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Southern cities in the digital age

The *smart city* has become something of a mantra for urban planners, developers and regional officials. Based on the exchange of information and the responsiveness of users, it must resolve the entire problem set facing cities. Last to set off in the race towards urbanisation and experiencing exponential growth rates, the cities of "the South" may be tempted to see it as the magic solution which will allow them to close the gap... The 2014 AdP - *Villes en développement* day of exchange was devoted to this issue.

The universal digital revolution is exceptionally fast paced and affects all cities in both the North and the South. Progressing in step with globalisation, it concerns all sectors of activity and the organisation of cities is no exception. It aims to improve "urban productivity" without major investments. Multiple applications which make users both key influencers and service providers demonstrate how shared information can improve the functioning of cities.

The digital revolution is reshuffling the cards of the urban game between public authorities, residents and businesses: information and power are related. Decentralized management systems rob communities of many areas of expertise ... while, at the same time, Geographic Information Systems (GIS) extend knowledge and control of their territory. Collaborative networks and "peer to peer" relationships open up new democratic breathing spaces and

can have unexpected consequences, such as the "citizen control" witnessed in Senegal's recent presidential elections.

The digital revolution is also transforming the economy of urban services. Controllers of "data" at a time when they are infinitely more valuable than infrastructures, large companies of the digital era, almost all American, claim a vocation as an assembler and organizer of networks, threatening to turn conventional urban service companies into mere subcontractors...

However, all cities are different and each territory is unique in terms of geography as well as human and material resources... This diversity represents an opportunity because it precludes "copying" and importation of ready-made solutions from elsewhere. Its implementation will require urban professionals to possess a broad urban culture and considerable intellectual "agility".

A final point worth making concerns the status and control of the "datum". Mastering data and, in the future, big data, will determine the balancing point between the social, political or economic forces governing territories. The game is not over yet, and in both the North and the South, much will depend on who will successfully harness the digital revolution to serve the notion of "living together". ■

Marcel Belliot
Président of AdP Cities in Development

The constraints of the newsletter mean that not all contributions can be published here. Readers are advised to continue reading by turning to the day's proceedings at the website www.ville-developpement.org.

assign the term of common places to these unusual facilities for sharing experience, knowledge and innovation. We do not know how far this phenomenon will go but it is irreversible and the key to smart urbanity. The editorialization of the city is another of its dimensions, which is reflected in dynamic and constant exchange of data, information, perspectives and peer-to-peer pairings. Conducted by the users themselves, between them, for them and for the benefit of society, it is based on autonomization of practices, on the experience of users, and their ability to "invent" new

strategies which are very clear cut in the field of mobility or work. The **City of services** provides an opportunity to rethink what kind of city we want and place digital technology at its service. To be successful, we must go still further by placing people at the heart of this construction. ■

1. *This is an application for community traffic and navigation with the largest community in the world making it possible to share this information.*

"Big data" to better understand cities

Ludovic CENTONZE

Project Director, Orange for development

The impacts of mobile telephony in the economic, social and environmental fields are well established. Access to the telephone service is a key factor in breaking out of isolation and achieving emancipation for many individuals. The services to which the telephone offers access, such as in banking, health, agricultural/rural development and education, make it possible to generate significant social and economic impacts which sometimes give rise to deep-seated transformations for society. Yet we have not reached the end of the road in this field and a new revolution is under way, that of bulk data processing, otherwise known as Big Data, at the service of public development policies.

The Big Data movement

The explosion of telecommunications, particularly with all things connected, results in the production of digital data in large quantities. The processing of these data takes us into the era of "Big Data", often symbolized by 3V: volume of stored data, variety of data (type of data, format, etc.) and velocity (frequency at which the data are generated, captured and shared).

There are numerous initiatives in developed countries to use these data with a view to improving management of the city. These gigantic databases are used for very specific applications such as transportation management, urban planning, service delivery and risk management.

In Africa, many of the countries have little or no structures or infrastructures able to generate and store socio-economic data needed to conduct their public policies.

Information, key to urban policy

Access to reliable, recent and accurate information is essential for management of the city. It is impossible to act if we are unaware of how many inhabitants there are, the trend in their numbers, the flow of vehicles per hour, or if we do not have accurate updated maps, etc.

It is this situation which most southern cities are facing, including Abidjan. The last census was in

1998, mapping is obsolete and there is no road counting. Yet mobile phone users leave traces of their movements and this is information we can collect, anonymize and process to make it available to the city's administrators. Their use will then improve mobility management.

These data exist. They are reliable, accurate and continuous; here we suggest using them to improve the management of mobility.

The "Data for Development Challenge" (D4D).

A major telecommunications operator in Africa, Orange produces a large volume of digital data. To analyse the value of these data and identify potential applications, Orange and its Ivory Coast subsidiary launched the "D4D Challenge" in 2012.

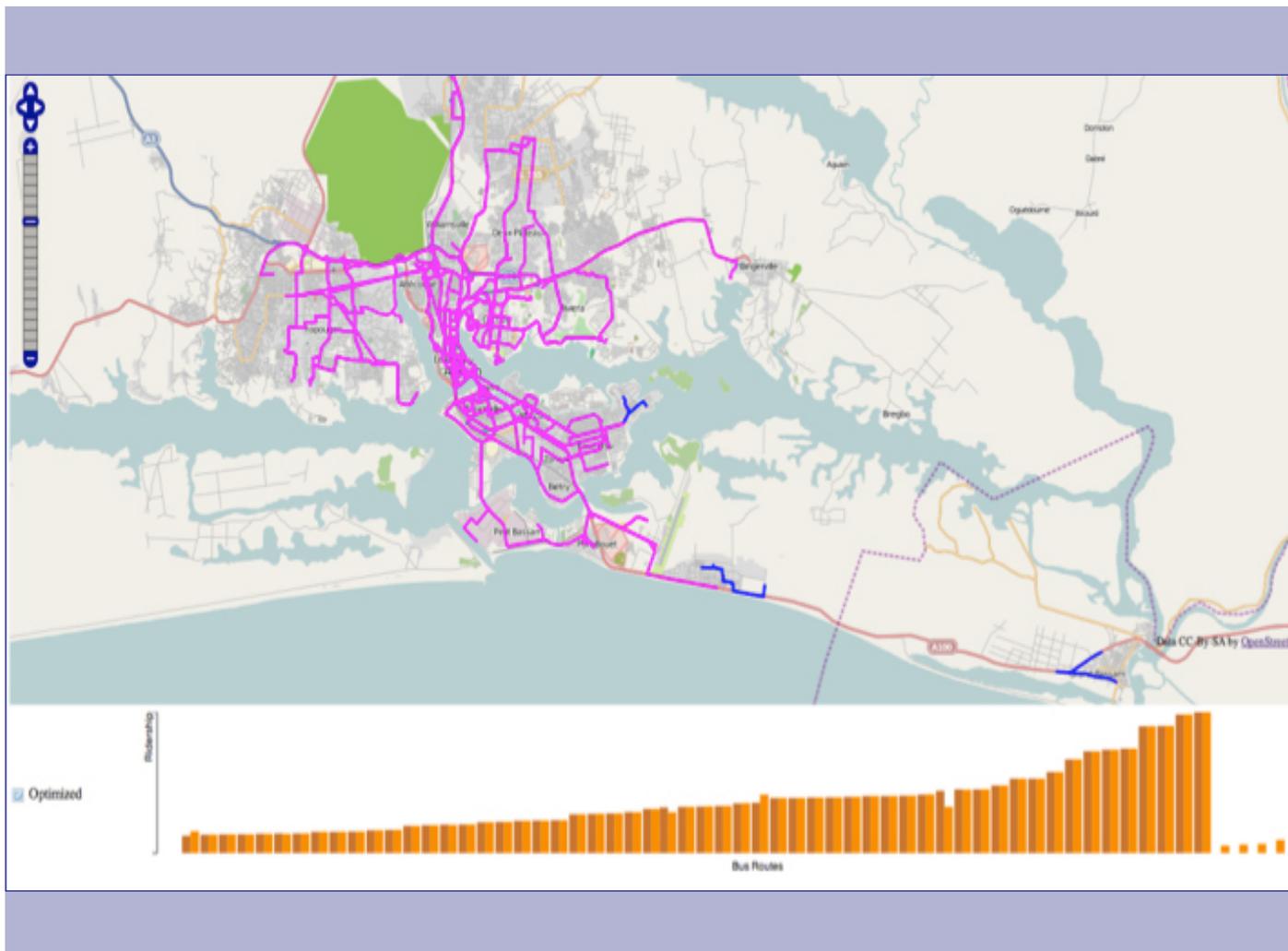
This competition was open to researchers and placed several anonymized mobile radio data files at their disposal covering the period from December 2011 to April 2012. The number and quality of submissions and the many applications envisaged by researchers, particularly in the fields of urban or health infrastructure planning, demonstrated that Orange data contain socio-economic information brimming with opportunities.

Such as the AllAboard project: an urban mobility research system designed to optimize the planning of a public transport network in order to improve journeys and user satisfaction. Mobile phone localization data are

used to deduce the origin-destination flows within the city. They are then converted into routes at the level of the existing transportation network. The characteristics of sequential movements, from data for individual call localizations, are used to provide new opportunities for transport journeys.

An optimization model works out the best way to

improve the existing transportation network, so as to increase the number of bus lines and improve user satisfaction, both in terms of the journey and waiting time. With the data provided, a new transport map has been redesigned based on the population's actual transport practices: commuting, private and business travel.



Tested on the urban transport network (bus and water bus) of the Abidjan Transport Company (SOTRA), the AllAboard project picked up the Orange D4D prize for the

Smart cities

In recent years, the concept of smart cities has conveyed a new vision of urban management. This movement consists in the improvement of urban public policies through the use of new technologies: Internet, mobile phone, networks, digital, etc.

Aware of the challenge, cities will gradually take on board these technologies based on the flow of information in order to improve services to citizens. Smart cities might be viewed as the most recent development of the sustainable city concept.

New technologies must be seen as an historic opportunity to rethink their urban management tools and meet the huge challenges of urbanization now facing us. In addition, these technologies offer inexpensive operational solutions.

«best contribution to development» due to its potential for practical application in the field and its ability to respond effectively to a major problem.²

Putting talk into practice

Following the D4D competition held in Ivory Coast, Orange launched the Data 4 Abidjan project structured according to an operational logic. It is not a question of coming up with a new technology or foreshadowing a new mobility system. The proposed technology exists, works and is now being implemented in some northern cities. Data can be collected without any special investment and the applications are known. That said, this is an innovative project because for the first time an African city is being given the chance to benefit from the latest advances in technology and information management. ■

2. To learn more: www.orange.com/fr/D4D/les-projets

Major urban service companies and the digital revolution

Pierre VICTORIA, *Director of Sustainable Development at Veolia and General Delegate of the French Circle of Water*

Planners have to deal with many challenges related to the new economy of cities and territories. Digital tools have to be integrated into their practices : for instance, they can be applied to community involvement policies, or other participation & governance frameworks. Pierre Victoria shares this experience on that topic.

Major urban service administrators were not the first to position themselves on smart cities. A player like IBM has been quick to adopt this approach and somewhat pre-empt the subject: a seller of computers 40 years ago, it now sells networks. Construction firms followed, though somewhat timidly. The major operators of urban services did not immediately perceive the danger for them of letting players like IBM in on the game. IBM leverages its technologies to market a territory management service in its own right and believes that its technological expertise leaves it well placed. As a backdrop to the debate on smart grids, there is obviously the logic of competition between firms.

However, the emergence of technological players as smart grid administrators does not make groups like Veolia and Suez "stupid" network administrators. These large groups were historically created around the public health movement. Veolia's customer portfolio is currently divided between public customers (60%) and industry (40%). Next year, the proportion should even out at 50/50 and there will be less of a domestic orientation. Whereas 20 years ago, 80% of Veolia's business was in France, that figure is 40% today. However, it remains predominantly European. In developing countries, it is a minor player, since they account for approximately 10% of its business. Historically developed in Africa, it has seen successes and failures; it is developing in seven Latin American countries. It is located at the intersection of environmental services and access to essential services. Its city operator activities are unlikely to be relocated and are therefore largely unaffected by globalization. However, everywhere it is in the high-speed chase between urban growth and development of networks. Faced with these dynamics, it is a question of achieving a parallel response to issues concerning quality and access to services. One billion people have no access to a water supply network and 1.5 billion have no access to an electricity network...

The big challenge concerns the relationship between territories and natural resources. Growth of 1% of the population in a large African city reduces water availability by more than half due to the additional pollution generated. Similarly, illegal dumping in large Third World cities has, in global terms, a disproportionate impact on global warming. The challenge today is to decarbonize, dematerialize and dehydrate. There must therefore be reduced use of fossil resources, reduced consumption of space and reduced urban sprawl. Dematerialization presupposes doing more with less, particularly through the development of the circular economy.

So what can be done? Two key elements must be taken into account. The first is consolidation of the territory as a place where a balance is struck between needs and resources. A new territorial economy is being set up thanks to local practices and resources. Water is increasingly reused and this is especially true for wastewater. In Durban, for example, reuse of wastewater for industrial applications frees up 8% of the water resources of the neighbouring township. Reuse of the resource is therefore fundamental. The second important element to take into account concerns the synergy between urban services. It is hard to imagine managing waste without using energy in the form of heat and electricity, and without reusing and recycling waste. For sanitation, an EU directive requires Member States to develop wastewater treatment systems: sewage treatment plants are now energy-positive and polluting residues are used to produce bioplastics and fertilizers. The technological revolution is extraordinary and provides a fruitful synergy.

A future major challenge will concern the ability of the territorial organization to harness these technological developments. There will be no technological innovation without social and contractual innovation. Veolia has completely revised its relationship with the local population. This was historically established, almost exclusively, through public power. It is now achieving its autonomy and direct relationships are being forged with the population to facilitate access to urban services, especially when informal neighbourhoods are «formalized». This is all about spotting the social impediments, identifying mediators and introducing innovative pricing. Extraordinary things have been done in this direction in Africa.

Contractual innovation is also essential. As heirs of the public health movement, Veolia had thus taken the risk of being paid according to variable water use while bearing fixed costs. It must now obtain payment on savings of resources which enables enhanced organization of urban services. The link between the circular economy and the functionality economy will be the next big debate. It will centre around the type of consumption and production. Other ways to consume will emerge, taking into account social and environmental developments.

Africa has 700 million telephone lines. New uses of the telephone (AMR, consumer alerts, geolocation, etc.) can facilitate the emergence of a more slim line and efficient economy. This new economy will offer differentiated pricing and will undoubtedly be fairer. At the heart of these developments and innovations, the territory will become an

essential point where the social, economic, environmental and sustainable development aspects all interlink. There remains the question of democracy. In Africa, relations with the public authorities are complex yet, at the same

time, the continent's potential is considerable. It remains to be seen whether new technologies will make it possible to improve relations with the population. ■

“Bottom up” uses of the digital city in the South: — Senegalese illustrations

Jean-Jacques GUIBBERT, *Research associate at LISST-CIEU, Université Toulouse Jean-Jaurès eAtlas FAO network*

Digital technologies also bring bottom-up changes. Thus, they can play a crucial role in the emergence and the strengthening of citizens' participation. Those changes are described by Jean Jacques Guibbert, who tells about those evolutions in Senegal.

We cannot talk about smart cities in Africa without mentioning the economic and social context. Senegal, for example, experienced an average growth rate of 4% during the decade 2000-2010. However, in 2011, half (50.8%) of all Senegalese were living below the poverty line. Although the percentage of poor people is decreasing - albeit slightly - their number continues to increase in absolute terms and socio-spatial inequalities remain pronounced. In 2013, sub-Saharan Africa was the region with the highest proportion of shanty towns: 62%, which represents 213 million people. In Senegal, the figure would appear to be between 30 and 40%, according to sources. The adult literacy rate (aged over 15 years) remains low (49.7% in 2012) while that for young people (aged 15-24) is giving cause for concern (51%). Finally, the Senegalese practice a wide variety of national languages and the official language, French, inherited from former colonizers and mastered by only 10% of the population, remains the prerogative of political and economic elites.

These social and linguistic divides are compounded by digital fractures and new information & communication technologies (ICT). In 2009, 14.5% of Senegalese aged over 12 had Internet access and 11.5% of Senegalese households had a computer. However, these low figures are offset by the spread of mobile telephony. In 2012, the penetration rate of mobile telephony in Senegal was 94.24%.

The “bottom up” appropriation of ICT

In the early 2000s, Momar-Coumba Diop wrote in his book *Les émigrés sénégalais et les nouvelles TIC* about the story of the mobile phone owned by Khady Diagne, a woman from the village of Gade Kébé (150 inhabitants) in the Louga region. Her phone quickly became a community resource, functioning as the village “phone booth” and the «life line» between the village and the outside. This experience illustrates the different appropriations of tools by societies.

Another example is the birth and decline of public access points to the telephone and the Internet. In 1987, the

telephone density of Senegal was extremely low (one telephone line per 300 inhabitants) and telephone booths installed by the National Telecommunications Company (Sonatel) were regularly out of service. In 1993, the telecommunications company changed direction and authorized the resale of retail telecommunications services, which marked the birth of telecentres. For a minimum investment of 600 euros (not including the cost of equipment and property), it then became possible to resell telecommunications by applying a controlled price. The system was a huge success. In 2006, 18,500 tele-centres totalling 23,000 telephone lines employed 30,000 people and generated a turnover of 50 billion CFA francs, representing 33% of Sonatel's turnover. In 2006, Sonatel, which was privatized in 1997, changed its strategy and applied the tax per second while the mobile phone was enjoying growing popularity. The competition became fierce and tele-centres experienced a sharp drop in numbers from 24,000 to 4,000 between 2005 and 2008.

This story illustrates both an extraordinary capacity for ownership of new technology and the high vulnerability of the system in relation to an exogenous decision.

Senegalese democracy in the digital age

At the time of the 2000 presidential election, Senegalese civil society was one of the first in Africa to establish a citizen oversight mechanism for elections. Hundreds of militants used mobile phones to send results from different polling stations across the country, so allowing independent radio and television stations to provide the public with live information in parallel with that of the official commission. This established a deterrent effect as regards the attempted fraud which had characterized some previous elections. After 40 years of socialist government, President Abdou Diouf quickly accepted his defeat and paved the way for a change of government. It was the same in 2012 to unseat Abdoulaye Wade. Creation of citizen websites by making important information available to voters during the campaign, leadership of regional

observatories for monitoring and control of electoral operations and posting of results online during election night. Demonstrators and bloggers joined forces to thwart attempts at electoral manipulation by those in power.

This use of social networks during elections percolated down throughout society and is widespread today in local elections. Outside of election periods, can these tools be translated into instruments for public opinion and citizens groups to control political or municipal projects?

In conclusion

Development of the information society brings with it an inherent contradiction. Under the terms of distribution or appropriation, it can lead to processes of economic and political democratization and participate in the strengthening of social and territorial coherence, or, on the contrary, contribute to the process of exclusion and widening of socio-spatial inequalities.

What is a smart city? A city bristling with Wi-Fi connection terminals, surveillance cameras, smart homes, smart grids, speed control radars, pollution or waste bin fill sensors and smart meters, etc.? Or a city which - in a given economic, sociological, cultural and



technological context – is able to make the best of the capacities of its institutions and the creativity of its citizens and find the right combination of technology for its development and its governance?

In this perspective, the smart city is primarily a city of citizens who are intelligent and, to borrow somewhat neglected terms, who are also proactive and participatory. ■



Smart City: a “new” smart urban planner?

Guillaume JOSSE, *Director of Groupe Huit*

It has to be made clear that smart cities won't make urban planners smarter. This is an observation made by Guillaume Josse, who depicts the changes in the nature of jobs related to city planning. He reasserts how much a good understanding of the institutional, economic and social contexts is important to elaborate urban policies tailored to their area.

One thing is for certain, the smart city will not make planners any smarter. Five years ago, a colleague told me, a little bewildered, that his son no longer bought CDs, but only mp3 files. Now my daughter could no longer imagine buying mp3 files, but spends five euros a month on streaming music! The purpose of the application has not changed, i.e. the music, but the medium is radically different, so inducing an economic model of a new kind.

What is the relationship with urban planning? The parallel with the land registry is quite simple. The first land registers were unique maps drawn up “by hand” and virtually impossible to duplicate. It was the time of music before recordings. Then came vinyl and the time of “printed paper land registries”. The digitized land registry then appeared, the equivalent of infinitely copyable CDs but still dependent on printing to be modified. Finally came the MP3 and its music files, comparable to the GIS, where the data file itself is free from its medium.

We are now in the era of tools which are «online», collaborative and open. These new systems make it possible to be free not only of the medium but also of the space. The file, if we stick with the example of the land registry, is no longer kept on a specific computer. If it is copied, two different files are created and it is both here and elsewhere. Anyone can access, edit, view and update the same object. In real time ... And without requiring software or special licenses.

Urban information is everywhere today, plural and collaborative. This is both exciting and challenging. Who processes data and how can we ensure that not everyone knows everything? How can we avoid its use for social control or police control of the population?

Let us return to the example of land management. The digital revolution is changing the profession of urban planners. In the Middle East and Sub-Saharan Africa, for example, only a tiny portion of cities is covered by a land register. Can we imagine reproducing the “classical” process as we have experienced it in our country: drawing maps, copying, scanning, GIS, etc. Obviously not. We'll have to move directly to digital and collaborative tools. An internet connection coupled to an operational method of data collection and updating will suffice.

The addressing operations have been performed for several decades in the southern cities, particularly with the help of French consultants like Groupe Huit. The method is simple and appropriate and allows cities to have a powerful tool for urban management. The digital revolution does not change the method (an address remains an address) but allows for solutions which are much more relevant to the South, particularly the storage of information collected. With traditional computer systems, the person who keeps their database on their

computer becomes an almighty “gate-keeper” whose failure can be fatal. Everyone has already come across at the back of an office a sheeted computer known to contain valuable information but which no-one knows how to get into. Today, hosting databases on the internet costs almost nothing and sharing of information is facilitated, especially aimed at the population. This however requires a more complex organization, more reliable procedures, since information management involves more players.

Another important point is the collaborative nature of the new digital tools. The large-scale embedded systems of mappers seem less appropriate than *OpenStreetMap* where all administered people have the same access. Free or low cost, open, collaborative, open to the outside, shared... these new tools require urban planners to rethink their job, especially in the field of international expertise. Their added value resides less in technical knowledge, specialized expertise and the ability to deploy complex technical solutions.

However, urban planners are not doomed to disappear in the digital revolution. Their jobs are not, in fact confined to deployment of a technique. An elected official remains an elected official with their constraints and expectations. And if they do not like Mozart, they will not like his music anymore via streaming than on vinyl. The players' interactions are not simplified by the digital revolution, nor the constraints weighing on cities. Urban policies are not soluble in the digital revolution. And therein lies the challenge and value of our professions.

The smart city will not make those who make it any smarter. Rightly or wrongly, the intelligence of the urban planner is not always enough to convince elected officials. The date of the next elections, taking into account local issues, or a way of thinking of the city related to their personal stories, always count more than the splendour and relevance of product plans...

Today, some low-cost solutions could be implemented relatively easily, provided you have the necessary skills, in the field of land management, for example. But they still seem out of reach, simply because of the lack of municipal institutions able to take them forward. This requires planners to become more «accompaniers» than experts. Their role is to help local players manage the complexity of the city and ensure that this digital revolution conveys suitable and effective solutions.

Will the digital revolution give rise to new urban planners? Probably not. But more agile, more connected with different ways of doing things and different tools, certainly. Successfully completing a project or a study is firstly and more than ever... about convincing people. And strength of conviction is not digitizable! ■

Publications

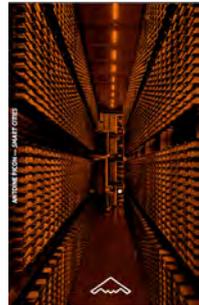


Eric Bouvard, *Reconquérir les espaces publics de Beyrouth, vers une politique d'aménagement*. This *publication* refers to a planning programme focused on the public spaces of Beirut. This scheme is implemented with the support of the region Île de France, the French Agency of Development and the French ministry of Foreign affairs. The programme offers solutions to meet the needs of local citizens (mobility, urban landscape, security), while guaranteeing the preservation of the urban identity of Beirut.

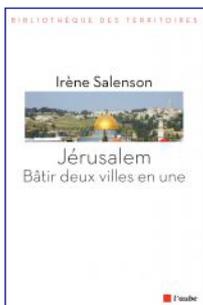
http://www.bt-villes.org/cglu2014/files/5014/0796/0265/AMO_Beyrouth_08012014.pdf

Antoine Picon, *Smart cities*.

In this *document*, the author is investigating the concept of smart city. He shows that this concept cannot be reduced to technological issues. The researcher intends to go beyond a narrow technological perspective on that topic. The governance model of the smart city and the relationships between cities and their surrounding territories are discussed, along with the potential divides that the use of the smart city concept as a policy tool can trigger.



<http://editions-b2.com/les-livres/6-smart-cities.html>



Irène Salenson, *Jérusalem, aménager une ville sous tensions*. Based on fieldwork research, the author analyses the strategic plans and urban policies of Jerusalem. This *paper* gives some useful information on local methods of public action, on the stakeholders system, and conclude with some reflections on the existing planning practices.

<http://editionsde-laube.fr/catalogue/j%20rusalemb%20tirdeuxvillesenune>

In brief

AdP dinner debates

The last dinner debate of 2014 was held in Paris on 10 December. It was devoted to cities in the Middle East. It brought together Irene Salenson, whose thesis on Jerusalem has just been published *Jérusalem, Bâtir deux villes en une* and Eric Bouvard, urban architect, former representative of the Ile de France region in Beirut and author of *Reconquérir les espaces publics de Beyrouth, vers une politiques d'aménagement*. You can find the *report* on the AdP website

<http://www.ville-developpement.org/diners-debats/blog>

The first dinner debate of 2015 will be held in Lyon on Thursday, 5 March on the theme of "L'eau et l'Afrique, comment mettre le maire sur la trajectoire de l'eau". It will bring together Claude Jamati who led the collective work *L'Afrique et l'eau*, published in 2014 by Éditions Alfarès and Jean Paul Colin, vice president of Greater Lyon who will present decentralized cooperation programmes.

The second dinner debate will take place in May / June 2015 at the Habitat III conference with Maryse Gautier, coordinator of the French report for this Conference.

Création of *La Revue Foncière*

The dissolution of the Association of Property Studies (ADEF), following its court-ordered liquidation at end 2013, has led to the closure of the review *Études Foncières*, whose first issue came out in 1978. A group of former contributors responded by creating a new association to produce a journal continuing the work conducted for over three decades and whose quality and importance have been unanimously recognized. The first issue, published in September 2014, covered value capture and the Brazilian example. The second issue in December 2014 dealt with social co-ownership. Long live *La Revue Foncière* !

<http://www.revue-fonciere.com/>



Villes en développement
Association de professionnels



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