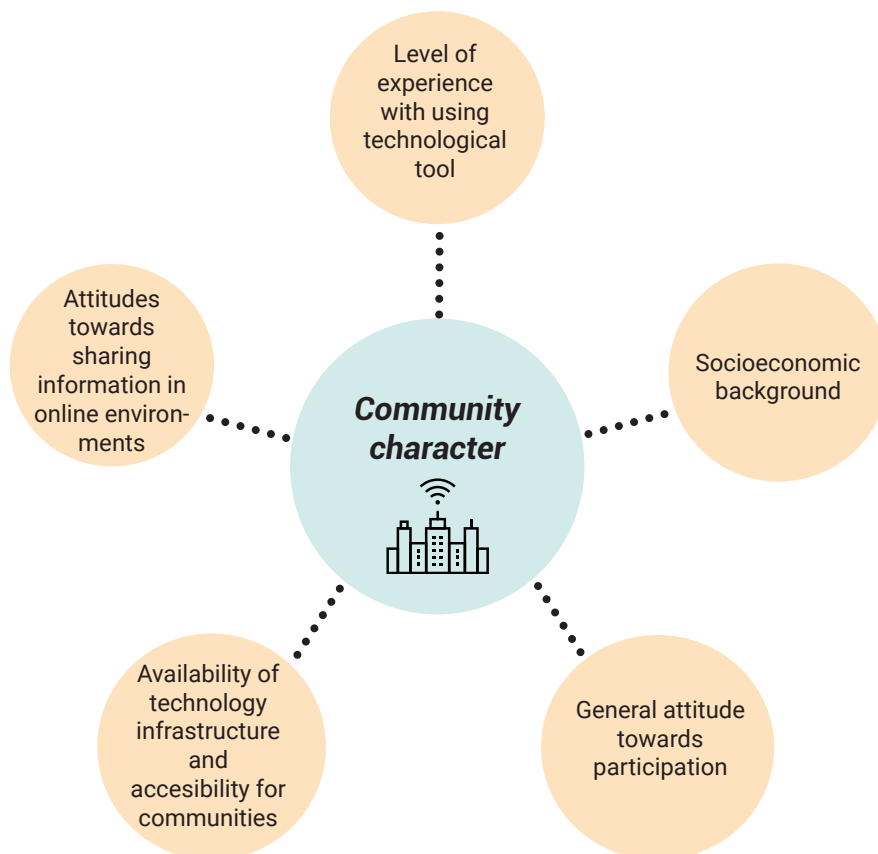
**UN-Habitat promotes consideration of human rights, which in the case of technology, translates into a consideration of digital rights.**



A comprehensive understanding of local communities and their capacity to engage with digital technology, are primary considerations in avoiding social bias and exclusion<sup>5</sup> when selecting appropriate instruments.

Afzalan et al. (2017), provide a theoretical approach to selecting digital instruments for participation, focussing on community characteristics (see figure 9).

**Figure 9. Community character for choosing technologies**



Source: Afzalan et al., 2017.

<sup>5</sup> One of the social bias is based on the gap between those who have and do not have access—for a variety of reasons—to these technologies, also known as the Digital Divide.



Community is central in the choice of appropriate digital strategies for local governance. Policymakers should focus on how citizens may react to expressing ideas and sharing personal information online. Lack of trust in public participation can have a negative influence on the ability of online tools to attract diverse community participation.

### **Different digital participation instruments have different capabilities in facilitating community engagement.**

While some can facilitate citizen interaction and dialogue, others are mainly designed to provide information and knowledge (Afzalan and Muller, 2014). Some may encourage dialogue, while other platforms may encourage quick and short responses.

### **The effectiveness of digital technologies is dependent on a variety of organizational and contextual factors, including the capacity of organizations to use technologies, interest, and attitude towards participation.**

All these factors may hamper the development of the digital participation process especially where there are vulnerable groups with limited access or capacity to engage with digital technologies. The choice of a digital tool for PB should consider the complexity of advancing innovative approaches to the participatory process and ensure that vulnerable populations are able to engage and benefit from the technology. The capability of local institutions, their norms and regulations, and citizens' rationalities are crucial factors. This point is addressed in the final part of this report as a lesson learned for local policy makers.





## 3.1

# Online and Offline platforms for PB

**Increasingly, city leaders have been adopting new approaches to making services increasingly digital.**

Among these services, civic participation in the decision-making process is a pillar of the European agenda for improving local governance (European Commission, 2015). This policy, known as “e-Government”, means “the electronic handling of administration and democracy processes in the context of governmental activities by means of information and communication technologies to support public duties efficiently and effectively” (De Filippi, 2020).

The principal benefits of Governance are to:

- **ease** access to public sector information;
- **improve** public sector interaction;
- **advance** public orientation and public provision;
- **augment** transparency and accountability;
- **promote** participation, collaboration, and innovation;
- **help promote** natural resource management;
- **strengthen** citizen’s trust in government.

Digital Participatory Platforms (DPPs) are the main components of the digital strategy for improving PB in Europe. They provide the opportunity to submit proposals, discuss their feasibility from different angles, and vote to allocate funds and implement projects.

Case studies from Bologna (Italy), Paris (France), Lisbon (Portugal), and Madrid (Spain) indicate that DPP is an effective way of leading projects and addressing urban problems within a digital environment. Overall, the total budget for these initiatives is one million euros for Bologna, 2.5 million for Lisbon, 94 million for Paris and 100 million for Madrid (De Filippi, 2020).

These cities’ strategies are hybrid, combining online platforms with offline tools based on physical contact with local communities. This interaction is integrative to DPP services and gives all citizens the opportunity to be part of the process through local laboratories, workshops, and face-to-face meetings.



Table 2 highlights the European DPP approach.

**Table 2. European approach to digitalizing participation**

Name of initiative	City (Nation)	Goal(s)	Process	Online initiatives	Offline initiatives
<b>Collaborare è Bologna</b>	Bologna (Italy)	Promoting projects of civic collaboration, increasing social cohesion and encouraging the realization of initiatives organized by citizens.	<ol style="list-style-type: none"> <li>1. Proposal submission phase</li> <li>2. Co-design phase</li> <li>3. Voting phase</li> <li>4. Realization phase</li> </ol>	Download informative materials. Upload own project and monitor process.	Neighbourhood laboratories aiming to assist citizens in preparing proposals and in using the platform.
<b>Paris Budget Participatif</b>	Paris (France)	Giving citizens the possibility to vote or propose projects for their city.	<ol style="list-style-type: none"> <li>1. Project proposal by a citizen</li> <li>2. Checking through a technical and economic feasibility analysis</li> <li>3. Admission to the voting phase, if the proposal is judged positively</li> </ol>	Download informative materials. Upload own project for specific macro-category (e.g., economy, social cohesion, tourism, etc.).	Workshops that give citizens the opportunity to learn useful information for the construction of their project proposal.
<b>Lisboa Participa</b>	Lisboa (Portugal)	Allowing citizens to express, vote, comment and propose ideas and projects in different fields of governance through a deliberative, democratic and direct process.	<ol style="list-style-type: none"> <li>1. Proposal submission</li> <li>2. Technical pre-feasibility analysis</li> <li>3. Vote on the motions</li> </ol>	Presentation of the proposals through online modality. Project voting, by web or SMS mobile.	Meetings where participants discuss proposals, focusing on their potential and critical issues.
<b>Decide Madrid</b>	Madrid (Spain)	To ensure the inclusion of every citizen in the participatory processes, in order to enable them to propose, deliberate and vote on policies for the city and ensure transparency of all government proceedings within the municipality.	<ol style="list-style-type: none"> <li>1. Acceptance of projects</li> <li>2. Review of projects</li> <li>3. Selection of projects</li> <li>4. Evaluation of projects</li> <li>5. Publication of projects prices</li> <li>6. Vote of projects</li> </ol>	Proposal submission and voting.	Local offices for citizen service and local forum, in every district, where citizens can discuss about their proposals for the PB.

Source: De Filippi, 2020

### The lessons that emerge from these initiatives are:

- That the presence of both online and offline methods is primary. Conventional tools (e.g. workshop, assemblies) may avoid the risk of excluding specific targeted populations from participation. This is a recommendation for successful interaction between public administration and all citizens.
- That transparency of the process and its rules for submission of proposals, evaluation, and monitoring increase community participation and trust (Eelman and Feldman, 2018).



## BOX 5. Participatory-Habitat initiative of UN-Habitat: digital platform from a pilot project in General Escobedo (Mexico)

The Participatory-Habitat initiative brings together communities and governments with the objective of improving the city based on citizens' inclusion and participation through the use of digital platforms.

Participatory-Habitat initiative uses digital tools to support local governments in understanding citizens' needs and priorities better, thus enabling governments to be more efficient in real-time service delivery, and more responsive to citizens' demands.

The initiative uses digital applications and coding to support project design, implementation, monitoring and evaluation.

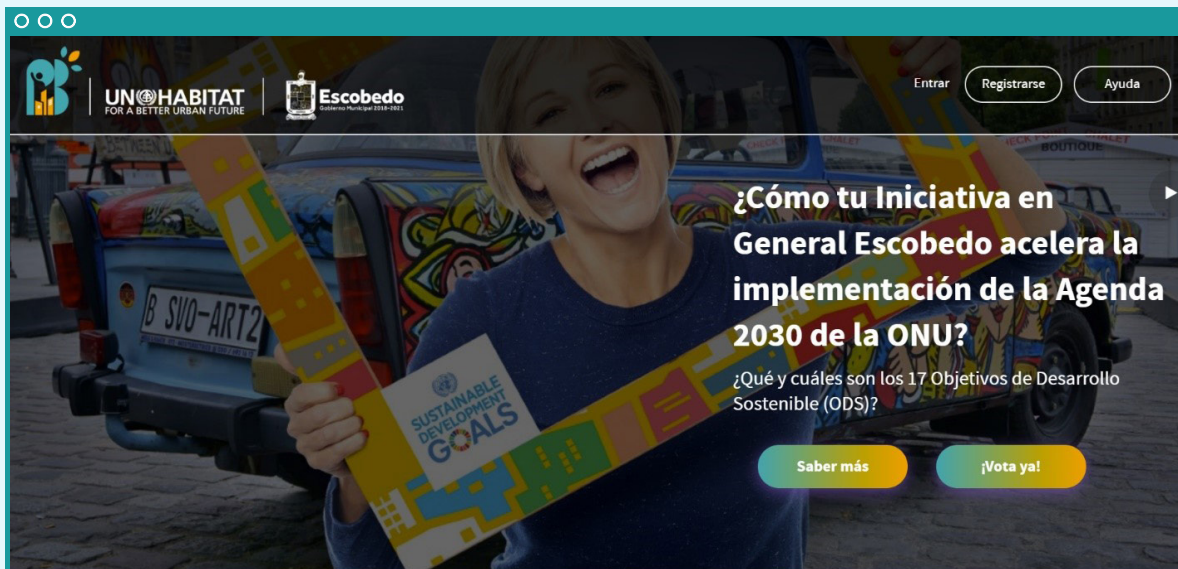
One of the digital platform's main innovations relies upon its ability to be used considering the combination of normative and operative knowledge and experience related to Agenda 2030 for Sustainable Development through the PB mechanism as a vehicle to bring together governments and communities.

As innovation come with challenges in implementation, the initiative develops constant upgrades based on user feedback.

It is thus a digital process of knowledge, improvement, and innovation adapted to the context-specific needs and preferences of communities.

Available content on the online Participatory-Habitat initiative app include: Creation of a user account, project proposal, view and comment on other proposals, vote for proposals, citizens can monitor and evaluate winner proposals, citizens can get access to an online UN library as well as to knowledge on urban planning and municipal finances.

Figure 10. Online digital platform General Escobedo Participatory-Habitat initiative



Source: <https://escobedo-pb.unhabitat.org/>



## 3.2 Social media and Mobile Apps

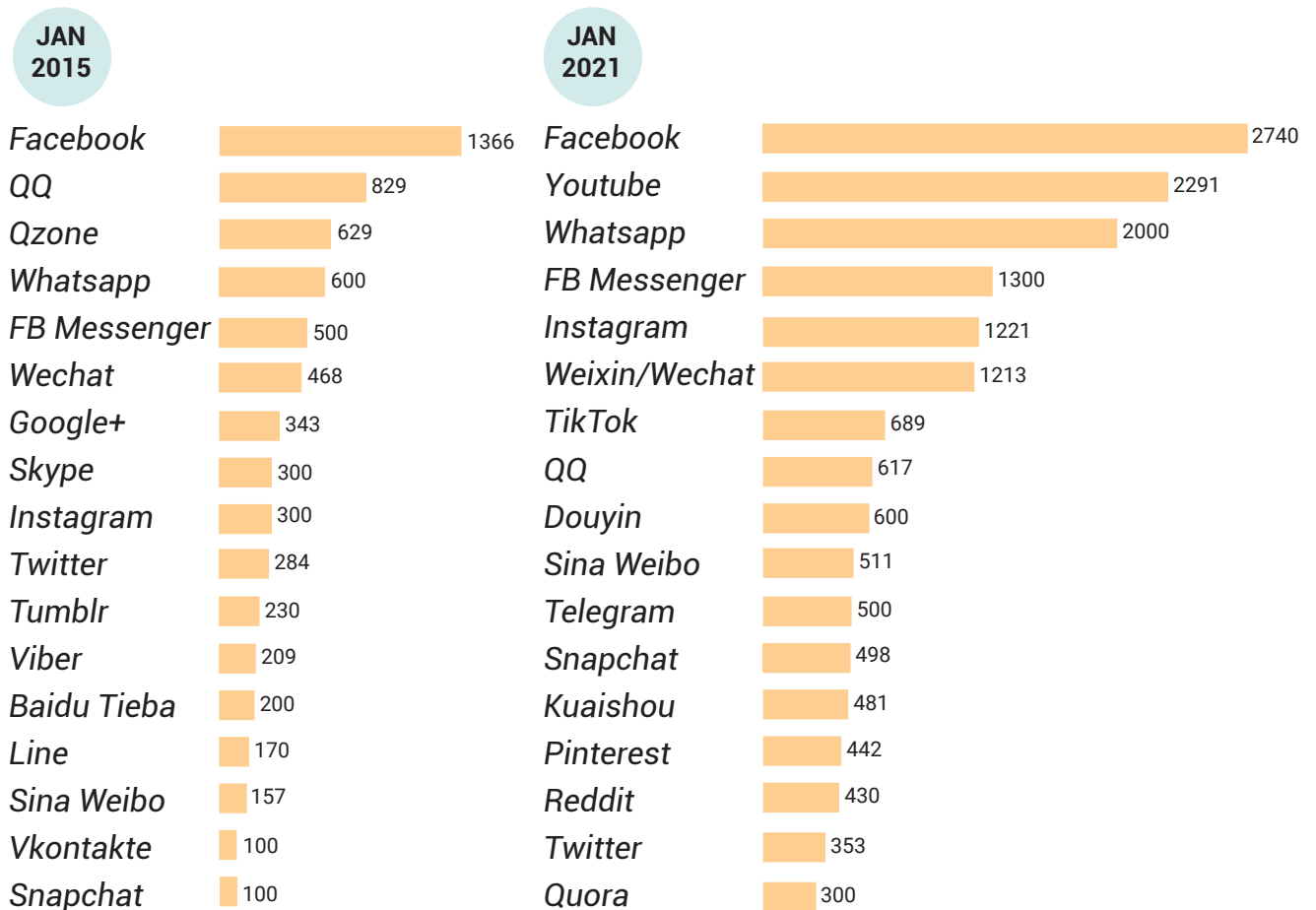
The rapid growth of social media such as Facebook, Twitter, Google Plus, Instagram, YouTube, and others has spurred demand for a new approach to participatory and self-organizing governance by citizens.



### THE WORLD'S MOST-USED SOCIAL PLATFORMS

Most recently published monthly active user accounts by platforms, in millions (000,000).

Figure 11. Comparison between January 2015 and January 2021 of the world's most used social platforms, in millions of active user accounts (000,000).

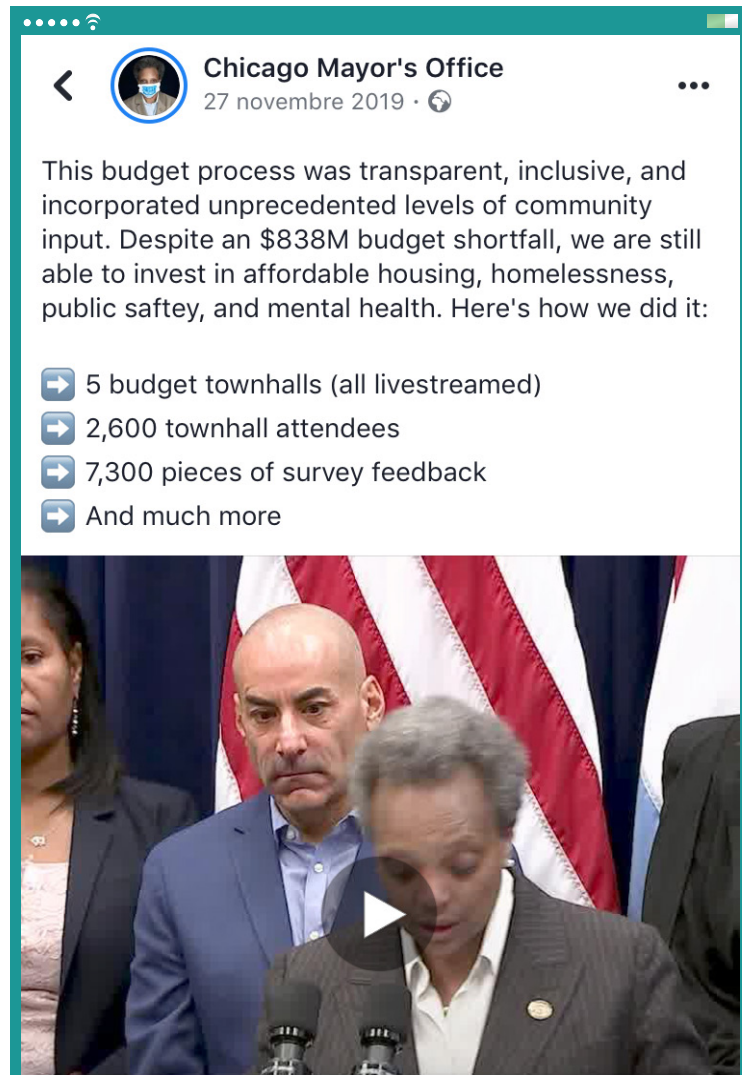


Source: Datareportal.com

**Local governments worldwide consider social media a consolidated tool of local policy, by which they can improve representation, citizen engagement and networking, and public dialogue with citizens (Kleinhans et al. 2015).**

Social media has been accompanied progressively with the innovation of mobile technologies, which “offered tremendous opportunities for local engagement, and public participation for monitoring and behavioural change” (UN-Habitat, 2020). Recent studies indicate that smartphone ownership rate is 71% in the US, slightly higher in Europe (72% in the UK, 64% in France and 62% in Germany) and the highest in Asia (87% in Hong Kong and Singapore, 80% in Malaysia and 71% in China) and Australia (75%) (Ertiö, 2015). Data from World Bank (2020)<sup>6</sup> shows that from 2008 to 2018, mobile subscription recorded the highest growth rates in Sub-Saharan Africa (+62%) and East Asia & Pacific (+57%), followed by the Middle East & North Africa (+41%), and Latin America & the Caribbean (+22%).

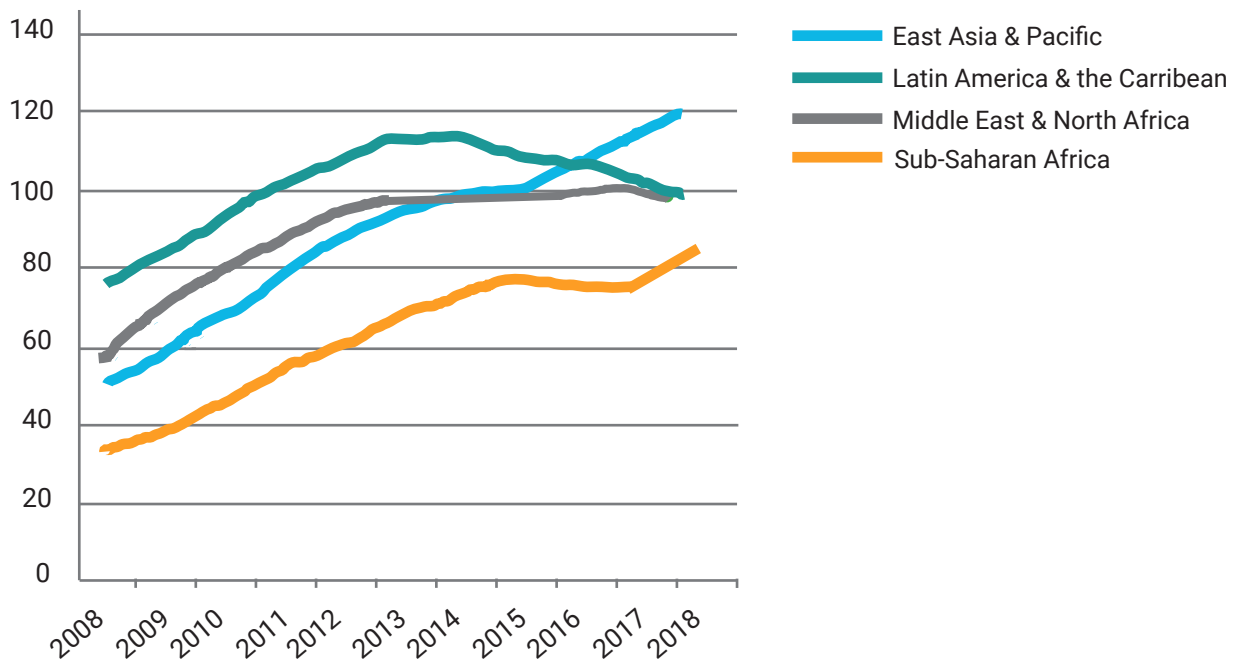
Figure 12. Chicago Mayor's office official Facebook page



Source: Official Chicago's Mayor's office Facebook page

<sup>6</sup> All target regions do not include the high income countries.

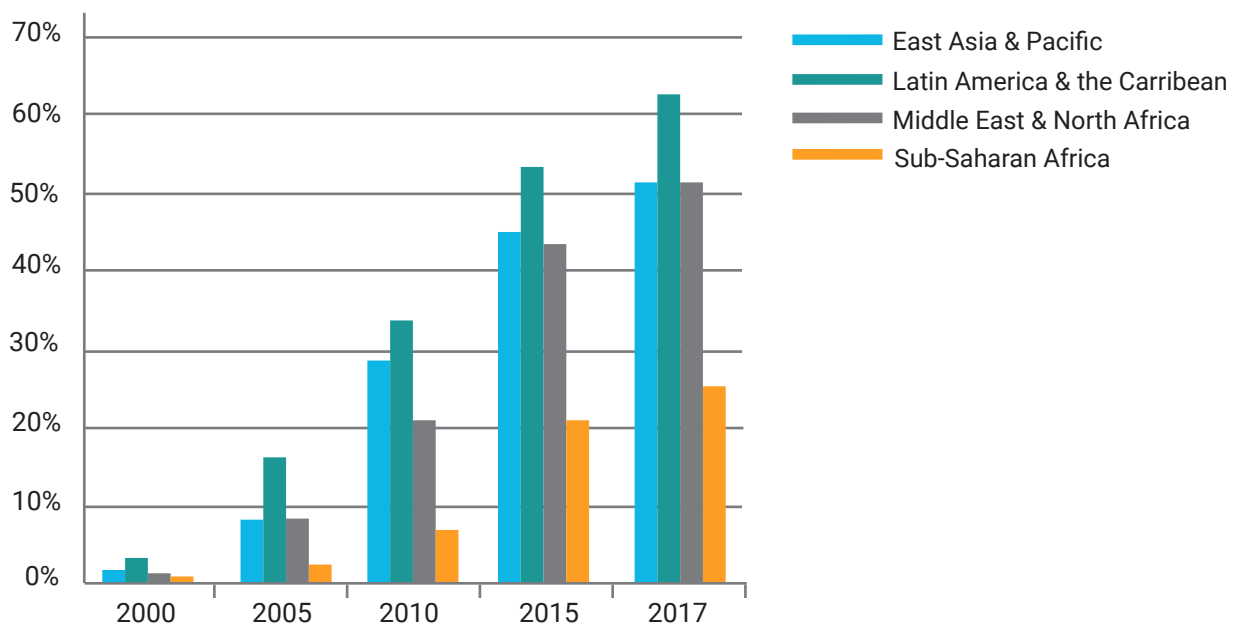
**Figure 13. The mobile subscription (per 100 people) in target regions from 2008 to 2018**



Source: <https://data.worldbank.org>

The diffusion of digital applications is also associated with improvements in Internet access across the regions (see Figure 14).

**Figure 14. Individuals using the internet (% of population)**



Source: <https://data.worldbank.org>

## BOX 6. Social media and democracy: an overview from Chicago

Figure 15. Social media campaign of Chicago



Source: <http://www.pbchicago.org/>

In 2009, Alderman Joe Moore implemented the first PB process in the United States, deciding to allocate \$1 million of his discretionary capital funds to the process in Chicago's 49th Ward.

Alderman Moore (2012) said:

"It comports with my own philosophy of inclusion and giving people the power to make real decisions that affect their lives, and politically I felt it would be popular in a community such

as mine that has a strong history of community activism, and people expressing their views in a very vigorous way (Gordon et al. 2016)."

He suggested that there are three reasons to adopt PB in the United States.

**First**, it is time to do things differently. **Second**, citizens do not trust their elected officials or government to do what is right. **Third**, citizens do not believe they have the power to affect change.

In 2012-2013 PB Chicago "brought together almost 3,000 residents in four wards to determine how to allocate \$4 million in discretionary capital funding" (Weber et al. 2015). Following this, the Chicago model became a case study in the US for empowering marginalized communities and increasing community participation in

public debate.

This process includes needs-assessment, deliberation over proposals for small capital improvements, decision-making, and implementation of winning proposals.

Over the years, residents voted to fund street and sidewalk repairs, bike lanes, playground and park improvements, streetlights, new trees, and several other community projects.

This approach combines traditional neighborhood assemblies or community representative meetings with new technologies, and in particular, social media (e.g., Facebook and Twitter) as infrastructure to communicate, transfer knowledge, and engage local communities with PB (Gordon et al. 2016).



## BOX 6. Social media and democracy: an overview from Chicago

Figure 16. PB social media campaign of 33<sup>rd</sup> Chicago Ward



Source: <https://33rdward.org/pb-2021-results-are-in/>

According to Chicago's experience, the main benefits of implementing social media within PB are:

**it is very open**, and it is easy for people to join;

**it is a low-cost** form of engagement;

**it has been useful** for a deepening engagement between meetings so that people aren't just coming out to one or two meetings, or just voting once, but feel like they are connected to a broader process and to a broader community. So, it is one more tool for community building so that people can see the achievements of other participants, congratulate them, and share their own information.

In this context, social media aims to mitigate democratic deficits and participation bias among citizens.

The Facebook page of 33rd Chicago Ward has 3,869 likes and 4,522 followers.

Although mobile participation generates benefits in terms of empowerment and communication, there are different typologies of mobile apps that enable citizens and other stakeholders to generate and share information.

The box below shows the main typologies of these apps, highlighting their key features.

## BOX 7. Participation Apps: an overview

**Local network apps** merge open data, open software, and user-generated data. They support citizens' information exchange in their communities and inform practical decisions. For example, Nextdoor is an app that lets citizens living in the same neighborhood join a private network, where they can inform each other about topics of neighborhood interest, pool resources to take action and recommend different services to one another.

**Citizen impact apps** illustrate apps that take-up citizens' input into strategic planning despite a one-way communication flow.

**Nudge apps** collect information on users' behavior at an operational level. The main applications are related to urban issues as seen in case studies from London and San Francisco (Ertiö, 2015).

**Public dialog apps** request citizen input on planning and development issues via mobile devices. For instance, Commonplace is an online platform that fosters inclusive planning decisions leveraging the whole community's voice.



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The discussion above suggests that selecting the right mobile app for PB should be based on the participation's objective and type of information in the first place.

Nudge apps and local networks apps enable governments to check what is happening in the field. In contrast, citizen impact apps and public dialog apps can provide valuable input into the policy-making process.

Despite the great impact and value generated from these apps, barriers persist that affect the applicability of these technologies, especially in the development arena. As a consequence, the selection of mobile technologies for PB should take into account numerous local factors. Education levels, uneven internet distribution and infrastructure, and officials' lack of capability to manage data and ideas remain critical issues.

This may generate social bias, increasing inequalities among groups of populations, and regions worldwide. At the same time, smartphones can bridge certain digital divides, for instance, by providing Internet access to those without computers (Clark et al. 2013).

To that end, **mobile participation and its apps are expected to attract and enable a much wider interest group than conventional participation tools, in particular youths and young adults who are sometimes reluctant to participate in public affairs or participation schemes actively.**

On the other side, specific categories, e.g. elderly people, may not feel comfortable using new technologies. For this reason, new mobile applications need to be combined with more traditional forms of participation so that no one is left behind. Hence, workshops and local assemblies remain crucial for mitigating potential bias.



### 3.3

## Artificial Intelligence: potential innovations to strengthen PB

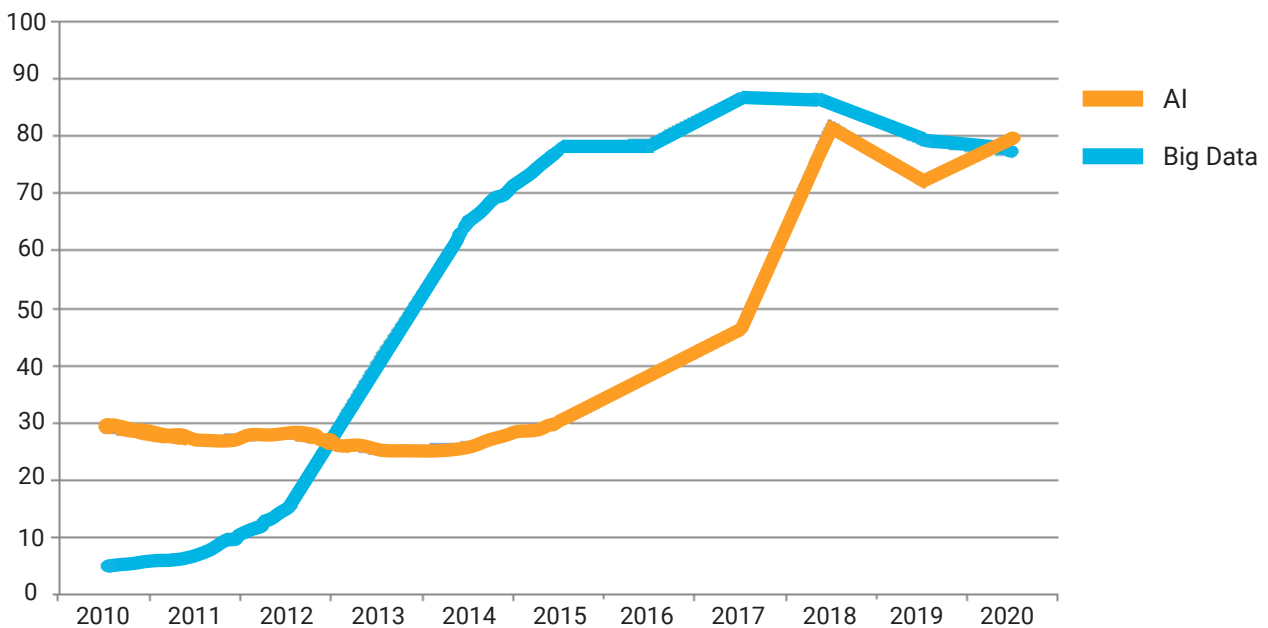
From online services like Netflix to chatbots like Alexa, artificial intelligence (AI) is a key topic of future technological innovation.

Over time, the definition of AI has moved from “a machine that is capable of human-like behaviour, at least in those capacities attributed to the mind” to “systems which match or exceed the “intelligence” of humans in virtually all domains of interest” (Damjanović, 2015). The development of AI-powered technologies exponentially augmented access to information of all sorts and created algorithms capable of managing and processing big data quickly and efficiently. This is the case with machine learning, i.e., computer algorithms used to autonomously learn from data and information (Savaget et al. 2019).

The use of AI in urban policy field has been increasing the potential of applications, especially for the management of mobility, waste, security, and public services.

Recently, attention has focused on how AI may support community participation, like PB, and the decision-making process of the local government (OECD, 2016). This is a new domain in public policy. From small cities in the US to countries like Japan, governments are looking to AI to improve citizen services (Mehr, 2017). AI-based technologies could offer assistance to democracy by bringing citizens closer to public administration. The most beneficial opportunities are those where AI can reduce bureaucracy, help resolve resource allocation problems, and take on significantly complex tasks. AI may also be a way to bridge the gap while improving collective engagement and service delivery.

Figure 14. AI and Big data popularity on Google.



Source: <https://trends.google.com/trends/?geo=IT>



In this instance, **AI-based technologies permit marginalized people in countries with many official languages to be empowered.**

For instance, by providing them with automated translation tools to allow them to vote (World Wide Web Foundation, 2017). This is the case in India, a multilingual country with 22 official languages and many unofficial ones also in use, where AI technologies have been used to overcome language barriers (Khemani, 2012). This application can also engage communities and help them to be more and better informed about key political issues, overcoming inequality, and increasing people's voices in order to make sure local institutions hear their claims.

AI-based technologies in general, and machine learning, in particular, can bring communities closer to local institutions by allowing citizens to face stable and predictable issues for which large volumes of data are relatively easy to collect. This application has become more promising with the volume of governmental open-

data associated with the proliferation of AI-based applications (such as TensorFlow). The idea of opening governmental data means public information should be freely available for citizens to access, use, modify and share without deliberate mechanisms of restriction or control (Mehr, 2017). AI thus opens up unprecedented mechanisms for civil society to process underutilized datasets and explore participatory mechanisms that influence public activities.

**The proliferation of AI to help address key governance challenges can enable civil society to participate in public affairs without requiring individuals' physical groupings, reducing costs, and increasing citizen satisfaction and engagement.**

Citizens can thus become more active, monitoring activity and pressing for desired changes in public administration. The table below summarises the typology of Government issues appropriate for AI applications.



**Table 3. Types of government problems appropriate for AI applications**

Types of government problems	Details
Resource allocation	Administrative support is needed to speed up task completion.
Large Datasets	Dataset is too large for employees to work with efficiently internal and external datasets can be combined to enhance outputs and insights.
Experts Shortage	Basic questions can be answered, freeing up time for experts.
Predictable Scenario	Situation is predictable based on historical data.
Diverse Data	Data includes visual/spatial and auditory/linguistic information. Qualitative and quantitative data needs to be summarized regularly.

Source: Mehr (2017)

Although recent studies shed light on the numerous applications in the public domain, AI is not a silver bullet for all issues, especially for those related to social resilience. Governments have to consider where and when AI can provide a technical solution, and what other technologies or human interaction touchpoints might be required (Allam and Dhunny, 2019). As already seen in digital platform case studies, the participatory process should combine different tools, including online and offline modalities.

AI has the potential to have a great impact on the way citizens' experience and interact with their governments.



**To this end, AI may be a powerful innovation for local policy making.**

In the future, we may see new applications using AI to improve government efficiency and participatory mechanisms. Related issues (e.g. resilience of cities) might then benefit from innovations driven by AI.



# 04

## Lessons learned and recommendations on the nexus between PB, digital technology and social resilience

This paper suggests that there is value in urban managers considering how PB can contribute to social resilience. The literature and case studies suggest that it can provide an entry point for promoting resilience through participatory initiatives and capacity to feel engaged and make an active contribution to governance systems, which leads to more resilience in these very systems through the potential external benefits impacting local governance as shown in Figure 5.

**Digital technologies potentially add an innovative dimension to the scope and capacity of PB to contribute to resilience. They enable a greater depth and breadth of the community to participate, and also strengthen the information sharing and ultimate transparency of the PB process.**





At the same time, the case studies show that there is no singular digital tool to carry out a PB process. Experiences worldwide indicate that external place or domain-specific circumstances, such as physical, political, institutional, societal, economic, and cultural conditions, can influence digitalized governance processes and their achievements.

There is also a range of potential practical problems of digital participation, such as limitations of financial resources, lack of motivation among citizens, weak capacity of institutions, lack of adequate infrastructure, and difficulties of including socio-economically disadvantaged groups.

As technical progress is highly influenced by institutions, political structures, and social factors, the selection of digital platforms, mobile apps, and AI should consider several factors and explore their viability for success.

To understand the strength and barriers to adopting digital instruments for urban governance, Table 4 reports the main concerns. In light of the potential pitfalls of digital technology, any PB process must engage with a digital rights framework to understand who and what place might be unable to benefit from or participate in such an initiative.





## Lessons

In light of the above discussion, the following main lessons can be drawn from exploring the nexus between resilience, PB and the innovation potential of digital technologies:

- The linkage between PB and Social Resilience is not well explored from a government perspective. However, PB provides a promising instrument for increasing the social resilience of communities. The potential multiple impacts and benefits generated by PB may support local institutions in allocating funds and implementing resilient actions at the local level, while ensuring the spread of information, awareness, knowledge, and decision-making process shared by all. This requires rethinking PB as a multidimensional tool rather just a traditional one related solely with PB.
- PB may benefit from new technologies, which support interactive loop of citizen participation.
- Digital technologies provide opportunities for innovative collaboration between local government and citizens.
- Financial, regulative, and technological means and human resources, as well as knowledge management and organizational culture are critical for digitalizing local governance. PB using digital technology might in fact, help foster positive change towards effective and inclusive e-governance.
- The use of digital technologies raises questions about exclusion, as the deployment of these tools limit participation to those with access to digital devices. Nonetheless, technologies like mobile apps and social media could give a chance to citizens who do not usually participate, including young people, people with low incomes, insufficient schooling, and/or a marginalized status, or those living in isolated/rural locations.



## Recommendations for urban managers

In order for urban managers to make the most of the potential correlation between PB, social resilience and the innovative capacity offered by some digital technologies, the following recommendations are proposed:

- That governments consider PB as a mechanism to strengthen government processes which build resilience and trust in the governance system. This may have a strong return for social resilience policies.
- Governments explore relevant technologies and digital tools such as digital platforms and mobile apps.
- All engagements with digital technologies for PB be underpinned by a clear digital rights framework to ascertain who is and who isn't able to benefit or engage in the PB initiative.
- A hybrid strategy to be adopted. The PB digital process be complimented by offline tools to engage those local communities or particular individuals who are unable to use them, for whatever reason.





## Digital Platform

### Strength

Combines online activity with offline activity.  
Popular in many countries.  
Avoids social bias.

### Barriers

High cost for monitoring and managing the system. Capacity of local institutions, norms and regulations. Extra costs for workshop and assembly. Increase the complexity of managing online and offline activities.



## Mobile Apps

### Strength

Easy to implement for local government.  
Easy online access and intuitive use of user interfaces.  
Laptop is not needed.

### Barriers

Internet access and improvements of infrastructure.  
Social bias and technological barriers especially for older people



## AI

### Strength

Reduces administrative burdens, helps resolve resource allocation problems, and takes on significantly complex tasks. Make easier the participation of marginalized people.

### Barriers

High cost for developing, monitoring and managing the system. Capacity of officials, norms and regulations. Internet access and infrastructures.



## Social Media

### Strength

Easy to adopt at local level.  
Global popularity and easy online access.  
Laptop is not needed.

### Barriers

Internet access and improvements of infrastructure.  
Social bias and technological barriers especially for older people



## Conclusion

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The 10th Session of the World Urban Forum held in Abu Dhabi highlighted the role of the city, with its concentration of people, ideas, and resources, as a catalyst to initiate and sustain innovation. The COVID-19 pandemic has compelled local authorities and governments to explore innovative ways of dealing with such threats through integrated place-based and people-centered approaches. UN-Habitat Executive Director Maimunah Mohd Sharif stated<sup>7</sup>:

**“the COVID-19 pandemic shows digitalization has the potential to strengthen cities' resilience in a time of crises”.**

The increasing use of digital platforms, mobile apps, social media in cities offers immense opportunities, leveraging citizens' voices, and ensuring access to inclusive services for communities thereby improving living conditions for all.

**The importance of participatory processes such as PB and digitalization has been captured in several key guiding documents such as the 2030 Sustainable Development Agenda, as well as the New Urban Agenda.**

Aligned with these official documents, this report focuses on the correlation between PB, social resilience, and digital technologies. Despite the increasing variety of collaboration-based digital instruments, the analysis reveals how social resilience requires new ideas to make citizen-government interaction more effective. PB would be a flexible way to engage with communities and enhance their resilience through positive spillovers. In parallel, new frontiers of technologies are key components for developing PB and helping city leaders to face future challenges.

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<sup>7</sup> Retrieved from: <https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2443>

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