DIGITAL INNOVATIONS AND URBAN SERVICES

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In the current digital era, relationship between information and communication technologies and the urban environment is more relevant than ever. Connected city, digital city or smart city... the use of the term « smart » indicates the main aim: to put digital technologies at the service of more effective and sustainable urban development.
The challenge is to develop innovative ways to achieve the aims of resource optimisation and democratic urban planning and management. Designing « smarter » cities can contribute, in various ways, to producing more functional, inclusive resilient and sustainable urban spaces.

MOBILISING THE SUSTAINABLE SMART CITY

Digital innovation as a driver of sustainable urban development

Digital technologies are playing an increasing role in the urban development process, whether in creating synergies between infrastructure networks (communications networks and water or energy distribution networks...), pooling data from different sources in management platforms or utilising user-generated data, for example through their mobile telephones, to develop applications that are specific to urban functions. The information produced is used with a view to optimising the management of urban services and improving their quality, in order to meet the dual goals of sustainable urban development and increasing the economic attractiveness of cities.

Sustainable city or « smart » city, the aims are complementary:

- **Economic use of resources (energy, water, raw materials)** through more accurate matching of supply and demand, better forecasting of climatic phenomena, but also optimisation of consumption and operation and maintenance of infrastructure and buildings.
- **A systemic and automated approach to the city** through the digitisation of infrastructures (smart grids), enabling interoperation and integrated management («network of networks»). This is a break from the traditional sectorial view of urban services.
- **More inclusive and democratic urban governance,** placing the citizens at the heart of the mechanisms by providing them with access to open information (open data, digital public spaces) and simplifying their online

interactions with public services (e-administration, e-participation...).

With the exception of cities built from scratch, such as Masdar in the United Arab Emirates (in the desert) or Songdo in south Korea (on land reclaimed from the sea), most « smart cities » are being developed within an already existing urban setting. Since there is no agreed definition, the criteria for a « smart » city vary according to country, setting, or the players involved; however, the presence of a local urban policy directed towards this goal appears as an essential precondition, thus confirming the key role of local authorities in this matter.

The limitations of the smart city

The increased use of « big data » in the urban context opens up new possibilities, but it also carries risks, notably in terms of the use of this data and potential intrusion into the private lives of the citizens-users (potential sale of the information, use for security or commercial purposes, encouraging consumption...). There is a risk of a digital divide appearing between individuals (generations, social backgrounds) caused by inequalities in the access to, and use of, new technologies (internet, virtualisation of administrative procedures...). This divide can also occur on the scale of cities and territories, depending on their capacity to invest in the necessary infrastructure systems and skills required to adapt all of the urban spaces to the new applications of the digital era. This fundamental approach raises questions for public actors regarding risks of territorial inequality in access to smart solutions, the uniformity of those solutions, the continuity of services, State sovereignty in the industrial and technological choices made, as well as the importance given to protecting the users of the services.

As tools, ICTs provide solutions to acute problems such as traffic congestion, energy waste or leakage from water systems, but they do not resolve problems of a systemic nature, such as use of motor transports, energy shortages, pollution, climate change or inequalities. These challenges go beyond mere information systems and call, above all, for a mobilisation of human intelligence, both political and social.

The digital challenges

Integrating digital technologies into development projects leads to actions in very diverse fields: urban planning, finance, tourism, training, health, emergency situations... Some emerging countries such as India have explicit national policies leading to the implementation of smart cities (100 smart city projects). In some cases, local authorities are behind innovating projects in the areas of transport, energy and water. Such initiatives, however, remain rare. In many countries, notably in Africa, civil society is a driving force.

There are fewer examples of smart cities than there are of the smart use of digital technologies, based notably on the use of mobile data. The penetration rate of mobile telephony across the World grew twelvefold between 2007 and 2015, reaching a level close to 47%. While the percentage of world population covered by 3G was 45%, the rate is now more than 67%, demonstrating the rapidity of this on-going development. This development also applies to Internet use, with two-thirds of the 3.2 billion users living in developing countries. This growth in use « from below » goes against the traditional model or the spread of technologies and information. In emerging and developing countries, the technological revolution relates to the growth of mobile Internet, which nonetheless remains contingent on the putting in place of digital infrastructures.

FRENCH ORIENTATIONS IN SUPPORT OF THE SMART CITY AND DIGITAL TECHNOLOGIES

In order to help local authorities meet the challenges of sustainable cities, they need support in designing and implementing strategies that integrate digital technologies in a way that is adapted to the local context and to their means. In order to do this, the issue of digital technologies has to be addressed through its three interdependent components: infrastructures, services and usage. Furthermore, the innovating technological solutions deployed must be conceived with the participation of local actors in order to better take into account the variations in demographic and cultural contexts and in technical, institutional and financial capacities of cities.

Given the severe constraints they face, aid to local authorities should be provided along the three themes below:

Orientation 1:

Reducing the global digital divide

Building electricity and telecommunications networks (particularly for mobile telephony and Internet) remains a prerequisite to the development of innovation, access to digital services for all, and high speed Internet as a lever of economic growth[1]. Connecting the most remote households and businesses (managing the last mile) remains a challenge that is both technical and financial, and that is itself a field for innovations, such as the use of relay balloons in Africa. In order to improve Internet access for all, national governments can provide support by providing infrastructure - which must be scaled according to local needs and potential for development - and improve the quality of existing infrastructure, as well as supporting national operators to reduce the cost of Internet access. Finally, increased cooperation between States is desirable, in order to locate a greater number of host servers in emerging and developing countries (particularly in Africa).

Orientation 2:

Strengthening public expertise in terms of digital services

The use of digital technologies in urban and territorial development requires an investment effort on the part of local authorities to train local agents and actors. The use of new technologies (IT, GIS, database management) calls on specific skills, as does the analysis of the data collected and its use at the service of urban projects. While dedicated training needs to be provided, these new technologies also require a consolidation of local specialised training courses and, at the same time, to anticipate the disappearance of certain routine jobs (notably in the banking sector), for which the local authorities must set up vocational retraining programmes.

Orientation 3:

Encouraging the use of new technologies in urban governance

The local authorities can foster collaborative approaches and innovation by making Open Data available to all: sharing information and knowledge about territory (geo-portals, collaborative land registry) and the development of new tools in support of decision-making to enable better and more participatory urban management.

The dematerialisation of administrative procedures (online public services, e-procedures, wireless banking, online payments) minimises the need for travel and contributes to increasing their effectiveness and transparency. Local authorities can promote online procedures that, for example, enable a more efficient recovery of taxes and payments for urban services (smart or pre-paid electricity meters).

Orientation 4:

Stimulating local innovation to generate new services

In order to encourage digital innovation in urban projects and services, the local authorities must organise the setting up of an ecosystem that favours synergies, by enabling start-ups, research laboratories, large industrial groups, very small and medium-sized enterprises and public services to come closer together in clusters, incubators or partnerships. Exchanges between cities, notably through decentralised cooperation, are also desirable, as this enables the exchange of knowledge and experience between peers.

Orientation 5:

Strengthening the existing regulatory framework and protecting users

In order to protect users, it is necessary to create or strengthen the legal framework relating to the production of « big data ». The legal framework must ensure transparency on the use of data, promote the public interest and protect users personal information, notably by identifying the specific data - whether provided by the user or collected by the operators

1 In 2009, the World Bank observed an average increase of GDP by 1,38 % for every 10% increase in the access to high speed Internet. *World Bank, Information and Communications for Development: Extending Reach and Increasing Impact* (2009).

in the delivery of the service - the misuse of which could pose a threat to the privacy of individuals. Use of the data leads national and local authorities to consider new forms of regulation and control, and to adapt existing norms and standards.

Orientation 6:

Fostering a strategic and realistic approach to the smart city

The smart city is a component of a local strategy aimed at stimulating or promoting innovation in the field of urban development. It is desirable that cities adopt a strategic approach to digital innovation, in order to move towards goal of the smart city in a progressive manner. Projects need to be designed according to well-defined local particularities and an assessment of the capacities of the citizen-users to appropriate the technological tools. To do this, a good knowledge of the local uses, services and capacity for innovation needs to be accompanied by awareness-raising and public consultation campaigns. Finally, it will be necessary to mobilise, as far upstream as possible, the representatives of the most vulnerable territories, so that they may participate in configuring strategic choices, and for the process of mutualising tools. The jointly-built and participatory city that is adaptive and continually experimenting, that combines the data from various actors to promote open innovation, can only be built if governance choices enable all actors to be involved according to principles of creativity and reciprocity (in accordance with the principle of net neutrality), of which France is one of the most active proponents.

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