

# A WORLD ECONOMIC FORUM INITIATIVE

## Urban Development and Services in Need of Transformation



The future of urban development and urban services is high on the Industry Agenda of the World Economic Forum (WEF). It has developed a strategic vision for the rising number of very large cities with their accumulation of problems and challenges. The World Economic Forum's report considers many possible solutions in equal measure, but at 'GIM International' we

are most interested in the information technology driving urban transformation.

(By Frédérique Coumans, contributing editor, GIM International)

People continue to migrate to cities for better economic and social opportunities. Cities, currently home to 55 percent of the global population, account for 70 percent of global gross domestic product (GDP), but they also account for widening inequality gaps. In absolute terms, the world's slum population has risen from 650 million in 1990 to nearly one billion today. In Africa, which has the highest rate of urbanisation globally, 62 percent of people live in slum conditions. Other key urbanisation-related issues around the world include urban planning (in Asia), migration and social segregation (in Europe), social inclusion (in North America), mobility (in South America), safety and security (in the Middle East and North Africa) and water (in Sub-Saharan Africa).

Increasing climate variability and extreme weather events are expected to severely affect urban areas. The percentage of the world's population living in cities is expected to increase from 55 percent to 66 percent by 2050, a rise of 2.5 billion people, with about 90 percent of that increase concentrated in Asia and Africa. By 2030, 41 urban agglomerations are projected to have populations of at least ten million each. Globally, some 60 percent of the area predicted to be urban by 2030 is yet to be built. City administrations will not be able to keep pace with the increasing demands and will need support from the private sector in the transformation process, including in terms of design, implementation, operation, maintenance and – last but certainly not least – financing.

WEF undertook a study and published the accompanying report in April 2016, titled 'Inspiring Future Cities & Urban Services'. The steering committee for this project consisted of 22 board members of mainly very large private companies from all over the world. The advisory board (and other contributors) was composed of 31 representatives from renowned not-for profit organisations. The project was managed by PwC.

### Situational Awareness

Information technology (IT) has consistently been one of the drivers of transformation and is likewise driving the emergence of the new urban services. According to the report, city administrators are increasingly looking at ten types of technologies to identify solutions to their urban challenges (see figure). The technologies imply different types of urban services; examples are given throughout the report. Sensor-related technologies for improving situational awareness are important and they often have a geospatial connection.

1. *The Internet of Things.* Deployed sensors (hooked up to the internet) and advanced computing are making the physical assets of an organisation that maintains infrastructure or a network more intelligent; responses can be based on the ambient conditions. For example, thanks to sensors built into the network, a water company could save millions of litres of water and substantial amounts of money per year by reducing the time required to detect and resolve network events.
2. *Mobile-based sensing.* Mobile applications are being developed in many cities that allow, for example, residents to report public issues directly from their smartphones into the city's work-order management system. Those issues go immediately to the right person in City Hall to fix the problem.
3. *Location & condition sensing.* A growing number of applications have been deployed that gather information on disasters from sources such as surveillance cameras, water-level gauges, rain gauges and seismometers, and process the data at a command

centre. If analysis suggests that evacuation is required, multiple emergency agencies are informed, using various communication channels to save people's lives. 'Simpler' services can also be valuable. Street Bump, for instance, helps residents of Boston, USA, to improve their neighbourhood streets. Volunteers use the mobile app to collect road condition data while they drive. Boston aggregates the data across users to provide the city with real-time information for fixing short-term problems and planning long-term investments.

## Data for improving decision-making

The second cluster of information technologies concentrates on decision improvement.

4. *Big data.* Cities can use big data – from business transactions, video streams and sensor data to social media feeds such as tweets – to manage their transport systems on a day-to-day basis, for example. The big data solution operates in real time on tens of thousands of video streams to detect a range of information, including number plates, vehicle demographic analysis and intelligent scene analysis for many moving vehicles. All of this can be integrated with multiple, disparate physical security, building and traffic-management control and monitoring functions. Government organisations can thus make instant conceptual and contextual associations between disparate pieces of data and are able to respond in the most efficient way possible.
5. *Data analytics.* Utilities, to name just one sector, have begun applying differential rates based on in-depth consumer analysis, users' consumption patterns and network efficiency levels. The consumption data also allows users to monitor rates and save money by shifting use away from times when utility rates are high. Consumption analytics are supporting the distributor to determine the right user charges for normalising peak loads.
6. *Open data.* Urban regions can create opportunities to attract transnational companies and local businesses interested in urban technology. In Dublin, Republic of Ireland, for instance, Dublinked is managed by a partnership of four city councils in Dublin's region, a university and a major technology provider which has recently opened a 'smart city R&D centre' creating 200 jobs in the city.

## Sector-specific IT

The remaining four information technologies mentioned for solving key urban challenges are sector-specific:

7. *Intelligent transport.* Intelligent transportation systems include stand-alone applications such as traffic management systems, information and warning systems installed in individual vehicles, and cooperative applications involving vehicle-to-infrastructure and vehicle-to-vehicle communications. Another promising solution to the congestion problem is an electronic road pricing system, which charges motorists based on their road usage during peak hours. This prompts motorists to change their mode of transport, travel route and time of travel.
8. *Smart grid.* In many countries, urban communities are being provided with a fibre-optic smart-grid energy network. Beyond energy security, the overall impacts are a reduction in energy consumption and cost-saving benefits from reduced usage and demand-sensitive pricing. Large industries can also sign up to 'time-of-use' tariffs that will save those businesses millions collectively a year.
9. *Citizen e-ID.* Maximum data sharing between administrations and agencies is an important goal. A facilitator is a shared IT platform that enables once-only data collection. In Belgium, for instance, citizens log on to some Flemish e-government services using electronic ID cards that automatically transfer data to the relevant government registry.
10. *Mobile health monitoring.* To offset the shortage of healthcare facilities for inhabitants of mega cities, 3G-enabled wireless monitoring devices can be used to measure and monitor the health of sick and elderly people or people in an area with health hazards.

## Ten-step action plan

The World Economic Forum's philosophy is an optimistic one. Although the pace of urbanisation brings numerous challenges, WEF also sees it as presenting an opportunity to re-define the social, economic and environmental fabric of our cities, as well as re-think the private sector's role in urban investment and service delivery. The World Economic Forum is the world's leading promoter of public-private partnerships (PPPs).

However, technology is not a silver-bullet solution to urban problems. To holistically address such problems, cities need to transform planning, governance and regulatory aspects, while further strengthening the use of technology. The action plan proposed by WEF contains tens steps that city managers need to consider when aiming to change the way urban services are delivered. The first step is 'Identify DNA', i.e. the city's key characteristics. That uniqueness needs to be strengthened through innovative use of urban services. The next steps are 'Identify Challenges', 'Develop a Shared Vision', 'Identify and Prioritise Goals' and 'Develop Programmes'. In the subsequent step, cities that are embracing technology-enabled urban services are also advised to 'Revisit Regulations' concerning data sharing, privacy and the sharing economy. 'Develop Capacity' is the next step; besides the development of management and technical capabilities, champions for the initiative need to be identified. Then, 'Financing and Funding' must of course be tackled and 'Quick Wins' need to be targeted in order to build the city's brand and attract best people, solutions and capital. Agile way to implement programmes should be encouraged at this stage. The last step is inevitably to 'Manage Benefits and Monitor'.

### World Economic Forum

The [World Economic Forum](https://www.weforum.org/) is the international, not-for-profit organisation for public-private cooperation, helping leaders of society to improve the state of the world. Its most renowned activity is the annual gathering of the world's political leaders, top industrialists, intellectuals and members of royalty in Davos, Switzerland.