Synthesis
Workshop on Smart City
3 - 4 September 2012, Paris

Work in progress. Still to be edited
The preamble includes several questions:
> Which criteria, or toolkit or reference framework are necessary to cities to become smart?
> How being smart could improve the attractiveness of a territory?
> How far digital a city should go to be sustainable?

... Short summary of the first conclusions:
> Is the DATA a common good?
> Is the individual the ultimate reason to unfold smartness?
> The key role of economic model in the spreading out of a smart city policy
> The urban ICT as accelerator of change and transformation of the conventional urban eco-systemas of the industrial and economic basis.

Let the data speak: what are the limits of being smart?

Social media, the internet, ‘cloud’ computing, sensors and mobile phones are creating a ‘smart’ or digital infrastructure that is more powerful every year, allowing us to do everything from communicating with one another to solve problems collectively, to making our electricity grids more efficient, to providing new options for services such as using video conference instead of driving to the office. Cities that face choking congestion from traffic, rising CO2 emissions, or power outage during times of peak energy demand now have new options to solve those challenges by putting in place advanced digital infrastructure. An ‘intelligent’ or ‘smart’ city is one that meets these challenges through the strategic application of ICs to provide new services to citizens or to manage more efficiently the existing infrastructure. (Arup Accenture)

Government and business leaders have to recognize the value created by smart city thinking. The technology-enabled city is an untapped source of sustainable growth and represents a powerful approach for tackling unprecedented environmental and economic challenges. By unlocking technology, infrastructure and public data, cities can open up new value chains that spawn innovative applications and information products that make possible sustainable modes of city living and working. While smart initiatives are underway in urban centers around the world, most cities have yet to realize the enormous potential value from fully-integrated, strategically-designed smart city development programs. We believe that through clear vision and, most of all, leadership, civic leaders and executives can help cities make the transition to initiatives that maximize the smart city value opportunity. (Information Marketplaces: The new economics of cities, Accenture, Arup and the University of Nottingham)

Smart city thinking is becoming the starting point for new territorial, social and economic ambitions. It is a social issue as it implies the collective and democratic participation of the users, but it is also a political issue that puts into question the management and urban governance and its transformation.

Fashion phenomena or not, there is a growing economy around the development of smart cities. The global market for technologies related to "smart city" will be multiplied by five over the next five years, from $ 8 billion in 2010 to more than $ 39 billion (27 billion euros) in 2016. (Andrew Nusca)
Despite this technical optimism, local decision-makers remain dubious and confused about how to approach the role of large digital infrastructure within the city, especially when they are told that the choice is between only one solution (Gérard Magnin). It is important to dedramatise the issue of urban intelligence, to ease the fantasy of the magic wand of the digital city and to pose the only question that matters: for whom, and for what the city of tomorrow?

**Six acts to make a smart city less dramatic**

I - **Smart city is more than a definition**

The idea of smart cities has been around for more than 20 years and everyone seems to have a different notion of what constitutes a smarter city, depending on whether you are talking about sustainability or intelligent use of technology.

The meaning of a smart city is not yet definite: probably it is a balance between resilient, frugal, friendly, desirable and inclusive city and something more. The CNV (French National Council of Cities) refers to the use and dissemination of digital technology as a source of employment in disadvantaged neighbourhoods, favouring access to employment and vocational training, and being a facility instrument in the process of democratic representation and participation in civic life.

The city as a territory has always been conceived as a place of exchange of all kinds. A smart city only increases with the use of the digital technology, the concept of exchange, networking and communication as constitutive of an urban function.

Cities face different problems. For one it might be dealing with transport, or crime, while for another sustainability, or streamlining public service provision and access to technology for all, might be important. However, there is no one-size-fits-all model.

The places that do best in terms of smart-city innovation show a desire – shared by leaders, town planners, utility companies, the providers of public services and reinforced by demand and involvement from citizens – to make things work better with the aim of creating an improved life for all; to achieve "efficiency through collaboration" by streamlining structures that deal with health, economic regeneration, public services, planning, transportation and governance taking advantage, wherever possible, of the latest technologies.

The "smart" in smart city is more than just a simple adjective; it is about people at the leading edge having a vision of what they are going to do, with a commitment to use technology to improve services – there needs to be a political vision; smart is a way of describing an attitude, an ethos and an approach. It is about combining technology with a vision of how to build a better city.

A broad concept of "being smart", extension of smartness to **more domains**

Put on the same level “Smart Grid” and “Smart Cities” poses an ethical problem. A network is an object whose technical performance and functions can be improved by an intelligent combination with ICT. A city, a territory, is above all a community of human beings, citizens,
social groups, elected officials, associations, entrepreneurs, etc. that develop individual and collective technical solutions in order to live together, inhabit, work, travel, being entertain, get warm, get light, etc...and all those players are also endowed with intelligence. (Gérard Magnin)

Innovation should not be seen in a restrictive sense but should underpin all aspects of regional planning and policy development. Whether it is in the design of new products in companies or in the introduction of new working methods and processes among regional partners, a city’s success will depend on the distribution of knowledge and a genuine partnership amongst individuals, enterprises, research institutions, associations, and local administrations.

**Avoid the trap of a mechanistic and utilitaristic conception of the city**

For IBM a City is a system of systems, managing a number of core systems related to key functions. Each element of this “system of systems” faces significant sustainability challenges; enable all the constituent parts of the urban environment to be linked in a way that creates efficiencies (complementarities) that are currently not possible - energy and mobility (electric car); water provision, sewage and waste treatment and energy; healthcare delivery, aging, dependence. Not only a closed loop system (circuits courts) but coming up with an integrated strategy that requires a change of mindset

As more cities start to realise the benefits of using technology to improve areas as diverse as healthcare, education and crime prevention, we are beginning to edge closer to a more socially inclusive ‘e-topia’; which does not cease the question this model of the city of tomorrow.

Mind the technological illusion and deny the digital city the ambition to become a social engineering tool.

The new opportunities offered by the growth of information and communication technologies will enable local authorities to reduce their handicaps (particularly peripheral territories) and develop their assets by reinforcing the competitiveness of businesses, especially SMEs.

Therefore, the "Smart City" should help to anticipate the changes and transformation to come when thinking the city of tomorrow: growth vs decline, sprawl vs densification, integration vs territorial inequalities, mobility vs isolation, disparities vs equity, ...

**II - Optimisation of the existent city by digitalisation**

A smart city is a complex urban ecosystem that gives value to different forms of capital to make sustainability a strategic factor in the development of territories (CDC):

- The digital capital developed in municipal services, in public safety and security, in communication infrastructures;
- The natural and ecological capital developed in transport, energy, water and buildings systems;
- The intellectual and social capital developed in education and health systems and in the economy.

CC Services – Synthesis Workshop Smart City
Evolution and urban ecosystem transformation
Today, infrastructures are not longer sufficient for themselves. They do need intelligence. (Bruno Marzloff). How will data contribute to change the city? High-speed networks, smart grid are a concern for all cities: services for companies, universities and citizens all rely on these infrastructures which therefore represent the basis of any digital development of a territory. (CDC)

What is the impact of introducing digital intelligence in the functioning of a city? How to manage the different territorial scales? Enlargement and extension of the territorial perimeter for greater efficiency (optimization) of the equipment?

Making cities smarter is not about finding a technical solution but rather about having a vision for the future. What matters is not technology, but big ideas about big issues (climate change, how to live tomorrow: Work: seamless integration from your own home - Leisure: where and how the world comes to you - Life: longer, easier and highly personalised - Home: the heart of modern living)

Mobility
Mobility and urban network are the sectors in which smartness is more developed: e-work, e-commerce, e-health, e-education, e-security and different kind of smart systems of mobility for people, goods, idea, money, ...

Energy
In most cases, urban intelligence initiatives fail to reach their political goals if stakeholders cannot transform the amount of data on energy consumption into reduction in fuel consumption and carbon emissions.

Ecology
Water, waste, nature

Work, employment and cohesion
A reassessment of the working condition; a solution to the growing distance home/work, breaking social and spatial isolation through digitalisation: access to employment, vocational training, culture, mobility, image and identity…

Interactions and participative relations
Learn from the Helsinki Virtual Village in Arabianranta neighborhood how to become the first cyber community: each buildings has a community forum moderated by the inhabitants, tele-services to video-communicate from one apartment to another, mobile applications are developed and information screens have been dispayed throughout the city for residents. The Helsinki Virtual Village is not only an isolated virtual community, but also a place for local businesses to test their new products and services with an informed and connected population - indeed a Living Lab - (CDC study).

III - The creation of the city by (with) digitalisation
Digital changes radically the way to approach the urban planning process and make possible to build new housing and neighborhoods wifi connected, to improve public spaces, rethink the relationship between inhabitants and smart city. Beyond transportation, business
and university campuses, a digital plan also focuses on improving the quality of urban spaces by offering new services to residents. (CDC)

**Intelligent building and smart urbanism**
Moving from High Environmental Quality to building at low consumption, then to zero net energy (ZNE) and finally positive energy (program Phosphorus by Eiffage). Flexible buildings, adaptable, reversible, convertible, intensification of uses, sharing private spaces and public spaces, etc.

**Work spaces**
New uses for work spaces: co-working as for exemple the HUB, King Cross, London, private building open to different functions (common spaces and evening cultural events)

**Public space: smart urban furniture**
http://www.paris.fr/mobilierurbain
http://www.digicitoyens.fr/?p=268
http://www.sentientcity.net/exhibit/?p=59 (mise en question de la technologie comme solution des problèmes urbains par des artistes de New York)

**Urban actors are changing**
evolving urbanism under the smart pressure leads to a reflection on the concept of collective urban intelligence; are those territories perceived as intelligent because they share a common destiny?

The second question concerns how to take into account the emergence of technological offering with important financial means that implies less public intervention in the process of sustainable urban development:
in the built environment (brownfield) : Ikea, Tesco,
in greenfield environment : Masdar, Songdo, Paredes,

**IV - Overall purpose of being smart**
The Digitalisation is a factor of change: shifting from an infrastructure logic to a service-led economy
Developing smart systems against a backdrop of dwindling finance means being honest about why technology is being introduced, which may shift the focus to improving the systems used by those providing essential services, rather than providing smarter technology for all.

Repositioning the actors, putting their role in the right place, which dialogue between “technology” and local authorities, other instruments of work and negotiation.

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1 The Hub Kings Cross is a co-working space for social entrepreneurs based in London. Come and be part of our inspiring community of social enterprises, environmental companies and sustainable businesses. Our beautiful listed building is just one minute from Kings Cross station. Our members of Hub Kings Cross enjoy access to touchdown meeting and hot-desk work spaces; a flexible exhibition and events space; a fair-trade and organic cafe bar; and an evening programme of lectures, film, debate and music.
Users
To which extent all social groups benefit from the technological improvement of the urban environment in which they live? The user is a data: as data provider, as mediator and as consumer of the processed data, hence the question about how to capture the interest of the user for these urban intelligences without making him/her an element of negotiation between government and suppliers and/or operators of urban intelligences; how to make the citizen, the employee, the user a constituent of the digital city?

The digital public spaces should allow everyone access to the technological information and communication, and to bridge the gap of the digital divide. These spaces evolve and their activities are no longer limited to disseminate modules of training and learning. They become more and more places of initiative that can accommodate functions such as creation of business activities, employment, transportation, basic knowledge and education, access to administrative procedures, housing search and maintenance of relationships with family or with people who share the same concerns and leisure. (CNV)

Digital allows a shift from social complaint, to listening then to participation (Exit, Voice, Loyalty): disappearance of intermediaries in daily life, empowerment of the spontaneous practices.

Critical issue: how much an individual or a family, agrees on the technological intrusion in his everyday life? Redeployment of ICT is expected to favor the zero-energy buildings” or “very low power consumption” in order to optimize performance. In that respect there is a need to train the users, through a form of “housing licence” as it exist the “driving license”. Such a form of education can be considered, but under the condition that this is not a form of submission to technology.

Control Authority and operators
Operators need to understand your citizens and customers if they want to understand how they use services and what they need. Customer profiling brings together different data sources to develop accurate profiles of target customer groups.

What kind of mission for the public sector: organization or not of the common good; the data: distribution, collection, standardization, inter-operability, overcome the reluctance, the secret, the partition ...

Political governance
A form of technological rationality, pushed to the extreme, could overshadow the city governance made by men and women who are the essence of democracy. (Gérard Magnin)

Need for new types of indicators to move to another type of economy

What really matters is how different sectors (not just government) cooperate and how they can exchange meaningful information. Of course there is technology involved, but that is not enough to make cities smart. Cooperation requires solid governance and a roadmap that is respectful of (1) the different – and potentially diverging – business objectives and timeframes of different stakeholders and (2) the inevitable resource constraints that affect most urban areas. (Andrea Di Maio, Gartner Group)

In many situations the switchover to the digitalisation leads to change ways of doing urban projects, but also a reassessment of the role and the relative position of three main urban players: public or private promoter, the user and technology companies (cf. Chief Digital
It also means working towards a transition towards collective intelligence, by the presence of the user via the digital system in the public decision making process. If you need to "educate" users or to rely on the citizens' empowerment, it is also necessary to educate elected officials who do not necessarily lead a strategic reflection on the intelligent development of their territory; or rush to close contracts with private providers and operators who do not often allow flexibility; or do not have sufficient knowledge to anticipate the development of their territory and the role of digital services.

V - Digital policies: public or private initiative for a Smart City?
It is assumed that the digital is not a goal in itself in the strategic development plans. Rather, it is positioned as a tool, a lever creating value for the economy and urban planning sectors (CDC).

Transition from experimentation to implementation scales, which scales for significant optimization of "smart" services?
How to overcome the contradiction that often ICT and digital solutions provide intelligent operational solutions but at a micro scale while urban development strategies necessarily operate at a macro scale? How to relate them? While the scale of the smart network is certainly different from that of social intelligence, the question of the territorial scale is essential for the generalization of the “smartness” to all areas: differentiated answers depending on whether or not one works at a larger or smaller scale?

Sponsoring the urban intelligences
Over the past 15 to 20 years, city governments have invested heavily in a wide array of information technology and technologies for fairly specific purposes including economic development, education, health, public safety and transportation. As the basic components of these investments have steadily grown, there was an emerging awareness among government and business of their combined potential value to meet a broader range of public policy goals.

City governments have begun to operate in what can be called the new normal — that is, a foreseeable future of relatively flat budgets. In this environment they will need to make careful investments decisions across multiple infrastructure programmes and bring information together in ways that creates more intuitive government operations and services. These budget pressures will accelerate the move to smart-city ecosystems.

City and regional authority finances are under unprecedented pressure from the acute financial situation and expected demographic changes. In the developed world, we are getting older, and more people who have retired from work need the support of less people who are still working and paying taxes; and in emerging economies urban populations are growing at a staggering rate. In order to save money whilst maintaining vital services, local governments are increasingly sharing the delivery of support services such as finance, HR and IT; saving money – and reducing staff – in those functions in order to preserve the delivery of frontline services such as education and social care. It is difficult to overstate the significance of these changes; in the UK, for example, it is expected that nearly 900,000 public sector workers – 3% of the entire national workforce – will lose their jobs over the next five years as a result. (Rick Robinson: Executive Architect. IBM Software Group)

The age of austerity could see much improved ways of doing things. It may mean that new ways of delivering services are found quickly, with a greater use of electronic, computer-
based delivery rather than person-to-person communication. Efficiency can be viewed as smarter delivery of public services – something that progressive or thoughtful urban councils will try to do – while there will be others who feel that cuts mean cuts. In a time of public-sector austerity, local authorities will need to make a strong business case for investing in the smart cities programme. One option could be for capital costs to be borne by the private sector, with another contract for managing services. This essentially means local government taking a commissioning role (concession), setting the parameters for service delivery, with clear performance targets – sharing risk and reward.

**Develop new applications and usages**

Living lab as tool to bring innovation in: which infrastructures to be more innovative? Large scale multinational organisations as well as local SMEs and entrepreneurial start-ups all have a role to play in the emerging ecosystem of information services for the city. This has been made explicit through both the large investment from companies such as IBM with its ‘smarter planet’ campaign and as demonstrated by the wealth of small-scale aps creators that provide multiples services to city life.

**Data platforms’ ecosystem**

What is the capacity of the local government to organize and use the data? What is the function of the public sector in the management of this data system? This is probably up to the public authorities to organize the data governance; taking the example of the mobility, which is the right of the local government to seek a private operator who has no contract with the city to use its operational data? Which economic model to manage the data? (CDC). This question reveals opposite positions: "We must develop the data that have some economic value ... the public cannot regulate it." (D. Laousse, SNCF). "The government should set at least the framework of reference" (Bruno Marzloff). “Smart City is a social result more than a technological one, produced by a local government, and is this public body that provides the framework and objectives and acts as guarantor of the public interest” react representatives of local communities. It is the public authority that promotes intelligent dialogue between private initiatives and users (CUB).

We must recognize the central position of the data in the process of urban redevelopment. At the same time, these data raise the question of the organization of the common good that is the data. It refers to the roles of actors, relations between public, private and the user, the evolving role of stakeholders and the creation of new values. (Michel Sudarskis, INTA)

The big data imposed itself. This material is there, but we do not really know what to do with it. It is a raw material different to others natural resources. The first exception is that it is a totally unlimited source but its value depends on how it is treated. This means that it is a political issue in a civic sense that concerns all stakeholders and not just the public. Second exception, the data is a renewable energy (not the only one, of course) with the difference that is updateable, never the same, permanently enriched. The third exception is that the data is a collective good. The presence of the user in the system is essential. The user is a data. (Bruno Marzloff, City of Services / Chronos)

**Citizens’ participation**

The digitalisation gives strength and power to the action of the user (GE), already a leading actor as a user in the mobility system.
VI - Beyond the smart moment

What about putting tradition back into the smart? Every true innovation has its time, but it has to be understood and supported by everybody. The landscape of the cities of the future might as well be a huge place to do the things that don’t work in digital form – food, culture, and contemplation. Digital tools drive us to want to experience much more than before. But at the moment, we are a little overwhelmed with what we have at our disposal.

Many cities demonstrate their “intelligence” in other ways than with smart grids -by exploiting their locations and resources to make savvy business and development decisions. (Joel Kotkin)

An urban system is a highly complex. The optimization of energy flow, material, water, waste, emissions and other emissions is far from being reached. Counting of energy consumed and CO2 emissions, instantaneous or cumulative, distributed by geographic areas and consumption remains handmade. Urban metabolism remains unknown and very considerable waste has to be managed: wastewater discharges without recovery, excess heat lost, waste not or poorly transferred, excess energy consumption provided through oversized network for a few hours in the year, etc. A city is not just a collection of urban objects (buildings, vehicles) whose respective performances can be improved to obtain de facto a new economy. The city is a series of intense interactions between urban objects, flows and human beings who live, work and think in it.

System optimization is far more complex than the objects it is composed of. (Gérard Magnin)

Flagship projects stuffed with fancy technology must be replaced by affordable and sustainable steps toward a better (and indeed smarter) city. There will still be opportunities for large, high-profile programs, but because of where the economy seems to be heading they will be limited to few developing countries where there is money to build new cities, or to special programs with huge budgets, like related to major events or real-estate private investments.

As a consequence, policies, roadmaps, assessment methods and benchmarks to advise and compare smart cities must be informed by pragmatism, must leverage the differences in legacy governance styles in different cities and aim at helping cities develop what they need and what they can, as opposed to striving for a theoretical model that would either be a bad fit or simply unaffordable or unsustainable after the investment or subsidy is gone. (Andrea Di Maio, Gartner Group)
**Conclusion by some of the actors of the roundtable**

**Didier Lourdin, EPADESA**  
Digital certainly occupies a central place in the society; it has enormous potential to support the transformation of our social, economic and urban development, potential still to be exploited. It will be necessary that policy makers include other actors’ knowledge, mostly from the industrial sector, but also foreign experiences. Digital is an opportunity to be open minded and to share other management methods, other visions of the city of tomorrow. We must accept that change will be mostly cultural. To be trained to the digital use also to gain more skills to be injected in the economic and entrepreneurial sector.  
We must recognize the central position of the data in the process of urban redevelopment. At the same time, and this is the second element, these data raise the question of the organization of the data as common good; it refers to sets of actors, relations between the public, the private, the user, the role of public power, the shifting role of actors and the creation of new values.

**Michel Sudarskis, INTA**  
There is a need for new sets of indicators, need of references to progress in this transition to digital in which we are committed, while recognizing the need for breakings off from the traditional ecosystem. Smartness can accompany changes in urban policies in most of the European countries, imposing itself as the technological answer to the optimization of infrastructure investment in a period of deceleration of public funding. The need to optimize the system and make the same or even better with less, passes largely through the digital technology.  
There is a shift of responsibility regarding the digital from the local government, which remains a key player, to the business companies but also to the individual. The individual is the ultimate purpose and target of the digital process in the labour sector (e-work), but also in terms of social inclusion (for all!), an individual who can find a new chance through the digitalisation process.  
The human, the individual being at the heart of the transformation process brought by the "smartness" raises the question of his relationship with the collective and of the representation of the common interests. Who is in charge now? This remains for the moment an open question.

**Bruno Marzloff, Chronos / la Cité des Services**  
Digitalisation is a great magnifying lens on the new conditions we are living in. But we have not found yet a definition of what would be a smart city. What we retain is the emphasis on the economy. Not so much the digital economy but a radical transformation of the economy, which ask a special attention to identify new indicators and a new way of looking at the economy. One last point about the data: the role of the user in the system is essential. The user is the supplier of the data (active or passive). It is the user who provides the data, it is the user who mediates and it is the user who consumes it. These elements can only confirm the importance of the individual and its civic representatives (social networks and associations) within the digital governance...