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Project acronym: **DEMo4PPL**
Project full title: **Digital Education Modules 4 Participatory Planning**

BASIC2: INTRODUCTION TO DIGITAL TOOLS FOR PPL

1. Short description

Digital participation tools have become pivotal in enhancing stakeholder engagement across various sectors, including urban planning, policy-making, and community development. Digital tools provide multiple opportunities for stakeholder participation and can be used online or locally. Digital tools for participatory planning *enable stakeholders to engage in a project via a digital interface or otherwise rely on digital technology to function.*These tools enable inclusive participation by bridging geographical and demographic gaps, ensuring that diverse voices are heard and considered. By leveraging tools and platforms such as online surveys and interactive mapping applications, organizations can gather real-time feedback and insights from a broader audience. This leads to more informed decision-making, greater transparency, and a stronger sense of community ownership in the outcomes of participatory processes.

Moreover, the use of digital participation tools fosters a more dynamic and collaborative environment. Tools like collaborative document editors, social media channels, and discussion forums facilitate continuous dialogue and idea exchange among stakeholders. They also allow for the efficient collection and analysis of large volumes of data, helping to identify trends and address community needs more effectively. Many types of digital tools can be used for stakeholder participation, and they can be evaluated from different perspectives, e.g. on their functionality, flexibility and value, on the level of participation they allow for, or the technology the use. Some categorisations of participatory planning digital tools include GIS, social media, games, collaboration, Augmented Reality (AR) and others.

The module is intended to familiarize students with the main concepts of digital participatory planning tools and provide basic knowledge in a variety of topics. In more detail, it aims to help students:

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- develop a basic understanding of the concept of digital PPL tools
- familiarize themselves with the different types and categories of digital PPL tools
- identify and effectively use appropriate digital PPL tools
- Understand the value and potential use of different digital PPL tools
- comprehend the challenges in the implementation of digital PPL tools

2. Keywords

Digital Tools; Participatory Planning; Citizen Engagement; Inclusive Participation; Collaboration

3. Content

3.1. Overview

Digital participation tools have become pivotal in enhancing stakeholder engagement across various sectors, including urban planning, policy-making, and community development. These tools enable inclusive participation by bridging geographical and demographic gaps, ensuring that diverse voices are heard and considered. By leveraging platforms such as online surveys and interactive mapping applications, organizations can gather real-time feedback and insights from a broader audience. This leads to more informed decision-making, greater transparency, and a stronger sense of community ownership in the outcomes of participatory processes.

Moreover, the use of digital participation tools fosters a more dynamic and collaborative environment. Tools like collaborative document editors, social media channels, and discussion forums facilitate continuous dialogue and idea exchange among stakeholders. They also allow for the efficient collection and analysis of large volumes of data, helping to identify trends and address community needs more effectively. By integrating these tools into their strategies, organizations can enhance the overall efficacy of their participatory initiatives, ensuring they are responsive, adaptable, and inclusive of all stakeholder perspectives. Digital tools provide multiple opportunities for stakeholder participation. Digital tools can be used online or locally, that is, on the user's own digital device (computer, mobile phone, tablet, etc.). In this sense we can define digital tools for stakeholder participation *as websites or applications that enable stakeholders to engage in a project and that are accessed* via *a digital interface or otherwise rely on digital technology to function.*

Many types of digital tools can be used for stakeholder participation, and they can be evaluated from different perspectives, e.g. on their functionality, flexibility and value, on the level of participation they allow for, or the technology the use. Some categorisations of participatory planning digital tools are described below.

Marten van Buiten (2021) identifies the following categories of digital tools:

- **Information and communication technology:** Information and communication technologies (ICTs) form a broad spectrum of digital tools that facilitate

communication through technology. Social media provide a new platform for participation, communication, and collaboration and allow for the inclusion of the voices of different social groups, even if these groups do not formally participate in the planning process. Another ICT is the videoconference. At first sight, videoconferencing as a means for the public meeting shows many potentials. Planners save time, making them more effective. In addition, organising public meetings online saves costs in terms of renting space and providing refreshments for the attendees. Moreover, it also benefits the participants, as they save travelling time and might experience a lower barrier to attend a meeting. On the other hand, videoconferencing might raise privacy issues. In addition, the lack of non-verbal communication might also have negative implications.

- **Planning Support Systems:** Planning Support Systems (PSS) have the potential to be used in planning for many purposes, such as analysing planning contexts, supporting planning processes and modelling planning outcomes. A broad definition of a PSS is: 'any kind of infrastructure which systematically introduces relevant information to a specific process of related planning actions.'

- **Public participation geographical information systems:** The field of PSS can be distinguished in many sub-categories. One category in PSS is Public Participation Geographical Information Systems (PPGIS). PPGIS make use of geographical information systems (GIS) to support participation processes. One of the main advantages of PPGIS is that it seems to attract more participants and therefore enhances inclusivity. Other advantages are that it fosters individual participation, conveniently reveals spatial conflicts of participants, and provides local, high-quality data. Moreover, the use of GIS allows data to be integrated into existing systems, the results are easier processed and analysed. In contrast to the advantages of PPGIS, also several disadvantages have been observed and identified. First, there is a potential lack of transparency. Furthermore, it brings several methodological and technical challenges, and there is the potential to misuse the data.

- **Digital participatory platforms:** Often mentioned barriers to participation in literature are non-trivial (long travelling time to the city hall for public meetings, taking time off from work, unattractiveness of a survey). Digital participatory platforms (DPPs) offer a solution to such barriers, as participants can participate whenever they want and control the amount of time they want to spend on participation.

Toukola S. & Ahola T. (2022) describe the following categories of digital tools for stakeholder participation:

- ***BIM:*** Collaboration tools that facilitate design and construction management over the project's life cycle.
- ***Games:*** Role-playing games, multiplayer games, Second Life Digital games that can be utilized in stakeholder participation

- ***3D visualisation, AR and VR:*** Tools that create and present urban development plans (e.g. buildings and landscapes) in as realistic a fashion as possible
- ***Social media platforms (e.g. Facebook, Instagram, Twitter):*** Tools that can be used to inform and communicate with (i.e. engage) stakeholders
- ***M-participation:*** The use of mobile devices to broaden the participation of citizens and other stakeholders by enabling them to connect with each other, generate and share information, comment and vote.
- ***PPGIS (e.g. Google Maps):*** Field within geographic information science that focuses on ways the public uses various forms of geospatial technology to participate in public processes, such as mapping and decision-making

Shahin's (2020) table shows three categories of digital tools and breaks down their features and participation levels.

Table 3.1: Categories of Digital Tools (source: Shahin A., 2020)

Technological features	Stage of participation	Organization	Levels of Citizen government relationship	Tools Categories
Visualizations, analytics, documents, images, and videos.	Informing, consultation, placation	Planner led	Information sharing, interaction	Informative, interactive
Comments, opinions, discussions, submitting ideas, surveys, interactional maps, geo-tagged photos, GPS tracking, and sensing.	Partnership, delegation of power, citizen control	Participant led	Co-production, self organisation	Self organised

Estefam A. (2021) proposes a more detailed categorisation of digital participation tools, as is shown from the following diagram and table.

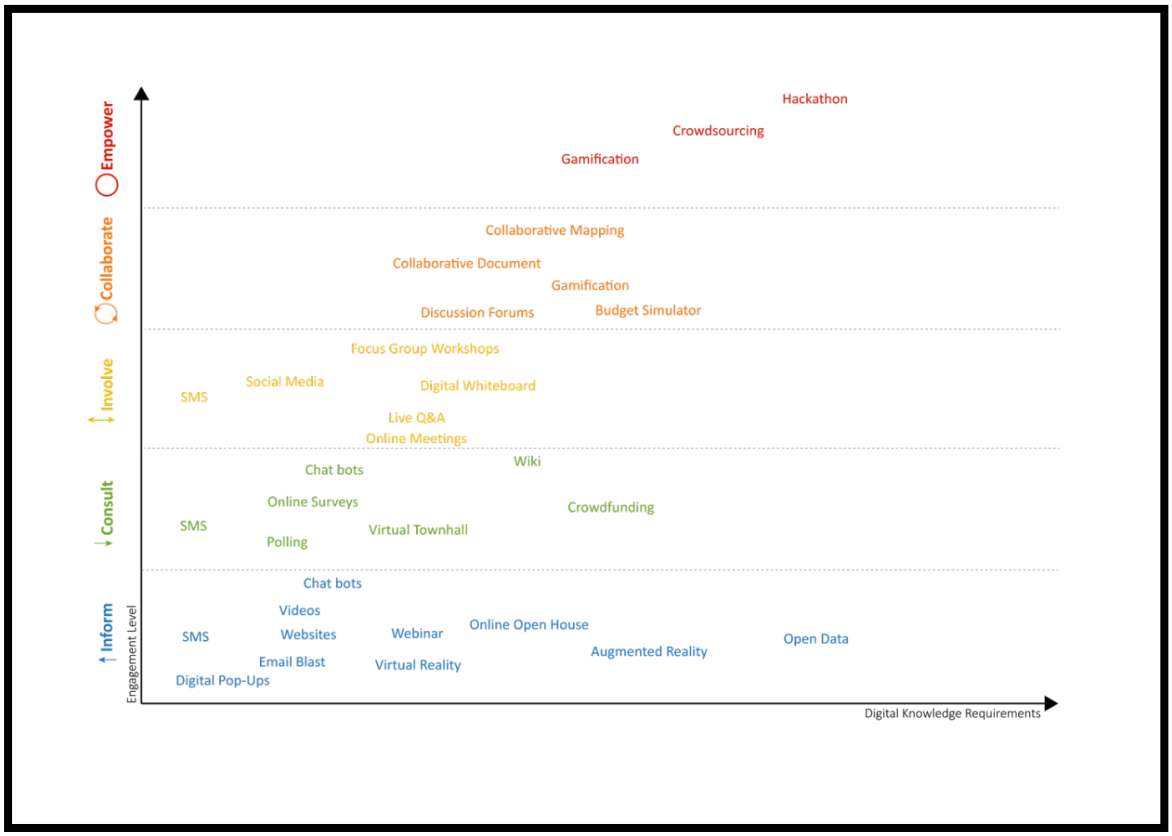


Figure 3.1: Strategic overview of digital public participation tools for urban planning (source: Estefam A., 2021)

Table 3.2: Digital Tools and their potential use in public participation (source: Adapted from Estefam A., 2021)

Tool	Definition	Common Uses in Urban Planning	Potential for Use for Public Participation
Augmented Reality	An interactive experience where objects of the digital world appear in the real world through the use of an interface such as smartphones or computers.	Used to visualize the new land use regulation or new buildings and constructions.	Can be used to promote a more realistic image of urban projects and enable informed decision-making by community members.
Budget Simulator	Website or app that allows the modification of a project or product budget according to the public specifications.	Used by government agencies to simulate the use of the budget in public projects.	Can be used to map community priorities according to their allocation of resources
Chatbots	Software or application that conducts an online conversation with the public.	Used to provide quick automatic responses to the community.	It can generate data on the most frequently asked questions and topics of most interest to members of the community.

Collaborative Mapping	Web mapping allows interaction with the public, by allowing user- interactive content.	Used to georeference community feedback and to analyse clusters of concerns to better inform outcomes and decision-making based on the geography of public inputs.	It must be easily accessible and It can be integrated with "offline" maps placed in places of high circulation or community organizations.
Crowdfunding	The practice of collaboratively funding a project.	Rarely used in urban planning, except for small projects and generally with a very strong community nature.	Can increase the feeling of ownership and public participation, through community empowerment.
Crowdsourcing	Collaborative gathering of data, ideas, or information to create a task or project.	Rarely used in urban planning. There are some institutions and think tanks conducting crowdsourcing incubators for urban planning.	Can provide creative solutions to urban problems and provide citizens with a political voice through collective problem-solving.
Digital Pop Up	Virtual or in-person experience that is placed on a façade of a building or website that creates more appealing and public-facing content.	Used to give visibility to changes that will occur in neighbourhoods and to create appealing visualizations for the urban project.	Interactive models can be used to increase integration with the public, such as integrative panels or integration with virtual reality.
Digital Whiteboard	Digital board that allows users to write their opinion or post sticky notes in an online environment.	Used to simulate the placement of sticky notes during online public meetings and workshops.	It can be used to carry out collective mapping and ideation sessions.
Discussion Forum	Online discussion site, where members can ask questions and hold conversations.	Used to promote interactive online questions and answers and information sharing, by and from the public.	Can have greater participation of government agents and urban planners interacting, mediating, and responding to questions from the public.
Focus Group Workshop	An online discussion that only a few members, usually up to 10, participate and engage in discussion.	Used to ensure greater interaction between participants.	Can be a way to make culturally adequate community engagement sessions, with sessions held in several languages.
Gamification	Application of game strategies into a project, process, or program.	Still little is used in urban planning due to the technical difficulties that it may generate in the participants. When used, they generally produce a high level of participation (empowerment).	Use simple games, with constant facilitation and encouragement to the participants. Conduct brief training (or provide explanatory video) before the engagement session to ensure that participants understand the game.

Hackathon	An event in which a large number of people engage to investigate and decide about a program or plan.	Rarely used in urban planning. But used to generate ideas and results related to technology and programming.	Determine specific problems within an urban project or area and invite members of the community, schools, or universities to discuss and solve the problems as a group.
Online Meeting	Online discussion in which participants engage in a discussion.	Used for almost all urban projects, to explain project concepts and collect inputs from the community.	Can be combined with other more engaging activities, such as polling, digital whiteboard, and even gamification or collaborative mapping.
Online Open House	Online environment or website that offers interactive information about a project or plan.	Made to simulate the experience of the open house of projects. Generally, simulate rooms with project boards, in which the user can "walk" and check image by image.	The open house offline image should be left aside and focused on the online experience, which should be engaging and interactive. It can be reached through 3D or 360o images, or interactive panels.
Online Surveys	An online questionnaire that community members can complete through the internet.	Used to collect information about community members and their opinion on specific issues.	-----
Open Data	Free availability of data.	Used to give access to urban resources and data, which can be used for personal projects or a better understanding of a specific place or neighbourhood.	They can be mapped in an interactive web mapping and easily accessible to users with little technological knowledge.
Social media	Websites and apps that allow people to connect and share information.	Used to share information, videos, and updates about projects. Also used to provide a dialogue between public agencies and communities.	It can be a tool to measure the feeling of the community concerning a given project and also to carry out two- way communication with community members.
Virtual Reality	Simulated three-dimensional experience of images and spaces.	Little used in urban planning, generally placed in exhibition spaces on urban projects, where the user can experience what the project will look like after its completion.	Can be used to promote a more realistic image of urban projects and enable informed decision-making by community members.
Virtual Townhall	An online meeting where politicians and decisionmakers meet and interact with the public.	Provide information to communities in real-time.	------

Webinar	Seminar conducted online.	Promote one-way communication to inform about urban projects and plans.	Should transition to an online meeting after the urban project and plan explanation is completed, to enable greater public participation.
Wiki	A website that allows collaborative editing.	Rarely used in urban planning.	They can be used to translate complex urban planning terms, ensuring comprehension by the general public.

Using digital tools in the planning process can offer numerous advantages, but it also comes with several challenges that need to be addressed for effective implementation. Here are some of the main challenges:

- **Access and Digital Literacy**: Not all stakeholders may have equal access to digital tools or possess the digital literacy required to effectively use them. This can lead to disparities in participation and feedback, potentially excluding important voices from the planning process.
- **Data Privacy and Security**: Ensuring the privacy and security of data collected through digital tools is crucial. There is a risk of data breaches or misuse of personal information, which can undermine trust in the process and discourage participation.
- **Technical Issues**: Digital tools can sometimes be prone to technical problems, such as software glitches, connectivity issues, or compatibility problems with different devices. These technical challenges can disrupt the planning process and frustrate users.
- **Engagement and Interaction**: While digital tools can facilitate engagement, they may not always replicate the depth of interaction and personal connection achieved through face-to-face meetings. Building trust and fostering meaningful dialogue can be more challenging in a digital environment.
- **Cost and Resource Allocation**: Implementing digital tools can require significant financial and human resources, including software licenses, training, and technical support. Ensuring that these resources are effectively managed and allocated can be a challenge, particularly for smaller organizations or communities.
- **Technological Change**: The rapid pace of technological advancements means that digital tools can quickly become outdated. Keeping up with new technologies and continuously adapting to changes can be demanding and requires ongoing investment.

Addressing these challenges involves a combination of providing adequate training and support, ensuring equitable access, maintaining robust data security practices, and fostering a culture of continuous learning and adaptation. By carefully managing these aspects, organizations can maximize the benefits of digital tools in the planning process while minimizing potential drawbacks.

Taking into consideration the various categorisations of digital tools, as well as the plethora of available tools for participatory planning, a broader (and more practical) categorisation will be used in the context of this module. These categories, along with examples of actual tools are described in the next section.

3.2. Review of common Digital Participation Tools

Geographical information systems

Geographical information systems (GISs) are automated systems for the capture, storage, retrieval, analysis, and display of spatial data. The municipality and the contractors and consultants can use GISs to engage the public, then it is called public participation geographical information systems (PPGISs) which is according to Tulloch (2008) 'field within geographic information science that focuses on ways the public uses various forms of geospatial technologies to participate in public processes, such as mapping and decision making'.

Soft GIS: SoftGIS refers to a collection of internet-based surveys which allow the locality-based study of human experiences and everyday behaviour. SoftGIS enables the combination of 'soft' subjective data with 'hard' objective GIS data.

Participatory mapping is a process in which community members contribute their own experiences, relationships, information, and ideas about a place to the creation of a map (Cochrane and Corbett, 2018).

Tools / Resources

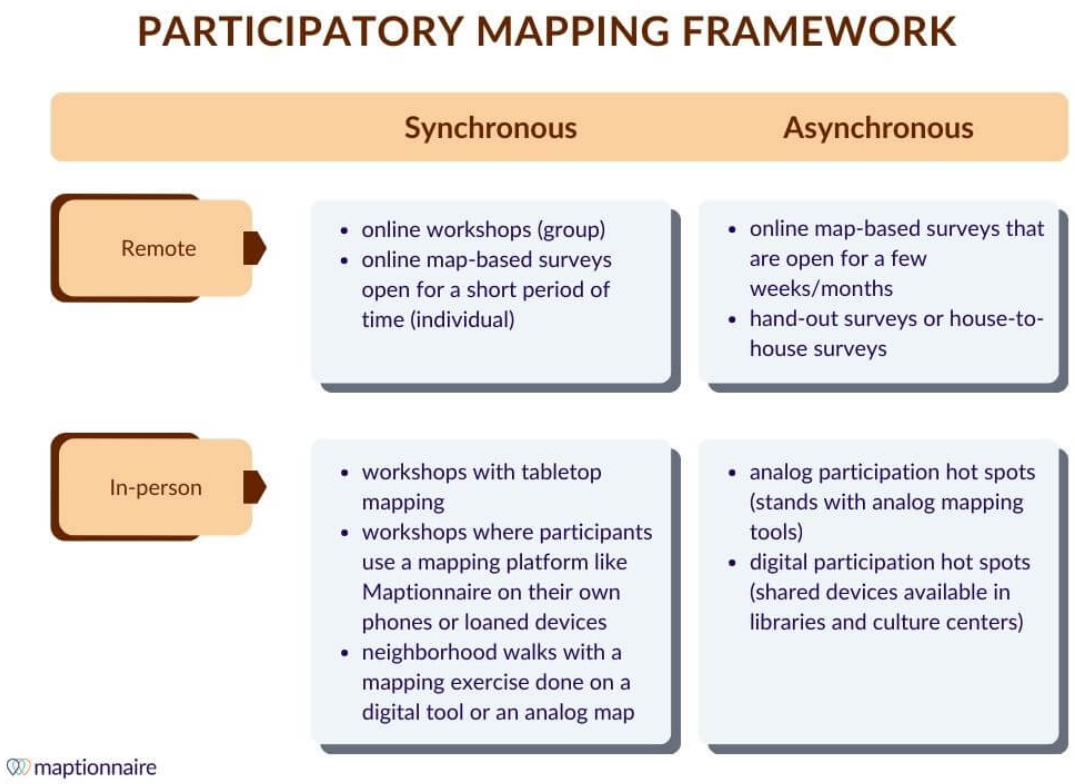
Online mapping surveys, in the form of web-based Public Participation GIS, have been used in many places the world over to engage people in spatial planning, particularly in cities. They are meant to be easy to use for virtually anyone acquainted with Google Maps or Bing Maps. Although a lot of online mapping survey services enable ordinary people to participate in mapping, and some source codes for software are Open Source, most of them remain license-based (Software as a Service -SaaS). Most existing online mapping services have emerged since the 2010s, so this is a rather new phenomenon for spatial planning. Here are some examples.

Maptionnaire: The research-based software Maptionnaire is one of the most famous PPGIS to have been applied in many planning contexts, mostly in Finland, but also internationally. It has received extensive coverage in the academic literature, as most people running the company are (or were until recently) researchers at Aalto University. Over time, it has been used to engage thousands of urban residents and has also been customised to engage target groups in urban planning.

Features

- Map-Based survey elements
- General survey elements
- Marketing & Outreach
- Analysis and reporting
- Security
- Support
- Data Compatibility & Integration
- Internal Process Management
- Website builder (CMS)
- Interactive storytelling
- Engagement frontpage
- Process timeline
- Participatory budgeting process management
- Participatory Budgeting project frontpage
- Advanced voting tools
- Voter authentication

Table 3.3: Types and tools of participatory mapping (source: https://www.maptionnaire.com/blog/participatory-mapping-best-practices-tools-examples)



Map-Me ("Mapping Meanings") is an free online Participatory GIS (PPGIS) for the creation of online surveys for the collection of vague spatial data. Based upon a "spray and say" approach, Map-Me uses an 'airbrush'-style interface (the "Spray can") to allow participants to "spray-paint" on to a Google Map in order to answer vague spatial questions (e.g. "Where you think...?") without being required to enforce precise boundaries onto their data. This approach is designed to be more reflective of the way in which people think about the world, and so creates a richer and more representative dataset than is possible using traditional point, line and polygon-based approaches. Map-Me uses a custom "Multi-Point-and-Attribute" data format, whereby each individual dot of paint is stored independently in the database and is linked to several attributes. Please see the Huck et al. (2014) paper for more information.

Website: https://map-me.org/

ArcGIS Online is a secure and scalable software as a service (SaaS) for your geospatial workflows. Improve decision-making by collecting and managing data, analysing it, and easily sharing maps and apps within a connected and collaborative web geographic information system (GIS).

Features

- User data
- Make maps

- Perform real-time and big data analysis
- Share data
- Collaborate

Website: https://www.esri.com/en-us/arcgis/products/arcgis-online/overview

Participatory Governance Tools

Participatory Budgeting : People can formulate and present proposals of public interest for the allocation of such budget and, once revised, these are up for voting. Finally, based on the results of a popular consultations, administrators commit to **bringing to reality the winning proposals** .

Civic crowdfunding: Civic crowdfunding (CC) is similar to Participatory Budgeting in the sense that it involves a significant collaborative communication element, with the public producing ideas and voting on projects, but is very different in that voting is conducted through personal financial donations. Public involvement is instigated through the possibility of investing public money, and defining the rules that allow a project to qualify for public

Tools / Resources

Your Priorities offers open-source idea generation and deliberation. Connecting governments and citizens by bringing people together to debate and prioritize innovative ideas to improve their communities. Your Priorities is a cloud-based online idea generation, deliberation & decision-making platform connecting governments and citizens, evolving since 2008 in thousands of projects, connecting millions of citizens to governments.

Features

- Effective online idea generation
- Constructive deliberation solution
- Automated content management
- AI
- Flexible user inputs
- Flexible authentication
- Flexible rating systems

Website: https://www.citizens.is/your-priorities-features-overview/

https://yrpri.org/domain/3

With Zencity, government and law enforcement leaders make informed, transparent, and effective decisions that earn the trust of the communities they serve.

Features

- Leading-Edge AI
- Tailored benchmarks
- Auto alerts & email roundups
- Clear, filterable dashboards
- Anonymous participation
- 40+ languages
- Powerful report builder
- On-demand pulse surveys

Pricing: On demand / personalised

https://zencity.io/

Informative Tools

Informative participatory digital tools are mainly tools that facilitate the diffusion of information to citizens and stakeholders. They can help keep the public informed but usually have limited interaction capabilities.

Tools / Resources

MySidewalk. is a city intelligence tool designed to help local government analysts get data out of silos and into operational, strategic, and policy decisions. Its mission is to empower city leaders and public with the most complete, clear, and real-time understanding of their communities, so they can improve and innovate together. Its features are spatial data collection, interactive maps, visualization, instant storytelling, custom reports, data dashboards, charts & graphs, geospatial analysis, correlations, comparisons, trends and projections.

Website: www.mysidewalk.com

Citizen Space**:** The digital citizen engagement platform, trusted by government around the world. Citizen Space transforms citizen participation processes, including:

- Spatial planning
- Formal policy consultation
- Permitting and licensing
- Publishing statutory notices
- Resident and user surveys
- Transport and travel strategy
- Environmental and land management
- Flood strategy and climate response

First, see it in action with a guided demo. Then ask any questions you've got and build up a good understanding of the platform. Then decide if it's the right choice for you. Simple subscription pricing keeps costs predictable

- Talk to a friendly team who work with government every day

- No high pressure selling - decide at your own pace

Website: https://www.delib.net/citizen_space

CTwalk Map is an interactive open source / open data web tool that unveils the potential of social encounters and access inequities in urban neighbourhoods by leveraging open-access data. Drawing on information from various open sources, including population, location, and pedestrian network data, the tool estimates the number of individuals across different age groups who can reach city destinations within a 5 or 15-minute walk, highlighting opportunities for social cohesion and disparities in access.

Website:
https://miliasv.github.io/CTwalkMap/?city=amsterdam#12.41/52.3483/4.89623

https://research.tudelft.nl/en/prizes/ctwalk-map-best-demo-award

Info - CTstreets (miliasv.github.io)

Interactive tools

adhocracy+: A free platform from a non-profit association. Register your organization on adhocracy+ and start your own participation projects! Click below and with a few simple steps you will have your very own page on adhocracy+.

Website: https://adhocracy.plus/

Citizen OS: a secure, free and open-source participation platform for us and the world, empowering organisations and communities to connect individuals from diverse locations and time zones. On the Citizen OS platform, you can discuss, vote and decide collectively on the topics that matter to you most. It's an open-source tool, and it's free for everyone–for always! Just log in and start a public or private discussion, to level-up your decision-making today.

Website: https://citizenos.com/platform/

The Commonplace citizen engagement platform is designed to help you reach your community, engage them in conversation, analyse their feedback and collaborate on future ideas. Use Commonplace as your online community engagement hub and build trust and transparency with local people.

Features

- Community management
- Email management
- Social media promotion
- Offline engagement
- Community heatmap

- Surveys
- Virtual Townhall
- Ideas wall
- Spatial analysis
- Trends Ai
- Custom reporting

Pricing: free basic 4-week plan / various plans

https://www.commonplace.is/

Games / Gamification tools

Computer games offer opportunities to generate 3D graphics and have educational potential. In Senegal, for example, a role-playing game was used in a park planning project: idea was that citizens participated by changing their roles and that helped them to have view of others' tasks which finally made it easier to find consensus in the project's decision-making. Other games, like the multiplayer game *Second Life*, which brings citizens into a virtual space, can also be used (Toucola & Ahola, 2008).

Tools / Resources

Decidim: Decidim the Game, is here to help design your participatory process. We know participatory processes can be boring and complex. Moreover, who knows if institutions are taking the participation of citizens seriously? But we think we can begin to change that through play. Let's play together to find a process that works for your participation, no stress just play.

Pricing: free version / 20€

https://wotify.eu/blog/t_premium_kit/democracy-is-fun-if-you-take-it-seriously/

GameTrification: the urban regeneration game. Through a mechanism of interpretation of the characters' wishes players will be able to "put themselves the shoes in of" different actors. The board game, which presents a map with significant places and spaces of a neighbourhood, is not only a play space, but a "square", a place of meeting and comparison between different values. The actions performed in the game modify the space and condition the equilibrium of the neighbourhood, making experience of its precariousness. Each transformation, in fact, always corresponds to a reaction of several characters who will be more or less satisfied, more or less interested by the change. It generates awareness and debate regarding transformations, disseminates information and stimulates the collective imagination regarding the future of the neighbourhood.

Website:https://www.dynamoscopio.it/portfolio_page/gametrification-gioco-rigenerazione-urbana/

Social Media Tools

Social media services like Facebook, Twitter, LinkedIn and Instagram are designed to connect people and to enable the sharing of information through interactions. Social media provide new opportunities for stakeholders and citizens to get informed, identify common interests, share opinions and demands, organise and coordinate operations. However, citizens' access to computers may be limited, and social media is used mainly by younger individuals, which may restrict the comprehensive stakeholder participation (Toucola & Ahola, 2008).

Tools / Resources

TalkLondon is an online community was set up in July 2012 so that City Hall could hear from Londoners about big issues that matter to them. It has since hosted most of City Hall's consultations: from clean air to housing, and from the London Budget to the recovery from COVID-19 to name a few. The more people we hear from on Talk London, the better informed our City Hall policy teams are. By actively reaching out to Londoners, we're aiming to make Talk London as reflective as possible of the London population. We love it when you spread the work about our community too!

Website: https://www.london.gov.uk/talk-london/

Decide Madrid: citizen participation platform of the Madrid City Council. In Decide Madrid you can make proposals, vote in citizen consultations, propose, support or vote on projects with participatory budgets, decide municipal regulations and open debates to exchange opinions with other people.

Website: https://decide.madrid.es/

The #stadtsache app is an innovative tool for collecting photos, sounds, videos, recording routes and counting things. The results can be assigned to specific tasks and actions and thus shared with other users of the app. This gradually creates a map that makes children and young people visible as city experts.

Website: https://www.stadtsache.de/

Self-organized tools

Tools / Resources

Unlimited Cities DIY will allow everyone to give their ideas for the public spaces of a neighbourhood and share them with the other city inhabitants. User-friendly, the app structures these ideas to communicate them to professional designers and local authorities. Unlimited Cities DIY will be a public design tool associated with an artificial intelligence that will enable to automatically structure the results collected on a large scale. The organised data will then be easily usable by policy makers. Free and playful,

the aim of the Unlimited Cities DIY app is for the digital to be at the service of citizens and associations, enabling them to participate directly in improving the quality of life of urban territories.

IMAGINE: Add the options and uses you want to a photo, comment on your proposal and invite others to participate..

SHARE; View users' ideas for your neighbourhood or your city, organise the proposals by theme, date...

DISCOVER: Discover the ideas of users around the world and compare the urban transformations envisioned in different countries.

EXIST IN PROCESS: Edit a report analysing the proposals conceived in your neighbourhood. The report is then given to elected officials to transform your city.

Website: http://unli-diy.org/EN/index.php

Ushahidi empowers people through citizen-generated data to develop solutions that strengthen their communities. The Ushahidi Platform helps communities turn information into action with an intuitive and accessible crowdsourcing and mapping tool. By enabling the rapid collection, management and analysis of crowdsourced information, Ushahidi empowers everyone–individuals, community groups, governments, activists, organizations–to create meaningful change. Ushahidi provides a free self-service plan.

Features: Collect, monitor, analyse, and respond to real time incidents and engage with stakeholders

Website: https://www.ushahidi.com/

Collaboration tools

Digital collaboration tools are exactly what they sound like – software that allows people to work together remotely over the internet. Although some of these applications try to do everything in one package, the most efficient and popular ones concentrate on completing a single kind of task. Based on their key features, collaboration software can be classified into:

- Communication software.
- Task management software.
- Document and content management software.

Tools / Resources

Miro is a collaborative online whiteboarding platform that allows youth to work together in a virtual space. It provides a versatile canvas for brainstorming, ideation, collaboration, and visual thinking. Miro facilitates interactive and engaging activities for youth participation in both remote and in-person settings. Miro:

- Promotes Engagement
- Fosters Collaboration
- Enhances Creativity
- Facilitates Remote Participation
- Visualizes Concepts

Website: www.miro.com

Google Docs is a powerful online word processing and business collaboration tool allowing users to create, edit, and share documents, spreadsheets, and presentations in real time. This online collaboration software is free and offers various features like different formatting options, the ability to insert images and links, and the ability to collaborate with others on the same document simultaneously. Plus, multiple users can track and update changes in real time.

Features

- A virtual collaboration tool that allows multiple users to work on the same document simultaneously
- All changes made to a Google Doc are saved automatically, so users can always access the latest version of the document
- Google Docs integrates seamlessly with other Google online collaboration tools like Google Drive, Google Sheets, and Google Slides
- This collaboration tool allows users to leave comments on specific sections of a document

Website: https://docs.google.com/

Trello is a popular project management and collaboration tool that allows individuals and teams to organize their tasks, projects, and to-do lists in a visual and intuitive way. With Trello, users can create boards representing projects or goals and populate them with lists and cards that can be moved around as tasks are completed or priorities change. This collaboration tool offers features like due dates, checklists, comments, and attachments to help users stay organized and collaborate effectively with their team.

Features

Users can create multiple boards to organize their projects and tasks visually

Each board can have multiple lists representing different stages or categories of tasks

Users can create cards for individual tasks and move them between lists as they change the status

Website: https://trello.com/

MuVAM This software is a game-changer, eliminating the dreaded analysis paralysis that plagues many teams and enabling them to work together effectively towards common goals. MuVAM empowers teams to make informed decisions efficiently. Based on Strategic Choice Approach methodology, our software facilitates group

discussions and ensures all perspectives are heard. It also offers decision-making frameworks via our advanced AHP model and per-case customized voting options to streamline the process. With our software, teams can make more informed, data-driven decisions while saving time and increasing transparency.

Features

- Intuitive interface
- Collaborative tools
- Asynchronous mode
- Collection and Analysis

Website: https://get.muvam.net/

Slido is an easy to use **Q&A and polling platform for meetings and events** . It allows meeting and event organizers to crowdsource top questions to drive meaningful conversations, engage participants with live polls and capture valuable event data. Bring more interaction into your Teams meetings with Slido's **free live polls, quizzes and Q&A**.

Features

- Live Polls. meetings and events more interactive by polling audience in real time.
- Live Q&A
- Word Cloud
- Quizzes
- Surveys
- Analytics

Website: www.slido.com

Digital Pedagogy Toolkits

Digital pedagogy toolkits, while not directly connected to public participation and participatory planning, may be very useful for the educational process. Some well-known and freely available digital pedagogy toolkits are available on-line. The most common ones are described below:

Toolkits

Digital Pedagogy Cookbook (Erasmus+)

The project aims to introduce the digital pedagogy to educators using the recipe metaphor and to make a meaningful contribution to their up-skilling. Project's main focus is the digital competences of educators. The project has several objectives but is primarily intended to build upon and extend the European Framework for the Digital Competence of Educators (DigiCompEdu). It should also provide all the theoretical and practical information needed by educators in order to understand digital pedagogy and improve their digital competences. They will ultimately be able to create, evaluate and share their own digital 'recipes' s.

The use of a cooking and recipe metaphor is designed to ensure better understanding of the project, by giving a practical step by step guide to follow to create the result required. This will be a comprehensive and, above all, a practice-driven guide In addition, it is intended to empower and support educators to strengthen their performance through the development of an online community where educators can effectively access, share and create knowledge, as well as strengthen their commitment to the profession.

http://digitalpedagogycookbook.eu/

http://digitalpedagogycookbook.eu/?page_id=918 (toolkit)

Digital Wellbeing Educators (Erasmus+)

Digital Wellbeing Educators has a clear objective: increase the capacity of lecturers and teachers to integrate digital education in a way that promotes the digital wellbeing of students. Through building teacher capacity, the project will improve students' abilities to manage their online time, make the most of digital learning, critically assess the media they consume and create, and become responsible, confident digital citizens.

https://www.digital-wellbeing.eu/

https://www.digital-wellbeing.eu/learning-portal/teachers-digital-pedagogy-toolkit/ (toolkit)

JISK Digital pedagogy Toolkit

The digital pedagogy toolkit has been developed by subject specialists in Jisc's digital practice team in collaboration with feedback from the UK's higher, further education and skills sectors.

The key aims of this project include:

- Support academic staff to make informed choices about how they use technology to underpin the curriculum
- Provide ideas and inspiration for how staff can overcome barriers to using technology
- Promote current approaches in curriculum design theory to ensure technology meets the learning outcomes of the course, module or programme of study
- Dispel a range of misconceptions about what can and can't be achieved by using technology

It is not the intention of this toolkit to provide an overview of a range of digital tools that practitioners can use in a variety of blended learning contexts.

The digital pedagogy toolkit takes a challenge-based approach by presenting you with a series of scenarios describing areas of digital practice you may want to develop. These scenarios are based in real-world situations that institutions have been grappling with, such as delivering live online learning with students, designing engaging VLE courses or managing digital communities of practice.

This is by no means an exhaustive list of all of the scenarios an institution is likely to encounter when using digital to support the curriculum. As digital evolves, so does our thinking and new ways of utilising digital to best effect will emerge. However, the scenarios included in this toolkit are intended as a starting point to help inform the kinds of considerations to take into account when using digital to support the pedagogy.

Website: https://www.jisc.ac.uk/guides/exploring-the-digital-pedagogy-toolkit

EPALE Resources

EPALE is a European, multilingual, open membership community of adult learning professionals, including adult educators and trainers, guidance and support staff, researchers and academics, and policymakers. EPALE is funded by the Erasmus+ programme. It is part of the European Union's strategy to promote more and better learning opportunities for all adults. EPALE does this by supporting and strengthening the adult learning professions. It enables members to connect with and learn from colleagues across Europe, through its blog posts, forums, the Partner Search tool, complemented with physical gatherings. EPALE provides a wealth of high-quality, accurate information relevant for adult learning practitioners. Over time, more and more of this content should be provided by members themselves.

The **EPALE Resource Centre** is a bank of materials that will help keep you up to date with adult education best practices and reference documents. We publish **case studies** of innovative adult education approaches, **reports** and **policy documents** as well as **magazine** and **newspaper articles.** You will also be able to find open education resources as well as training and learning materials so you will always have access to the best tools to help you in your everyday work.

Selected resources:

- EPALE Resource Kit - A deep dive into the EPALE thematic focuses: Digital Transition and the opportunities of blended learning: https://epale.ec.europa.eu/system/files/2022-01/EPALE%20Resource%20Kit%20-%20A%20deep%20dive%20into%20the%20EPALE%20thematic%20focuses%20Digital%20Transition%20and%20the%20opportunities%20of%20blended%20learning.pdf#
- GoBeEco: Play the game and change your lifestyle in the direction of environmental friendliness: https://game.gobeeco.eu/
- EPALE Resource Kit - Engage. Skills for democratic life: https://epale.ec.europa.eu/system/files/2023-07/EPALE_ResourceKit_Engage_0.pdf#

Other resources

Some other relevant resources, that may complement the tools and methods described previously, include:

Peoplepowered.org (https://www.peoplepowered.org/) offers a comparative database of a large number of participatory platforms. The third edition of the Digital Participation Tool Ratings evaluates 30 comprehensive tools that have been used to support digital participation all over the world. The ratings are conducted by an independent Technology Review Committee composed of six experts in participation technology, balanced in terms of gender and geography. The full list is available here: https://airtable.com/appDeg74z2IIxewff/shrD7FBtZ6jdkbZoF/tbl76Tm6vb62urelr?viewControls=on

These ratings are the third edition of the evaluations first launched in 2022, developed with a revised methodology, which can be viewed in the changelog table on this page. Further guidance about how to use these tools is available at Guide to Digital Participation Platforms and Online Training on Digital Participation.

A similar database is also provided by Democracy Technologies (https://democracy-technologies.org/). The database is available here: https://democracy-technologies.org/database/

A list of relevant resources is provided by Net Zero Cities (https://netzerocities.app/resource-2139):

ACROSS**:** aims to deliver user-centric design and implementation of cross-border services ensuring data sovereignty and compliance to European regulations. It leverages the advanced capabilities of cloud services, privacy preservation, semantic interoperability, and web and mobile technologies to build the next-generation privacy-aware public services ecosystem. Use cases are applied in Greece, Germany and Latvia. (Horizon 2020, Feb 2021 - Jan 2024)

WeGovNow**:** has developed a civic engagement platform that supports communication and collaboration between citizens, civil society and public administrations and aims to address local policy challenges in a participatory manner. Pilots include: London Borough of Southwark (UK), Turin (Italy) and San Dana di Piave (Italy). (Horizon 2020, Feb 2016 - Jan 2019)

DE4A**:** aims to provide Single Digital Gateway to access services across borders resulting in efficiency gains and reduction of administrative burden and establish culture of co-creation, transparency, accountability and trustworthiness. “Studying abroad” pilot is applied to Greece, Germany and Latvia. “Business abroad” pilot is applied to Austria, Netherlands, Romania and Sweden. “Moving abroad” use case is related to Luxembourg, Spain and Portugal. (Horizon 2020, Jan 2020 - Dec 2022)

WAI-Guide**:** Web Accessibility Initiative provides implementation guidance and training, awareness raising and tooling support for accessible content authoring and addresses gaps in accessibility standardization. (Horizon 2020, Jan 2019 - June 2022)

inGOV**:** aims to develop and deploy integrated public services framework and ICT web, mobile, GIS and AI-based virtual assistant tools to support co-creation and governance for more inclusive services for citizens and businesses. For example, tourism, tax collection, virtual assistance, disabled citizens public transport discount cards issue and renewal, and common family household public service. Pilots include: Austria (Lower Austrian region), City of Bjelovar (Croatia), Region of Thessaly (Greece) and Malta. (Horizon 2020, Jan 2021 – Dec 2023)

mGov4EU**:** aims to provide an open ecosystem for secure and inclusive mobile cross-border government services. Innovative electronic identity management, storage of data and the exchange of documents are key elements and are in-line with Single Digital Gateway Regulation (SDGR) and eIDAS Regulation on cross-border identification and authentication (SSO and privacy-preserving identity and consent management). Enhanced infrastructure services are being piloted for electronic voting, smart mobility and mobile sensing. (Horizon 2020, Jan 2021 – Dec 2023)

WeLive**:** an open ICT and co-creation framework aimed to adopt a more open model of design, production and delivery of public services leveraging between public administrations (PAs), citizens and entrepreneurs. Pilots included: Bilbao (Spain), Novi Sad (Serbia), Trento (Italy) and Helsinki region (Finland). (Horizon 2020, Feb 2015 – Jan 2018)

AI4PublicPolicy**:** aims to leverage all stakeholders' participation and feedback for the development and optimisation of automated, transparent and citizen-centric public policies. Cloud-based data-driven, AI/ML are core disruptive technologies applied to generate useful information for decision making. Main focus is on buildings' energy efficiency, smart water infrastructure monitoring and management, evidence-based policy recommendations and resource allocation for departments, assessment of policies related to city infrastructure and urban mobility with economic implication. Pilots include: Athens (Greece), Genoa (Italy), Nicosia (Cyprus), Lisbon (Portugal) and Burgas (Bulgaria). (Horizon 2020, Mar 2021 – Feb 2024)

PolicyCLOUD**:** aims to harness the potential of data-driven policy modelling, creation and implementation by using big data, AI/ML and cloud technologies, and leveraging user participation from citizens and communities [14]. Main focus is on policies related to agri-food, urban environment, radicalisation and policies for citizens. Pilots are set in Sofia (Bulgaria), Aragon region (Spain), the Borough of Camden London (United Kingdom) and Italy. (Horizon 2020, Jan 2020 – Dec 2022)

TwinERGY: aims to develop a digital twin intelligence for optimising demand response for energy ecosystem (residential buildings) and enabling citizens to actively adapt their consumption to market fluctuations with the help of digital intelligence. Pilots include: Bristol (UK), Steinheim (Germany), Sardegna (Italy) and Athens (Greece). (Horizon 2020 Nov 2020 – Oct 2023)

SHOTL**:** provides on-demand, flexible, affordable and collective transport solution. Alpha test was carried out in Barcelona that showed SHOTL's market potential. (Horizon 2020, Dec 2016 – May 2017)

Smarticipate: built on the experiences of FP7 UrbanAPI project, aims to make use of open and auxiliary data to visualise a digital model (2D and 3D) of a neighbourhood or a building or a selected area through a web portal and generate calculated feedback for planning interventions introduced by citizens. Smarticipate provides citizens access to city data and enables them to engage with other citizens and local authority, and

support city decision-making processes. Pilot cities included: Rome (Italy), Hamburg (Germany), and Royal Borough of Kensington and Chelsea, London (UK). (Horizon 2020 Feb 2016 – Jan 2019)

DUET**:** aims to develop digital urban twin for smart decision making by providing real time information about urban events to planner so that they can react and also use this information for long-term policy making. Their focus is on transport, mobility, environment including air quality and noise, health, spatial planning and public engagement. The pilots include: Flanders region (Belgium), Athens (Greece) and Pilsen (Czechia). Their demo website is available at: https://citytwin.eu/. (Horizon 2020, Dec 2019 – Nov 2022)

OrganiCity**:** aimed to provide a service for experimentation with city data by using various civic co-creation tools and technologies. Aarhus (Denmark), London (UK) and Santander (Spain) led the development of Experimentation-as-a-Service facility followed by over 35 experiments in various other cities. (Horizon 2020, Jan 2015 – June 2018)

UserCentriCities**:** aims to build a platform for local authorities to shape the future of digital public services by assessing and comparing their performance with their peers (e.g., an online benchmarking dashboard). A user-centric services repository across different European cities such as openbudgets.brussels, Milano Partecipa, Murcia Citizen App, MyEspoo, etc. provides useful examples. (Horizon 2020, Dec 2020 – May 2023)

iKaaS**:** intelligent Knowledge-as-a-Service aimed to build secure and privacy-preserved cross-border (EU and Japan) B2G, B2B and B2C services on multiple clouds, big data and IoTs. Scenarios and pilots included: service of environmental health (Madrid, Spain), ambient assisted living, and town management and health support service (Tago-Nishi, Japan). (Horizon 2020, Oct 2014 – Sept 2017)

DECIDO**:** aims to provide analytical tools and cloud services to empower data-driven policymaking and at the same time involving citizens and local communities in co-creation activities to support better targeted policies. Policy focus is on forest fire and evacuation policy, emergency policies such as flood, food waste prevention, refugees, and power outage management. Pilots include Kajaani (Finland), Turin (Italy), Halki (Greece) and Aragon region (Spain). (Horizon 2020, Mar 2021 – Feb 2024)

O4C**:** aimed to empower citizens to make meaningful use of open data through opendatalab platform and a co-design process (e.g., hackathons) with citizens, IT developers, public administrations, and start-up companies to design and develop new public services to improve urban quality and various aspects of everyday life. Pilots included: Copenhagen (Denmark), Karlstad (Sweden), Rotterdam (Belgium), Milano (Italy) and Barcelona (Spain). (Horizon 2020, Jan 2016 – June 2018)

Mobile Age: aimed to ensure inclusion of senior citizens in mobile-based open government public services through an open senior citizens public service engagement platform (OSCPSEP) [15] and mobile applications. It supported civic participation and helped them benefit from open government data, mobile, web and cloud technologies. Pilot sites included: South Lakeland (UK), Bremen (Germany), Zaragoza (Spain), Region of Central Macedonia (Greece). (Horizon 2020, Feb 2016 – Jan 2019)

URBANAGE: aims to support data-driven long-term sustainable planning and decision making by ensuring ageing population can remain engaged in decision-making

processes and develop an inclusive co-creating strategy that utilises multidimensional big data analysis modelling and simulation with AI, visualisation through gamification, and digital twins. Piloting planning systems are from three cities: Helsinki (Finland), Santander (Spain) and Flanders (Belgium). (Horizon 2020 Feb 2021 – Jan 2024)

CO3**:** developed an economically sustainable model for Public Administration/citizens interaction based on disruptive technology. It assessed the benefits and risks of blockchain, augmented reality, geolocated social network, interactive democracy tools, and gamification, in the co-creation, co-production and co-management of public services with citizens. The technologies were piloted in Paris, Turin and Athens, providing insight on their impact on criteria such as citizen engagement, value of services produced and economic sustainability, privacy and data protection. (Horizon 2020, Jan 2019 – Dec 2021)

4. Classroom discussion topics / case studies

Topics that can be discussed in the classroom include:

- Analysis of the use of digital tools in different stages of PPL
- Advantages and disadvantages of using digital tools in participatory planning, including accessibility, inclusivity, and potential technical issues.
- Ethical Considerations such as data privacy, security, and ethical implications of using digital tools to gather and manage stakeholder input.
- Practices for engaging diverse communities using digital tools.
- The role of emerging technologies such as AI, VR, and AR in enhancing participatory planning processes.
- Steps to effectively implement and integrate digital tools into existing participatory planning frameworks.
- Methods and tools for evaluating the effectiveness and impact of digital participatory planning initiatives.
- Future trends in digital participation.

Case Studies and Examples:

- Analysis of successful and unsuccessful case studies where digital tools were used in participatory planning. What worked, what didn't, and why?
- Case studies of some of the tools can/will be discussed in the classroom, in the form of demo projects or examples. Many of the tools discussed in the main part include demo projects or allow access to (real) completed projects, which can be used as case studies. Indicatively:
    - Adhocracy+: https://adhocracy.plus/info/best-practice/
    - CitizenOS: https://citizenos.com/projects/

5. Assignments

Assignments for this module can be classified in two categories:

a) Using one of the presented tools to perform a specific task (e.g. using Slido to have the students prioritise a set of proposed strategies for a real or hypothetical case)
b) Create a hypothetical scenario, where the students will have to use one of the presented tools to participate as citizens/stakeholders in the planning process, in order to understand how the tool works (e.g. using adhocracy+ to have students provide suggestions or report problems for a hypothetical (or real) planning scenario)

6. Summary of Learning

Q1: What are the main categories of digital participation tools that are described in the module?
A: The main categories of digital tools are:

- Geographical Information Systems
- Participatory Governance
- Informative
- Interactive
- Gamification
- Social Media
- Self-organised
- Collaboration

Q2: At which stage of the participation process can digital participation tools can be used?
A: Digital participation tools can be used effectively at various stages of the participation ladder, which typically includes the following levels:

- **Informing** : digital tools such as websites, social media platforms, newsletters, and informational videos can be used to share information with stakeholders about upcoming projects, plans, and initiatives.
- **Consulting** : online surveys, virtual focus groups, and discussion forums can be employed to gather feedback and opinions from stakeholders. These tools facilitate interactive dialogue and allow for a wider reach.
- **Involving:** digital participation tools like interactive webinars, online workshops, and collaborative platforms (can engage stakeholders more deeply in the process. These tools encourage active participation and collaboration, allowing stakeholders to contribute ideas and suggestions.
- **Collaborating** : Digital tools such as co-creation platforms, and project management software can be used to work directly with stakeholders on developing and implementing solutions.

- **Empowering** : At the highest level of participation, digital participation tools can support stakeholder empowerment through platforms that allow for independent decision-making and action. Tools like community management software, digital voting systems, and crowdfunding platforms enable stakeholders to take ownership of projects and initiatives.

Q3: What are the main challenges of using digital tools in the planning process?
A: Using digital tools in the planning process can offer numerous advantages, but it also comes with several challenges that need to be addressed for effective implementation. The most prominent challenges include:

- Access and Digital Literacy
- Data Privacy and Security
- Technical Issues
- Engagement and Interaction
- Cost and Resource Allocation
- Technological Change

Quiz

Q1: What is the primary benefit of using digital participation tools in decision-making processes?

a) Increased costs
b) Real-time feedback from a broader audience
c) Restricted information flow
d) Limited audience participation

A: B

Q2: Explain how digital participation tools can lead to more informed decision-making.
A: Digital participation tools gather real-time feedback from a broader audience, which allows organizations to make decisions based on diverse insights and data, leading to more comprehensive and effective strategies

Q3: What does ICT stand for in the context of digital tools?

a) Information and Communication Technology
b) Internet and Communication Tools
c) Interactive Communication Technology
d) Information and Collaborative Tools

A: a

Q4: How might social media alter the way different social groups participate in the planning process?

a) By limiting communication to formal channels
b) By excluding less vocal groups
c) By providing a platform for diverse voices
d) By encouraging competition among groups

A: c

Q5: What digital tool category involves using mobile devices to enable citizen participation?

a) BIM
b) Games
c) M-participation
d) 3D visualization

A: c

Q6: How can 3D visualization, AR, and VR tools be applied in stakeholder engagement?

a) By facilitating online discussions
b) By presenting urban development plans realistically
c) By enhancing social media interactions
d) By enabling role-playing scenarios

A: b

Q7: What are the three categories of digital tools identified by Shahin (2020)?

a) Informing, Consultation, Partnership
b) Information sharing, consultation, co-production
c) Visualizations, Social media, Collaboration
d) Visualizations, analytics, documents

A: d

Q8: What is the primary purpose of Augmented Reality in urban planning?

a) To create virtual buildings that can't be viewed in reality
b) To visualize new land use regulations and new constructions
c) To provide entertainment through gaming
d) To gather public data and statistics

A: b

Q9: Provide an example of how Augmented Reality can enhance community decision-making in urban projects.

Q10: Fill in the blank: Augmented Reality can be used to promote a more _____ image of urban projects.

A: realistic

Q11: Some of the main challenges of using digital tools in the planning process include:

a) Digital literacy, laws prohibiting participation, technological limits
b) Limited internet access, limited stakeholder interest, high costs
c) Data privacy and security, rapid technological change, cost and resource allocation
d) None of the above

A: c

Q12: Geographical information systems (GISs) are automated systems for the:

a) Collection and storage of data
b) Analysis of spatial data
c) Display of spatial data
d) All of the above

A: d

Q13: Fill in the blank: Informative participatory digital tools facilitate the diffusion of _____ to citizens and stakeholders. They can help keep the public informed but usually have limited interaction capabilities.

A: information

Q14: True or False: social media provide new opportunities for stakeholders and citizens to get informed, identify common interests, share opinions and demands, organise and coordinate operations.

A: True

Q15: Ensuring the privacy and security of data collected through digital tools is not important as there is no chance of misuse of personal information.

A: False

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8. Glossary

Digital tool: a website or application that enablew stakeholders to engage in a project, accessed via a digital interface or otherwise relying on digital technology to function.

GIS: Geographical Information Systems

Stakeholder participation : Stakeholder participation refers to the process of involving individuals, groups, or organizations that have a vested interest or stake in a particular project

Participation ladder: The participation ladder is a conceptual model, developed by **Sherry Arnstein** in 1969, that describes the varying levels of stakeholder engagement in decision-making processes.

Participatory governance : Participatory governance is a process that emphasizes the involvement of citizens and stakeholders in decision-making processes at various levels of government and organizations.

Gamification : Gamification is the application of game design elements and principles in non-game contexts to enhance user engagement, motivation, and overall experience.