

Smart Cities & Digital Inclusion

Infusing Accessibility into Smart Cities Programs to Improve Human Rights, Civic Engagement, and Business Outcomes

Executive Summary

The rapid worldwide growth in Smart Cities programs creates unprecedented opportunities for governments, citizens, and technology companies. This significant growth also risks deepening a substantial digital divide for persons with disabilities and the aging population. There is a compelling human rights and business case for infusing accessibility into global Smart Cities programs. Governments that deploy accessible technology in their Smart Cities initiatives will have more innovative, equitable and impactful results across key program areas, including e.g. in education, healthcare, and transportation. Technology companies that include accessibility and inclusion as part of serving Smart Cities worldwide will have an edge over competitors that do not. They will be providing products and solutions that support rich, personalized, citizen-centric services that serve a broader population and are usable in wider variety of environments.

Cities are our Future

Urbanization is a significant and lasting trend. The global urban population climbed to 54% in 2014 and is projected to rise to 70% by 2050. Secondary and tertiary cities located in the global south will lead urban growth. These urbanization trends are expected to be particularly consequential for persons with disabilities, 80% of whom live in developing countries.

Cities Face Enormous Challenges

Cities account for 80% of the global GDP yet face enormous challenges. Social and economic inequalities are the most severe in cities. For example, one-third of urban dwellers in the developing world live in slums. Persons with disabilities and the aging are particularly at risk of immediate and lasting harm from these challenges and inequalities, but also stand to benefit tremendously if cities take their needs into account when addressing them.

Technology is a Catalyst for Transformative Change

Cities are the sites of tremendous innovation. Many of the challenges facing cities, ranging from sanitation, to healthcare, employment, accessing public services, and interacting with government can be effectively addressed with information and communications technologies (ICTs). ICTs are improving outcomes in urban development, including with the design of high-quality public spaces, well-connected grids, well-designed density, increased resource efficiency, improved quality of life, and increased sense of community. Knowledge creation and management through ICTs help address the emerging needs and risks confronting cities.

Importantly, Smart Cities innovations and technology investments are not only about infrastructure. Smart Cities are using technology to empower employees and promote deeper civic engagement. Making a broad range of public services available electronically allows them to be more streamlined and personalized. Citizens, employees, and businesses benefit from the growing number of flexible Smart City solutions that support individual needs and preferences.

For smart and sustainable cities, ICTs have ushered significant and enduring changes in the way people live and interact with each other, their environment, and public services.

Smart Cities Are Booming

Technology is the cornerstone of Smart Cities. Four ICT factors help to define a Smart City:¹

1. The application of a wide range of electronic and digital technologies to communities and cities
2. The use of ICT to transform life and working environments within the region
3. The embedding of such ICTs in government systems
4. The territorialization of practices that brings ICTs and people together to enhance the innovation and knowledge that they offer.

In its latest report, IHS Technology predicts there will be at least 88 smart cities worldwide by 2025, up from 21. The European Union (EU) classifies 240 of the 468 cities in the 28-nation bloc with 100,000+ inhabitants and at least one smart city characteristic as smart

¹ Deakin, Mark; Al Waer, Husam. "From Intelligent to Smart Cities". *Journal of Intelligent Buildings International: From Intelligent Cities to Smart Cities* 3 (3). [doi:10.1080/17508975.2011.586671](https://doi.org/10.1080/17508975.2011.586671).

cities. Smart Cities are a truly global trend. According to IHS, by 2025, Asia-Pacific will account for 32 smart cities, Europe will have 31, and the Americas will home to 25 Smart Cities.

Smart Cities Are Big Business

The boom in Smart Cities means enormous business and investment opportunities. Over the next ten years 60% of people living in smart cities will be accessing eServices (e.g. ePayments, eExchange, eSharing). By 2025 demand for smart city services will grow in Latin America by 46%, Middle East and Africa by 39%, and Central and Eastern Europe by 31%.

IHS forecasts annual investment on Smart City projects will rise from the current \$1 billion to \$12 billion in 2025. Other smart city forecasts tend to be broader in their definitions. Navigant Research forecasts global smart city technology revenue will grow from \$8.8 billion annually in 2014 to \$27.5 billion in 2023, while Frost & Sullivan expects the global smart city market will be valued at \$1.565 trillion in 2020. If compared to national GDPs in 2014, this Smart Cities market would be greater than the GDP of Spain, making it the 12th largest economy in the world.

Smart Cities Risk Deepening the Digital Divide

While governments have been making massive technology investments in Smart Cities, there has been little focus explicitly on technology products and services that are inclusive of all citizens and end-users, including those with disabilities. Today, most Smart Cities programs have failed to develop policies that ensure their programs and services are accessible to persons with disabilities and the aging. When Smart City services are not accessible, they perpetuate the inequality, exclusion, and isolation of persons they are designed to help, in particular persons with disabilities.

Today persons with disabilities are already largely excluded from the global shift to a greater reliance on technology in everyday life. In every country, they have considerably less access to technology than the population at large. For example, persons with disabilities make up 19% of the US population but are 40% of Americans without access to broadband.

The first ever World report on disability, produced jointly by WHO and the World Bank, suggests that the more than 1 billion people in the world with disabilities already have generally poorer health, lower education achievements, fewer economic opportunities and higher rates of poverty than people without disabilities. A greater reliance on technology in Smart Cities along with the existing and possibly growing digital divide will exacerbate these negative outcomes for persons with disabilities.

Delivering Accessible and Empowering Solutions for All

The digital services of Smart Cities can be more accessible, including for persons with disabilities. For example, content can be made available in multiple formats and languages, services can be offered remotely to home-bound or geographically isolated citizens, digital formats can serve multiple disabilities, and interact with a broad range of assistive technologies used by persons with different types of disabilities.

Accessible Smart City solutions can help people remain productive as they age and ensure a person with a disability also can access services and content in today's increasingly digital world.

By taking into account citizens with disabilities, Smart Cities initiatives can use technology investments to influence the design, development, procurement, and broader deployment of increasingly accessible ICTs. They can actually reduce the digital divide for persons with disabilities.

The Human Rights Justification for Accessible Cities

An inclusive and accessible approach to Smart Cities aligns well with key global rights commitments, e.g. the Human Rights Based Approach to Development Cooperation (HRBA) and specifically Goal No. 11 of the UN Sustainable Development Goals on Resilient and Inclusive Cities.

On May 3, 2008, the United Nations Convention on the Rights of Persons with Disabilities (CRPD) became the fastest negotiated and adopted human rights treaty in history. With the CRPD, access to technology has become increasingly understood as a human rights issue. To date, there are 116 parties to the CRPD, including most countries in the world. On the fundamental issue of accessibility (Article 9), the CRPD requires countries to ensure that persons with disabilities can access their environment, transportation, public facilities and services, and ICTs.

Moving Forward: Accessible and Inclusive Approaches to Smart Cities

G3ict and World Enabled believe that now is the time to design a more inclusive and accessible approach to Smart Cities.

Our Objective: Bring together global industry, government, and civil society experts and practitioners to define how a Smart City can also be a digitally inclusive city. We will develop and deliver useful information on:

- Making mainstream Smart City services accessible to all

- Leveraging technologies to develop special services for seniors and persons with disabilities to enhance their safety, health care, participation in social, economic and cultural life, employment and civic activities such as voting

Outcomes: We will create the knowledge base needed to effectively infuse accessibility and innovative assistive services into Smart Cities programs worldwide. Resources will include, for example:

- Guiding principles for the planning and development of accessible Smart Cities programs
- Model policies for Smart Cities programs to adopt for ensuring a commitment to accessibility
- Inventory of relevant accessibility technical standards
- Database of accessible Smart Cities solutions and a platform to share best practices and transfer knowledge
- Catalog of Smart Cities indicators and metrics
- Capacity building programs for city officials, CIOs, and technology leaders
- Other specific tools to ensure that accessible technology is an explicit and central component of Smart Cities programs worldwide.

The Leadership

This Accessible Smart Cities Initiative led by G3ict and World Enabled will lend a unique and time sensitive voice capable of shaping our new urban century.

About G3ict

G3ict – the Global Initiative for Inclusive Information and Communication Technologies – is an advocacy initiative launched in December 2006 by the United Nations Global Alliance for ICT and Development, in cooperation with the Secretariat for the Convention on the Rights of Persons with Disabilities at UN DESA. Its mission is to facilitate and support the implementation of the dispositions of the Convention on the Rights of Persons with Disabilities (CRPD) promoting digital accessibility and Assistive Technologies.

About World Enabled

World ENABLED is a global education, communications, and strategic consulting group that supports companies and governments with the full implementation of legal mandates that promote the rights of persons with disabilities. Our fieldwork and research initiatives are focused on urban planning and inclusive urban policy development. We help our clients create an inclusive human and civil rights approach to disability programs and policies. With our international partners we work to build inclusive societies where people with disabilities can develop their talents, skills and abilities and reach their full potential.

Team Bios

This initiative is being headed by James Thurston, Vice President at G3ict and Dr. Victor Pineda, President at World Enabled. Both James and Victor are leading a global experts and are committed to building a broad coalition to ensure that persons with disabilities enjoy the amazing advances of Smart Cities on an equal basis with others.



[Dr. Victor Santiago Pineda](#) is the President of the World Enabled and the Pineda Foundation, positions he has held since founding the organizations in 2003. He is a recognized leader in international disability rights and was appointed by US President Barak Obama to the Architectural and Transportation Barriers Compliance Board. Previously he served as the UC Berkeley Chancellor's Postdoctoral Research Fellow in Academic Diversity and an Adjunct Professor in City & Regional Planning at University of California, Berkeley, positions he first held in 2012. He was a Senior Research Fellow at the World Institute on Disability, a position he first held in 2011. Dr. Pineda was a Summer Associate at the Department of the Treasury in 2006, a Researcher at the Institute for Urban and Regional Development in 2005, a Researcher at the University of California, Berkeley Kujacic Endowment in 2004, a Youth Advisory Committee Member of the National Council on Disability in 2003, and a Principal Investigator with Emergenz do Brasil in 2002. He has received numerous grants and awards, including a National Science Foundation (NSF) Innovation research grant, a Fulbright-Hays Scholarship, and the AAPD Paul G. Hearne Leadership Award. Mr. Pineda received a B.A., B.S. and M.C.P. from the University of California, Berkeley and a Ph.D. from the University of California, Los Angeles.



[James Thurston](#) is an international technology policy leader. As G3ict's Vice President for Global Strategy and Development, he leads the design and implementation of new worldwide advocacy strategies and programs to scale up G3ict's global impact. He has experience applying both technology and public policy to important social and economic challenges. He has led efforts ranging from using technology to promote the inclusion and human rights of people with disabilities around the world to using technology to increase the economic competitiveness of aging industrial centers in the United States. He has broad policy and management experience in both the private and public sectors and at the federal, state, and international levels of government. Prior to joining G3ict, Mr. Thurston was Director of International Accessibility Policy at Microsoft, where he developed and executed a worldwide strategy to expand the company's outreach on disability and technology issues to governments and NGOs around the world. He has also served as a standards leader for an international technology industry association, an economic and technology advisor to a U.S. senator and vice presidential candidate, and a senior manager for a national technology and economic development initiative of the U.S. government. Mr. Thurston holds both a Master of Public Administration and an M.A. in East European Studies from the University of Washington, as well as a B.A. in International Affairs from the University of Maine.