Youth & THE CITY

Genesis

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Youth

& THE CITY

Module 5
INCLUSIVITY AND CIVIC PARTICIPATION IN SMART CITIES 3.0

Learning objectives

- ***Understand how Smart Cities 3.0 emphasize inclusiveness and citizen participation.***
- ***Exploring ways technology can make cities accessible to all.***

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Course Overview

Introduction:
The importance of inclusiveness and civic participation for smart cities 3.0

- **5.1 Citizen-driven innovations: co-creating innovative services with the community.**
- **5.2 Social inclusion and equity in smart city planning.**
- **5.3 Technology for people with disabilities: accessible urban design.**
- **5.4 Participatory governance: Involving citizens in urban decisions through platforms such as crowdsourcing, voting apps, and open data.**

Introduction: The importance of inclusiveness and civic participation for Smart Cities 3.0

Inclusivity and civic participation are key aspects of Smart Cities 3.0. **Co-creation** and **co-participation** form the foundation of a functioning smart city.

Indeed, a smart city isn't just about technology, but also about people. Ensuring citizen participation must be a priority for a successful smart city: if the goal is to achieve a more sustainable, livable, and efficient urban environment, technology alone isn't enough. **Cities are designed for people, and technologies should be co-created and used to support human goals.**

The importance of this topic can be understood by reading the **OECD (Organisation for Economic Co-operation and Development) Urban Policy** Principles. In fact, 8 of the 11 guidelines are linked to:

“Adopt a coherent, integrated and effective strategy to build smart, sustainable and inclusive cities”, and “Engage stakeholders in a co-designed, co-implemented and co-monitored urban policy”.

Going into more detail, Principle 9 calls for “Promoting stakeholder involvement in the design and implementation of urban policies, including all segments of society, particularly residents and the most vulnerable users [...]”.

Top-down or bottom-up approach: two different approaches to citizen engagement

Participation can occur in two ways: top-down or bottom-up.

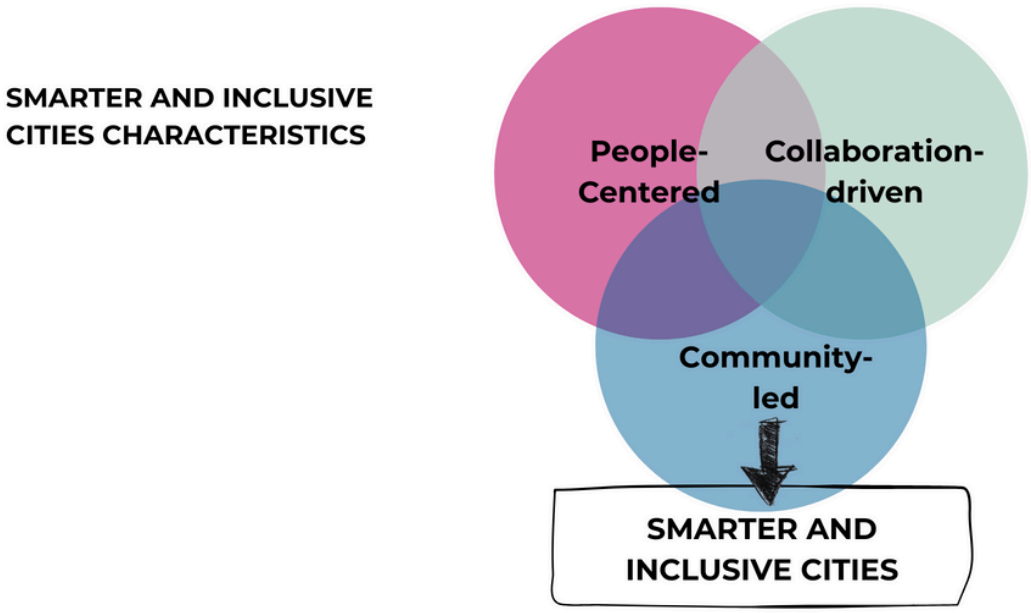
When the approach is top-down, institutions promote citizen participation, ensuring a high degree of coordination.

Conversely, a bottom-up approach involves citizens self-organizing, who then interact with institutions, allowing people to directly participate in Smart City activities.

The "Manifesto on Citizen Engagement and Inclusive Smart Cities" is an EU document that defines the essential elements of a successful smart city: starting with people, focusing on citizens' needs, adopting human-centered design, and pursuing an integral quality of life.

This is also in line with the United Nations Sustainable Development Goals, which promote cities that are not only technologically advanced, but also inclusive, sustainable, and resilient.

In summary, **smartness and inclusiveness can be defined as an approach to urban development and transformation that is people-centered, collaboratively driven, and community-led.**



5.1 Citizen-driven innovations: co-creating innovative services with the community

Citizen engagement and participation are necessary to develop effective governance strategies, foster community collaboration, and ensure that technology is used to meet the needs of the population.

Without the input and involvement of residents, even the best models and algorithms are useless in the process of planning and organizing a smart city.

Co-creation with citizens as a driver of innovation

Engaging in smart cities can unlock significant potential, not only in addressing specific problems but also in proactively co-designing innovative services that improve communities. A people-centered approach means creating cities not just FOR people, but also WITH people.

The United Nations flagship program, "People-Centered Smart Cities," aims to empower local governments to adopt a multi-stakeholder approach to citizen engagement. This approach is structured around five key dimensions:

1. **Community: Empowering People;**
2. **Digital equity: ensuring access to technology for all;**
3. Infrastructure: Responsibly manage data and digital infrastructure;
4. Cybersecurity: Protecting data, systems, infrastructure, and privacy;
5. **Capacity: Develop the skills of all stakeholders.**

In this context, citizens can play four roles in co-creation and problem-solving. They can be:

Explorers: Identify, discover, and define emerging and existing problems;

1. **Ideators: They develop innovative solutions to well-defined problems;**
2. Designers: they design and develop concretely feasible solutions;
3. Diffusers: They directly support the adoption and diffusion of innovations and solutions in public services.

Two fundamental elements underlying co-creation are:

- **the innovation ecosystem:** an organizational structure that brings together a set of actors with a shared vision, who collaborate to co-create services;
- **the innovation platform:** a place (physical or virtual) dedicated to innovation and problem solving, which allows for the structure of the process and facilitates the exchange of knowledge.

Some examples of citizen engagement methods are:

- **Hackathons:** events of varying lengths in which numerous professionals (called hackers), with varying skills, collaborate to create an IT project for work, education, or social purposes. The term combines "Hack"—an innovative solution—and "Marathon"—an event of a defined duration and intense commitment.
- **Participatory budgeting:** A democratic process in which community members decide how to spend a portion of the public budget, giving them real power over real resources.
- **Digital platforms:** tools for crowdsourcing (contributions from large groups of participants for ideas, votes, micro-tasks, or funding), interactive planning, and public consultations.
- **Mobile apps:** Collect user feedback on public transportation issues or ideas for better routes and schedules, allowing organizations to take action.
- **E-Participation:** Using digital tools in participatory processes of urban planning, policymaking, and decision-making.
- **E-petitions:** Initiatives that allow citizens to request changes to public policies or regulations, or to report problems such as corruption and inefficiency. If an online petition reaches a certain number of signatures, the government is required to consider it.
- **Tactical urbanism and pilot projects:** Temporary, low-cost interventions (such as temporary bike lanes or new parking areas) to test urban improvements. Citizen feedback determines their effectiveness before final implementation.
- **Gamification and interactive simulations:** Tools like Minecraft (in educational settings) or software like City Engine allow citizens to visualize and experiment with urban solutions. Points, badges, and rewards incentivize active participation.
- **Reporting apps:** Applications like FixMyStreet or Comuni-Chiamo allow citizens to report urgent problems (such as potholes or vandalism).
- **Interactive kiosks:** installed in public spaces (parks, stations), they allow citizens to provide feedback on local projects.

- **Standing Advisory Committees:** Citizen groups that participate in the planning and organization of smart cities as a long-term strategy for participation and inclusion.

TYPES OF COLLABORATIVE APPROACHES RELATED TO CITIZENS PARTICIPATION

With these approaches, citizens can provide useful insights into every aspect of urban life: from planning ridesharing services to estimating travel times to reporting potholes.

The role and benefits of edge computing in the co-creation process

To achieve these goals, **edge computing** can be a crucial step.

Edge computing is a model in which data processing occurs as close as possible to where it is generated. This saves time, energy, and data traffic, increasing resilience in the event of connection disruptions. This local model facilitates data-driven decisions and solves real-world problems by leveraging direct citizen input.

It also increases **privacy** and **security**, as data is not sent to the central cloud but processed locally. This approach must build on and further strengthen citizens' trust in local governments.

With decentralized decision-making enabled by edge computing, cities can become more adaptive and responsive at the local level, based on real-time interactions with smart city platforms, improving civic engagement.

A new approach to citizen engagement is needed.

Despite some positive examples of participatory approaches, there remains a strong need for a paradigm shift in civic engagement. The necessary transformations can be summarized as follows:

- **From hierarchical to collaborative:** citizens are no longer passively informed through top-down mechanisms, nor are they considered mere consumers of public services. Local knowledge becomes the foundation of any planning process and solution creation. Historically disadvantaged neighborhoods can collect local data and actively participate in smart city programs;

- **From in-person participation to digital inclusion:** in-person community meetings still exist, but they are supported by digital tools (web portals, apps). This allows participation even by people with mobility difficulties, workers, or non-English-speaking citizens (thanks to multilingual support). Advanced technologies also allow the inclusion of marginalized groups;

- **From generic to data-driven:** Through direct data collection and analysis, governments can identify problems early and find timely solutions. For example, accident reports or noise complaints can lead to rapid interventions, such as adding traffic calming measures.

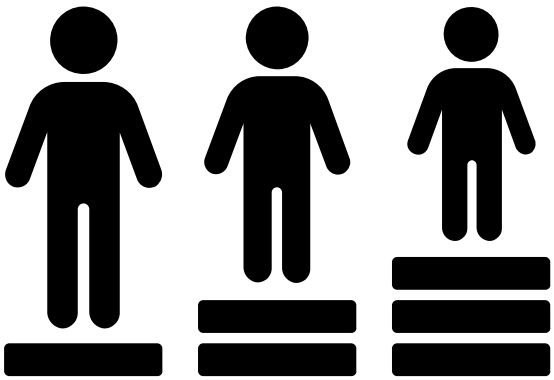
5.2 Social inclusion and equity in smart city planning

For a smart city to work, social inclusion and equity must be taken into account.

From equality to equity for true inclusion

Social inclusion means ensuring that people of all genders, ethnicities, religions, ages, and socioeconomic backgrounds have the opportunity–and the concrete tools–to participate in both the planning process and the life of the smart city.

The definition of equity is less intuitive: it means assigning different opportunities, possibilities, and tools to different people to achieve a result that's the same for everyone. This is a step forward from equality, which instead involves offering the same opportunities to everyone.



In the context of smart city participation, equity may mean, for example, providing greater digital literacy resources (i.e., the ability to find, understand, use, and create information through digital technologies) to older groups of citizens, who are likely to be less technologically savvy than younger people.

Starting from these definitions, it is clear that many smart cities struggle to achieve the goal of truly inclusive and meaningful involvement of the entire community.

Different types of social disadvantages among citizens

Technology can become a barrier for those with limited or no digital skills: marginalized communities often lack the time, money, internet connectivity, and technological know-how to voice their opinion, even when it could make a difference.

Other obstacles are related to culture and language, which can represent barriers for minorities and immigrants, or to the time factor, which limits the participation of young people of working age.

Disabilities can also prevent active participation, and poverty is another obstacle to address.

Furthermore, women are less likely to possess advanced digital skills. It is therefore crucial to ensure their active participation in co-creating solutions to promote inclusivity and equity.

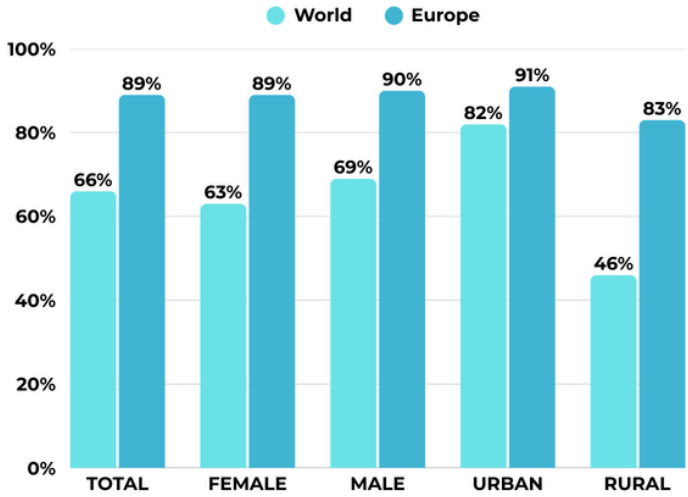
As a result, those who are not comfortable with technology risk being excluded as cities increasingly rely on complex systems.

The digital divide is the gap between individuals who have access to modern information and communication technologies (and the necessary skills) and those who do not.

It is caused by gender norms, cultural stereotypes, affordability issues, a lack of digital skills among women, but also by regulations, infrastructure, and low trust in digital services, as well as gender bias in the systems and services themselves.

For all these reasons, smart city plans often fail to reflect the views and needs of the most vulnerable groups, those most in need of change and support.

PERCENTAGE OF INDIVIDUALS USING INTERNET (TU, 2022)



The benefits of an inclusive approach to civic engagement

However, there are already people-centered initiatives underway, such as hackathons based on youth creativity or participatory budgeting campaigns. Furthermore, to overcome socioeconomic injustices that hinder participation, digital literacy programs can be implemented, access to public spaces guaranteed for all, capacity-building activities promoted, and community self-organization encouraged.

Smart cities can also create economic opportunities in marginalized areas by providing small business incubators and skills development programs.

Fully inclusive engagement aims to co-create an environment where everyone feels valued and safe. For example, urban safety is deeply gendered: public lighting design can help prevent gender-based violence.

Furthermore, by gathering information from the most disadvantaged groups, new statistics can be obtained and public services improved, better reaching vulnerable citizens. If well-planned, technologies can therefore help the most vulnerable areas, rather than exacerbating existing inequalities.

5.3 Technology for people with disabilities: accessible urban design

Ensuring a **barrier-free** architectural environment is an increasingly discussed topic and a priority in the planning and development of smart cities. Technology must consider people with disabilities as end users of accessible urban design and can truly make a difference, for example, by helping them move independently and access all available services.

For this reason, technological development must take into account all types of disabilities already in the design phase of new projects.

The role of assistive technologies

The term "**assistive technology**" encompasses any type of product, design, information, or customized version of a product that enhances the capabilities of people with disabilities. It encompasses technologies created specifically for individuals with special needs and includes solutions tailored to their unique needs.

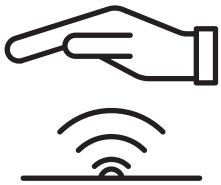
These technologies primarily aid in navigation and reduce social insecurities, enabling access to essential resources. When people with disabilities are able to manage daily tasks independently, without external support, true universal inclusivity is achieved and equitable living standards are guaranteed in every aspect of social life.

Different assistive technologies for different types of disabilities

Various technologies have already been developed to assist groups of people with disabilities in smart cities. Some examples, broken down by disability type, are:

- **Visual impairments:** Tools such as voice-activated navigation systems, text-to-speech software, and white canes equipped with sensors that can detect obstacles or changes in level.

- **Motor disabilities:** adaptive technologies for accessing different spaces, such as navigation control systems, obstacle sensors, ergonomic brakes, and aids designed to improve mobility.



- **Hearing/speech impairments:** Hearing loop systems can be connected to various audio sources, such as television, but also to public service systems, increasing sound accessibility in smart cities.

- **Speech Impairment:** People who cannot communicate as they would like can be supported with assistive tablets, devices, and 3D wayfinding systems in smart buildings. Furthermore, solutions such as audio encoding or touchscreens with word prediction and spelling software are a valuable aid in improving communication.

5.4 Participatory governance: Involving citizens in city decisions through platforms such as crowdsourcing, voting apps, and open data.

Various creative methods have been implemented to involve citizens in city decisions. There are several case studies and best practices that can serve as examples. Some of them are:

- **The Decidim platform in Barcelona (Spain):** This is a website where residents can vote on various proposals, such as public housing, mobility, and priorities, as well as submit suggestions to the government. The results have a real impact on funding allocation and policy and are an example of participatory democracy.

- **The Open Innovation Square in Seoul, South Korea:** a physical space where the public can meet and collaborate on potential smart city solutions for regional urban problems. The hub brings together academic institutions, startups, government agencies, and ordinary citizens, who have already developed several pilot projects together.

- **The City of Things Network in Amsterdam (Netherlands):** This project uses Internet of Things technology to increase community engagement with urban data to promote sustainability. Using sensor-equipped public installations (such as Wi-Fi-enabled smart benches), everyone can contribute to the crowdsourcing of environmental information such as traffic, noise, air quality, and energy consumption.

- **The Digital Inclusion Agenda for Greater Manchester (UK):** The Agenda has the ambition to make the area a 100% digitally enabled urban region. Greater Manchester has set itself the goal of becoming one of the first urban areas in the world to equip all young people under 25, seniors over 75 and people with disabilities with the skills (e.g.

(for example, through training and digital resources), connectivity (for example, through social tariffs for families struggling to afford broadband) and the technology (for example, through device loans or device subsidy programmes) needed to access the internet;

- **The Meld'R app in Rotterdam (Netherlands):** This is an easy-to-use app for reporting problems in public spaces, with and for citizens. In developing the app, the city used design thinking methods, conducted in-depth interviews, and subjected the app to extensive testing with users. As a result, 70% of all reports are now made via the app. This is an example of improving a city's services in a user-centric way.

- **The concept of a sustainable, inclusive, and smart city in Sihanoukville (Cambodia):** This plan addresses a wide range of urban challenges, including environmental, economic, and social insecurities. Two initiatives aimed at bridging the digital divide between different social groups include free internet access zones in strategic urban and rural areas and a lifelong computer/technology literacy program for citizens through "Digital City Ambassadors."

- **The “Basic Digital Skills for the Elegant Age” project in Ukraine:** The Ministry of Digital Transformation of Ukraine and UNDP launched this training program to support Ukraine's elderly population;

- **The Institute of Public and Environmental Affairs (IPE) open-source database on air and water pollution in China:** With the help of thousands of volunteers across China, the institute has compiled an open-source online database on air and water pollution. The information (such as data on minor and major environmental incidents in local factories and public spaces) was provided by volunteers and verified by other volunteers or by IPE. The database has led to the identification of 97,000 factories violating Chinese environmental laws, and pollution maps derived from the citizen-generated database have helped highlight broader environmental problems in specific regions.

Practical Activity: The Smart City Challenge - Role-Play

Description of the activity and objectives:

Participants will take on the roles of various stakeholders in a smart city and collaboratively solve urban challenges through inclusivity, co-creation, and technology. This activity fosters empathy, creativity, and problem-solving skills while addressing real-world issues.

Activity instructions:

Phase 1: Form teams and assign roles

Divide participants into four teams. Each team will represent a specific group of city stakeholders, for example:

- City government officials: Responsible for policy and budget allocation.
- Citizens: Represent diverse groups, including marginalized communities, young professionals, and seniors.
- Technology innovators: They develop technological solutions to urban challenges.
- Local associations: promote social inclusion and equity.

Each team will receive a brief description of their priorities, challenges, and resources.

TEAM GROUP 1: Municipal Government Officials

The priorities for this group:

- Implement policies that promote sustainability and improve quality of life.
- Ensure efficient use of budget and resources.
- Addressing citizens' concerns by balancing public services and infrastructure development.

The challenges for this group:

- Limited budget and conflicting interests of different groups.
- Political pressure and public control.
- Ensure long-term impact while managing short-term needs.

Resources of this group:

- Authority to allocate budgets for infrastructure and services.
- Access to data on city needs and public services.
- Relationships with other stakeholders (e.g., technology innovators, community organizations).

TEAM GROUP 2: The Citizens

The priorities for this group:

- Ensure that city services meet the needs of all residents, especially marginalized groups.
- Promote safer public spaces, improved transportation, and accessible technologies.
- Improving the overall quality of life in the city through participatory governance.

The challenges for this group:

- Lack of direct influence on the decision-making process.
- Inadequate representation of diverse voices, particularly vulnerable groups.
- Limited access to information and digital tools.

Resources of this group:

- The power of collective action through public protests or petitions.
- Participation in digital platforms for feedback and decision-making.
- Local knowledge of community needs and challenges.

TEAM GROUP 3: Technological Innovators

The priorities for this group:

- Design and implement innovative technologies that address urban challenges.
- Ensure that solutions are ethical, sustainable, and enhance inclusivity.
- Build platforms for public engagement, such as digital tools for citizen feedback.

The challenges for this group:

- Balancing innovation with data privacy and security concerns.
- Aligning technology with the different needs of citizens.
- Ensure the scalability and long-term sustainability of technology solutions.

Resources of this group:

- Expertise in cutting-edge technologies (AI, IoT, data analytics).
- Collaborating with government and community organizations for real-world application.
- Access to funding and investment for research and development.

- **TEAM GROUP 4: local associations**

The priorities of this group:

- Promote social inclusion, equity, and equitable access to the city's resources.
- Defend the rights of vulnerable groups, such as the elderly, minorities, and people with disabilities.
- Ensure that urban planning reflects the needs of all citizens, especially underrepresented communities.

The challenges of this group:

- Limited influence on city policies and budgets.
- Overcoming barriers such as social inequality and discrimination.
- Engaging citizens who may feel detached or distrustful of institutions.

Resources of this group:

- Strong networks and connections within local communities.
- Expertise in social justice, inclusion, and human rights.
- Platforms for organizing and mobilizing citizens to defend their rights.

Phase 2: Identify a city problem

Facilitators will present a real-world scenario. Some scenarios that can be provided are:

- Traffic congestion and lack of public transportation: The city faces severe traffic congestion, especially during rush hour, due to the lack of reliable and efficient public transportation. This leads to increased pollution, long travel times, and stress for residents, especially in congested urban areas. The lack of accessible options disproportionately impacts low-income communities.

- Digital divide in disadvantaged neighborhoods: Many residents of disadvantaged neighborhoods lack access to the internet, digital devices, and essential digital skills. This creates barriers to participation in education, employment, and access to city services. The gap between those with and without digital access exacerbates social inequalities.

- Limited accessibility for people with disabilities: The city is not fully accessible to people with disabilities. Public spaces, transportation, and buildings do not meet the needs of those with mobility, vision, hearing, or other impairments. This limits their ability to fully participate in community life and the world of work.

- Poor air quality and environmental degradation: Pollution is a serious problem, with high levels of smog, carbon emissions, and waste contributing to deteriorating air quality and health risks. Industrial activity and increased vehicle use have led to environmental degradation, affecting public health and quality of life, especially in densely populated urban areas.

Phase 3: Collaborate to develop solutions

The teams will first hold an internal discussion to try to find some solutions, then they will collaborate to propose solutions together using the following steps:

Brainstorming: Each stakeholder group presents ideas based on their role.

1. **Negotiation:** Stakeholders negotiate to align priorities and allocate resources.
2. **Co-creation:** Teams design a solution together, integrating inclusiveness, assistive technologies, and citizen participation tools (e.g., participatory budgeting, e-petitions).

Phase 4: Present the solution

Each team presents their solution to the larger group or to a panel of facilitators. The presentation must include:

- The proposed solution and its characteristics.
- How inclusiveness and civic engagement were addressed.
- Expected results and benefits for the community.

How to integrate AI tools:

AI as a role-playing assistant: Use AI chatbots to simulate non-player characters (e.g., citizens raising concerns, government officials requesting data). This adds dynamic, real-time challenges to the role-playing game.

- Voting system: Use an online voting platform to allow participants to vote on the best solution, simulating a participatory governance process.

- AI Feedback: An AI tool evaluates solutions for inclusivity, feasibility, and alignment with sustainability goals.

Some key terms

Digital equity: ensuring access to technology for all. Digital equity is defined as equal access and opportunities to digital tools, resources, and services to increase digital knowledge, awareness, and skills. When considering the role of technology in developing 21st-century learners, digital equity is more than a comparable provision of goods.
and services, but an equitable distribution based on people's needs.

Digital literacy: the ability to effectively find, evaluate, use, share, and create content using digital technologies and platforms. It has been defined as an overarching framework for a series of complex and integrated subdisciplines–or "literacies"–that encompass skills, knowledge, ethics, and creative output in the digital network environment. Some subdisciplines of digital literacy include information, computer, media, communication, visual, and technological literacy.

Digital divide: unequal patterns of material access to computer-based information and communication technologies, their ability to use them, and their benefits, resulting from stratification processes that create classes of winners and losers in the information society and institutional participation. The digital divide can be viewed as the disparity in information technology due to various factors such as race, ethnicity, gender, and income.

Co-creation: A process in which multiple stakeholders (e.g., institutions, citizens, policymakers, NGOs) collaborate to develop ideas, plans, services, or solutions. In co-creation, each party contributes unique knowledge, resources, or expertise, ensuring that the final outcome reflects diverse perspectives and effectively achieves shared goals.

Assistive technology: Applications of science, engineering, and other disciplines resulting in processes, methods, or inventions to support people with disabilities. It generally focuses on the special needs of people of all ages who may have a variety of disabilities, limitations, and/or challenges that limit their participation in daily life, requiring special assistance in sensory, motor, cognitive, and/or language areas.

Links to external resources

- Manifesto on Citizen Engagement and Inclusive Smart Cities: https://smart-cities-marketplace.ec.europa.eu/sites/default/files/EIP-SCC%20Manifesto%20on%20Citizen%20Engagement%20%26%20Inclusive%20Smart%20Cities.pdf

- Sustainable Development Goals: https://sdgs.un.org/goals

- UN-Habitat's People-Centered Smart Cities flagship programme: https://unhabitat.org/programme/people-centred-smart-cities

- Participatory budgeting website: https://www.participatorybudgeting.org/

- Online polling platform: https://www.mentimeter.com/features/live-polling

- AI-driven platform for sustainable urban planning and development: https://www.urbansim.com/

- Advanced software for 3D urban planning: https://www.esri.com/it-it/arcgis/products/arcgis-cityengine/overview

- “Smart Cities in Europe with Alberto Bortolotti” | Unites Citizens of Europe Podcast https://open.spotify.com/episode/2zfQwlOeohUXO1dZ2m0lbf?si=89eb3525c0c84c3d

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