From e-government to the smart city: old and new issues

Gilles Jeannot

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Gilles JEANNOT, LATTS, Ecole des Ponts, Paristech.

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1) Introduction

While the term "smart city" has become the new buzzword in urban development the whole notion continues to be highly ambiguous for a number of reasons. First, the notion of intelligence can be applied to everything that is deemed to be positive, i.e., service quality, democracy, natural resource efficiency, economic development, etc. (Giffinger, Gudrun 2010). Second, because it is being promoted by the EU and by private companies, the term "smart city" is associated with labels or classifications that rank cities using a very broad range of metrics. Branding and showcasing can therefore become more important than actual concrete measures (Hollands, 2008).

This topic has been explored, especially post-2010 (de Jong et al., 2015), in a number of different disciplines. A first pointer may be found in IT scientific journals, reflecting efforts to apply these new technologies in an urban setting (Batty et al., 2012). One of the key trends involves researchers working on environmental and sustainable development issues, and we have observed a progressive shift from the themes of the "sustainable city" to the "smart city" (de Jong et al. 2015). The term "intelligence" was

also quite legitimately appropriated by specialists of the knowledge economy applied to the city and some of these researchers (Shaffers et al. 2011) developed a strong overlap between the knowledge economy and the opportunities offered by new digital technologies. It is now widely used in urban geography (Hollands, 2008) (Rabari, Storper, 2014).

However, the term has not really been taken up in specialised public administration reviews. A search on "smart city" or "smart cities" in the major public administration journals revealed that, up to 2017, no articles on this topic had been published in *Public administration, Administrative science quarterly, Governance, Public management review*, only two articles in *Public administration review*, two articles in *International review of administrative science,* and six and nine articles respectively in *Government information quarterly* and *Information polity,* two journals specialised in new information technologies in public administration.

However, despite this paltry research output, public administration is one of the areas most affected by new digital technologies in the city and certain themes like governance comprise one of the key focuses of existing literature. This lack of enthusiasm for the term "smart city" which has flourished in other academic disciplines may be explained by its proximity to another widely-used term, namely e-government.

The objective of this programmatic article is to identify both what has already been covered by research and what opens up new research avenues by drawing upon a series of innovations deployed. Indeed, in order to avoid pitting futuristic predictions (Anthopoulos, 2017) or general principles concerning the smart city against the

empirical realities of e-governance, we need to start with concrete initiatives already undertaken as part of any research into "actually existing smart cities" (Shelton et al., 2015). Because the measurement of new practices is also in its infancy, we will use an original method of identifying socio-technical processes associated with smart cities which we will apply to 20 French cities.

After this introduction (1) we will present the socio-technical processes in French cities that have been labelled "smart cities" (2) in order to describe their specific features *vis-à-vis* the practices associated with e-government (3). We will then go on to analyse these specific features in light of a few relevant pointers that have been developed in relation to e-government.

2) "Smart city"-labelled socio-technical processes in French cities

Method

Our proposed approach adheres to the practice of focusing on management applications or administrative process innovations ((Meeus, Edquist, 2006) (Schneider, 2007) initiated in the US (Poister, Streib, 1994) that has sometimes been used in Europe (Kuhlman et al. 2008) (Jeannot et al. 2018). In such surveys, the general theme of changing administration management practices is tackled by segmenting practices into management tools, i.e., simple, easily quantifiable units. Obviously, we sacrifice a little of the complexity of each situation but because this allows for a certain degree of decontextualisation, comparisons may be made. This research approach is used here in

an exploratory phase in order to identify the socio-technical processes currently used in cities.

Although it is declarative, we are aiming to identify practices actually deployed in French cities. But for the moment, we are not trying to measure the development of such socio-technical processes or even produce an original typology, but, more modestly, to use the list of effective innovations associated with the "smart city" to highlight a few salient characteristics that we can deploy in the "e-governance" debate.

First off, we have drawn up a list of French cities that have been promoted as "smart cities" based on a number of different sources, i.e., EU funding, public investment bank funding and several awards sponsored by businesses or newspapers. We have taken the 10 biggest French cities (Paris, Marseille, Lyon, Toulouse, Nice, Nantes, Montpelier, Strasbourg, Bordeaux, Lille-Roubaix) and those most frequently cited from among the smaller-sized cities (i.e., Besançon, Chartres, Dijon, Grenoble, Issy les Moulineaux, Montpelier, Mulhouse, Plaine Commune, Rennes, Rouen).

Working from this list, we then conducted systematic searches on their websites and other communication media for bottom-up labelling, and in projects funded and in the specialised press for top-down labelling. This gave us a list of "smart city"-labelled socio-technical processes that was either stabilised or in the experimental phase.

Focusing only on one country leads in effect to not covering all smart city developments throughout the world (Neirotti et al., 2014). Some sectors such as education are not present because they do not fall within the brief of local government. Economic

circumstances also play a role given that these initiatives are often partnered by stakeholders in the private sector. The fact that France has produced several leading international urban service providers (in water, electricity, waste and sanitation) can help explain the larger proportion of initiatives in this area. Nevertheless, focusing on just one country provides an overview of everything that has been labelled "smart city" without actually defining the notion.

A certain number of these processes may be classified around traditional municipal government functions, i.e., administration, implementing democracy, network management, public service offering, public security and economic support. But original practices such as "open data" or cross-checking miscellaneous data (traditional or "big data") help to shake up this established function-based sharing by linking a number of these different components. Open data seeks to be an instrument of democracy and to support new services partnered by innovative businesses. Cross-comparison of data potentially concerns all components of municipal management including service sizing, regulation and control.

Administration

Of those innovations highlighted under the smart city label, a certain number relate directly to e-government under headings such as informing inhabitants and enhancing access to services rather than processing individual files. These are websites , "one-stop shop" telephone-based services developed by cities (e.g., *Nantes dans ma poche* – i.e., pocket-sized guide to Nantes) or turnkey service platforms provided by start-ups, multi-service payment cards (Bordeaux), information points (Chartres), or smart parking metres that can be used to pay for parking and obtain information.

The whole idea of smart public bodies (Meijer, Bolivar, 2016) is largely absent from official discourse although cities have bought into the notion: recruitment of a data officer (Mulhouse, Lyon), standardisation (IT urbanisation) of in-house digital offering (Lille, Bordeaux), or a comprehensive customer relations management system (CRM linked to a one-stop shop (in Issy).

Democracy

Several municipalities (particularly Mulhouse, Rennes and Paris) have linked the idea of the smart city to participative democracy and the possibility of expressing an opinion about projects. The key development *vis-à-vis* traditional e-government practices is to shift web-based surveys onto smartphones in order to reach a younger population. Significant participative budgets, such as that provided by the City of Paris, have benefited from enhanced voting access for the general population.

More specifically, the use of 3D imaging helps inhabitants visualise future projects and enhances the public debate . Rennes provides a virtual representation of the entire city while Besançon provides a representation of a redeveloped district. In Strasbourg, debates are organised around on-line participatory maps (carticipe). Some cities have deemed that civic-mindedness is contingent on having a command of these new digital practices and they offer practical training around the large public fab lab in Rennes in several community centres. Applications for flagging up problems with public amenities (holes in the street, damaged street furniture, etc.) using GPS / geo-tracking and sending a photo, together with better access have also shaken up traditional practices based on letters of complaint. Co-production also includes wikis for neighbourhoods and cities.

Regulation of urban networks

Many "smart city"-labelled features of new urban management technologies aim for maximum efficiency in the production of services or in infrastructure management. In many cases, this is directly related to resource efficiency drives and a lot of "green city" or "eco-neighbourhood" projects – mainly concerning energy, water, sanitation, waste management and road traffic – have been rebranded as "smart city" projects by putting the focus on digital technology.

The most widespread practice (because it generates immediate savings) is variable lighting tripped by the presence of pedestrians. The subject of energy consumption in private buildings was central to early innovations (Lyon confluence) and an application for public buildings has also been developed in Nantes and Rennes. Measuring how full municipal dumps are and how much individual bins weigh makes it possible to optimise waste collection route efficiency. This can also be applied to networks themselves by optimising the flow of waste in sewers as attempted in a multi-network experiment organised around the University of Lille. In the transport field, lights automatically go green when a bus arrives.

In addition to these automatic processes, "smart grids" actively get the population involved in regulation in a more original manner. As part of a resource efficiency drive or civic-mindedness campaign, inhabitants are asked to modify their consumption patterns. Smart electric grids using linky smart meters installed in households combine optimal network resource allocation with incentives to cut consumption at peak hours, thus illustrating this practice on a large scale. Households in a neighbourhood in Lyon

and in Nantes were given tablet devices to help them track and optimise their electricity and water consumption. In Besançon the collection of unsorted waste is billed by weight. In Montpelier, videophones in each apartment can be used to warn of flooding.

New digital-based public services

Smart-city labelled services include both new services and revamped forms of old services. Firstly, the question of digital access is addressed, especially free wifi in various public places (Strasbourg, Mulhouse) as well as help with installing fibre-optic broadband (Dijon). There is also a major focus on mobility, providing enhanced information to commuters on public transport, finding available parking using sensors under each parking space as in Nice or through the use of look-ahead algorithms as has been done in Issy. New services include car sharing, large-scale electric vehicle programmes in Paris, bike sharing services in most cities, or more experimental initiatives involving driverless cars. Certain municipalities are expanding this dynamic to the sharing economy by overseeing car-pooling initiatives (Roubaix, Bordeaux) or making it easier to rent private car parks by the hour in the case of Issy.

Alongside the work of municipalities, a lot of effort has gone into keeping elderly people in their own homes (alerts given when toilets are not used). New digital services have also been used to provide tourist information.

Population security and control

Public security and control are less consensual issues and cities may be reticent about giving controversial activities a "smart-city" label. So, for example, despite being technologically quite similar to the socio-technical processes described previously, cars

fitted with Automatic License Plate Recognition technology that can identify car owners who have not paid their parking charges are labelled “smart city” in certain cities (Chartres) but not in others (Paris).

But some municipalities are happy to link urban security and smart cities: Marseille has clearly focused its security innovations around this theme with preventive initiatives based around the automatic interpretation of video camera data.

Support for business and digital initiatives

Economic development is mainly promoted through support for the digital sector and traditional business cluster-type initiatives. Certain economically distressed cities and districts (Roubaix, Plaine commune, Besançon) have set up training programmes to promote digital literacy among young people and help tradespeople to communicate using smart phone apps or terminals. There is also a key focus on tourism with 3D heritage presentations and visitors surveys.

Open data

Open data is also linked to smart-city labelled services and has two objectives. First, greater transparency from a democratic perspective. But in concrete terms, open data means providing spreadsheets containing disaggregated data and processing this into meaningful form. Consequently, examples of disaggregated data use by the general public are relatively rare. Self production by independent associations of data on transport (openstreet maps) or noise (noisetube) using smartphone interfaces are both easier to access because they are formatted by a platform, and less likely to be sorted in a selective manner by public bodies. Cities such as Rennes have supported associations

that wish to develop these alternative data capture techniques. Several cities have developed noise and pollution data capture using service vehicles to meet a specific public need (Paris, Grenoble) and public conferences/seminars have been organised in Grenoble and Lille to promote awareness of the use of such data.

The second aim of open data is to nurture start-ups providing urban services. These may include support with house buying, trip planning or managing energy retrofits in buildings. Nevertheless, the growth in these types of services has not fully lived up to the expectations of those who promoted the related law (Denis et al., 2013) and numerous cities have organised competitions to encourage the use of these data, hackathons, "geek-focused" fab labs, partnerships between start-ups and major bodies like the City of Lyon with the TUBA initiative, or large trade fairs to promote start-ups (Nice, Marseille, Paris). One recent trend involves setting up a platform that gives access to real-time data.

Cross-referencing data and big data

The accumulated data related to these various programmes raises the issue of different cities cross-referencing all of the different data.

This is part of a longer-term strategy of pooling information around geographical information systems deployed in places like Rennes or Plaine commune. Making information accessible in shareable form also helps data circulate between different municipal services. New automatic regulation or shared user systems also generate big quantities of data, often in real time (big data).

Cities can then use deep learning to combine and interpret data and come up with a cross-cutting analysis of urban practices. Many of these multi-dimensional processing techniques are still in the experimental phase: Issy has harnessed image recognition technology to other available data; Lyon tracks its own water consumption; Dijon has built a multi-sector urban network management centre supported by historical service operators; in Nice and Montpelier, IBM has provided a turnkey flood management system. Mobility in transport and public areas has been tackled in Rennes using transport mapping data, in Mulhouse by harnessing user Wifi footprints (p8), and in Paris via image processing technology.

3) Smart cities: emerging trends

All of the various label providers (i.e., financing bodies, media, municipalities) use relatively similar practices and these have a number of recurring features.

A disorderly, generally uncoordinated collection of innovations

The first impression given by the list – not due solely to the method used – is the non-integrated character of the innovations. Both the level and approaches to development are different. Some are in the experimental phase, some restricted to a neighbourhood or a few buildings, some disseminated in a general way throughout several cities, some operated under a municipal concession arrangement, while others are part of miscellaneous partnership-type arrangements with both large and small private businesses. But no single city has an overall integrated programme for these innovations

and this was borne out by a large parliamentary enquiry into this whole area (Belot, 2017).

Omnipresent technological dimension

A second feature of the French situation is the omnipresence of technology. Metaphorical uses of the notion of intelligence (Giffinger, Gudrun 2010) (Meijer, Bolivar, 2016) are fairly present in general political discourse which focuses on the importance of people *vis-à-vis* technology but the concrete examples referred to almost always embrace digital technology. The rare exceptions concern sustainable development-type projects backed by the state financing bank CDC or a few non-technical economic development initiatives that nonetheless focus on digital technology or operating arrangements associated with the digital transformation such as "one-stop shops". So, behind the banner of the smart city and all the attendant rhetoric there is a practical imperative: the impact of new digital technology on the management of city life.

A wider technological scope than e-government

Websites, which lie at the heart of e-governance, are still very much present however, the widespread use of the smartphone is gradually transforming this web-based interface. First, round-the-clock access is transforming uses (bus timetables won't be used in the same way in the house as in the city). Second, GPS is generating new opportunities (e.g., immediately being able to localise a problem on a road / street). The differences with e-government also lie in the Internet of Things with a new generation of microchips containing data on individuals and a whole array of sensors. As regards new data processing methods, processing and image recognition technology is gradually

being taken up but deep learning-type data analytics methods are still at the proof of concept stage.

Extending administration to urban network management

E-governance practices would appear to be one aspect of the smart city however the objects of the smart city are broader than those of e-government which mainly comprise administrative data (information about people, the application of rules, how services work, etc.). The examples presented combine material that belongs more in the realm of engineers than administrators with data that concerns not citizens but objects (building temperature, rain levels, the position of cars within a city, waste tonnage, etc.). Certain developments are an extension of automation processes that began more than three decades ago (Dupuy, 1992).

Other forms of citizen action

Certain ways of getting users and citizens more actively involved are an extension of web-based e-governance practices, i.e., user ability to consult general information or specific information in their file or to express their opinion. Switching information to smartphones reaches a wider public without necessarily changing these functions. But some processes involve user-citizens in urban management in a more direct way, just like "smart grids"-type apps that allow them to change their behaviour based on the information they receive. Citizens are also involved in the co-production of public goods. They may use GPS on smartphones to flag up problems in roads/streets more effectively. They can also process and produce urban data in the course of hackathons and various forms of pro-active contribution initiatives (crowd sourcing). In France, citizens are placed at the heart of data usage because under French regulations, they

must give their consent before certain data can be accessed (e.g., their GPS or wifi footprints) or before various different types of data can be cross referenced.

New ties with the private sector

Some solutions are based around complex relations with the private sector (Barreau-Serfati, 2011). Certain cities have deployed an offer structured around a partnership with a big digital operator (e.g., IBM in Nice and Montpelier, Toshiba in Lyon (Faivre d'Arcier et al., 2016)) or urban services operator (Bouygues in Dijon). Other cities have partnered innovation start-ups (Chartres), purchased turnkey solutions that are intended to be replicated in other cities (Strasbourg for wifi or non-electric vehicle sharing), or negotiated numerous agreements with big companies (Issy).

Weak presence on peer to peer platforms

One last feature of the socio-technical processes identified is apparent by reading between the lines. When tackling the broad question of how digital technology affects urban practices, François Ménard (2017) suggests distinguishing between three types of developments: the automated city, the "wiki" city organised around collaboration and the "uberised" city based around platforms that connect individuals to exchange services (car pooling, accommodation, taxis) (bla bla car, airbn'b, uberpop) or data (sharing GP position)(Waze). Comparing experiences actually identified against this typology shows that the bulk of the practices promoted by government departments fall into the first category, a few into the second and virtually none into the third (those few that do concern the third category are often still in the demo phase, e.g., a few car and car park sharing platforms).

4) Renewing traditional e-governance debates

We shall now revisit these specialities in light of traditional e-governance research findings.

Forms of development: Steps or phone apps

One of the most marked impressions concerning the gathering process is the non-integrated character of the innovations highlighted and this leads us to revisit the question of "stages" of development.

Research into the deployment of e-governance initiatives is based around the idea of hierarchical stage of commitment to the use of ICTs for administrative purposes (Layne, Lee, 2001) (Lee, 2010). Starting with the most basic level which is putting information on a website, three main learning paths are proposed: interaction / adaptation of each citizen, integration of the different components of the offering and ability of citizens to actively participate. The fact that most articles present the different stages in a single model table implies joint progress across the different activities. However, surveys give a more nuanced picture of the effectiveness of such a development (Noris, Reddick, 2013).

The innovations analysed represent only limited progress in the various different areas and under no circumstances may the smart city be considered a further step along the way. Individual processing of administrative files is virtually unconcerned; as regards capacity to participate in decision-making, we note that consultation processes have

shifted from websites to smartphone apps; the integration of the different components of the offering has barely even begun.

Rather than an integrated model, the dominant development paradigm is an accumulation of sector-based innovations equivalent to smartphone apps (Ménard, 2017). Some cities like Lyon or Lille focus their development efforts on a neighbourhood but both give priority to regulation.

Comparing these practices with the models devised to analyse the development of e-government raises important questions about the development of the smart city. Should we consider this as an incomplete form of development or a new development process? Does the fact that many developments are linked to private operators mean that it is a transition phase or an original development process?

Interoperability between administration and engineering

The fact that these disorderly processes are largely isolated once again raises the crucial issue of interoperability. If we opt for the first integration-based model, we encounter one of the key questions of e-government, namely interoperability between the different data gathered. For T Nam and T.A. Pardo (2011, September), who are among the few researchers to have moved from e-governance to the smart city, "a smart city innovation may be classified as an interoperability arrangement". They also stress that "combination, connection and integration of systems and infrastructure" are of fundamental importance. Indeed, the failure of major IT projects is a tangible reality (Whittaker, 1999).

The same authors believe that the organisational risks inherent in adopting e-governance practices are directly transposable to smart cities. These risks entail both balancing objectives and resources in complex institutional contexts and the fact that controlling information both internally and externally is a key factor in power politics. Even if the technical issues involved in interoperability are resolved by new technology, the main difficulties are actually social and not technical.

The professional and human component also appears important to the success of such ventures. The possibility for a professional "intermediary" (Khanna, Venters, 2013) of forging ties between different sectors and different levels of responsibility is a key factor in successfully coordinating different services. This issue is especially relevant in the case of data officers.

From e-democracy to responsible co-production

The new forms of proactive citizen engagement facilitated by a number of the processes studied actually reframe the whole democracy issue by strengthening co-production.

The possibility of citizens using new technologies to interact directly is one key argument in favour of smart cities as it was for e-governance. However, if we limit the whole democracy debate to ability to participate in decision-making, we encounter very few innovations among the "smart city"-labelled practices identified. This does not mean that the political dimension is absent: this is bound up less with how an opinion is expressed in decision-making than with the expression of civic responsibility within a co-production framework.

Citizens' ability to actively participate in the public service offering or regulation is an established practice that has been based around involvement in associations. The afore-mentioned technologies provide many more individualised possibilities for the responsible citizen wishing to co-produce public initiatives (Linders, 2012). Everyone is being called upon to change their behaviour in favour of sustainable development (on economic or civic grounds): lowering the thermal comfort in their homes, shifting electricity use to off-peak periods, sorting waste, etc. Citizens may produce data passively (by allowing their GPS footprint to be accessed) or actively by providing information and they may become involved in processing these data in certain situations (e.g., wiki, openstreet map). They may also participate in the upkeep of public spaces in a renewed form by flagging up problems or be called on to provide services by making their parking space available for the public for example.

Shifting the political focus from participation in decision making to day-to-day co-production of public goods helps strengthen civil society. But this still raises many questions concerning the isolation of individuals *via-à-vis* co production processes backed by associations, the limited proportion of the public concerned (Linders, 2012), the lack of public enthusiasm for opportunities to contribute to sustainable development (which also reopens the question of the adoption of e-governance (Carter, Bellanger, 2005)) or distortions in information or services inherent in the information gathering process (Rabari, Storper, 2014).

Public-private partnerships and data control

The huge variability and decisive role of private initiatives in new solutions means that a question that was previously fairly marginal in e-governance now moves to the forefront.

Subcontracting of the traditional websites that are so central to e-governance to private firms had not really been a key research focus. Public-private partnerships were tackled later when e-government functions were farmed out *en bloc* as part of concession arrangements in developing countries. But more recently, relations with the private sector have been re-examined with the growth in the use of social networks and concerns that exchanges between government and citizens may not remain the property of local authorities (Mergel, 2013) (Barns, 2016).

Data control around the use of social media has emerged as a recurring theme in the diversity of relations between municipalities and their private subcontractors. Data may be located on an external server owned by a company as is the case with certain partnerships negotiated with big corporations (IBM or CISCO) in Nice, Montpelier or Paris. This is also the case with smaller businesses that provide cloud-based software as a service. Data may also be hosted by companies responsible for day-to-day network management. Transmitting this data in real time to the public concession provider is also a major issue.

Open data and mediated transparency

Open data included in French smart city projects reopens the issue of transparency traditionally associated with e-governance.

While this may give the impression of immediate access to data as citizens are able to penetrate the municipal working environment, the opposite is actually happening: everything hinges on the mediation associated with these data as illustrated by a thesis focusing on the Lyon agglomeration (Courmont, 2015). For a start, the available data is not as "raw" as it appears (Denis, Goeta, 2013). Management worksheets contain "unclean" data, gaps etc. Therefore, files made available to the public have actually been pre-formatted. Next, turning this data into information assumes reasonably sophisticated processing techniques. The way in which big data is handled by French municipalities illustrates the need for mediation when using these data.

Big data and privacy

One key feature of these innovations is the shift from administration to engineering. Many of them are concerned with regulating networks and not directly with people. Focusing on the socio-technical processes deployed in French cities and not on theoretical abstractions concerning possible uses leads to greater circumspection when analysing the frequently touted smart city based on control and surveillance and the related dangers for privacy.

First, a big chunk of the data actually affected by big data practices are note linked to individuals. One of the most advanced domains is flood prevention (weather data, water height and pipeflow data). Certain traffic data based on cameras and counting can be used to manage traffic flows without ever actually recognising cars. Next, individualized data is often of poor quality: a bus or tramway travel card may reveal which line you took or maybe where you got on, but never where you got off. Security cameras can record the trips people take but are only used to recognise individuals in very specific

circumstances. Generally speaking, data-linkage currently appears limited in scope when compared with what can be done with the pooling and processing of consumption data. Initiatives to harness deep learning are still mostly in the experimental phase.

Compared to other e-governance sectors like taxation and health with more sensitive and complex data (Bélanger, Hiller, 2006), the whole issue of privacy appears less urgent and should be addressed more in terms of shifting uses (Zoonen, 2016). For example, weighing the net-of-recycling waste left out compared to the recycled volume could be used to shame a citizen engaged in environmentally-unfriendly practices, or filming crowd movements can sometimes be used to recognise specific individuals.

Competition for trust

The paucity of peer-to-peer developments via public platforms and the imbalance between the private and public offering of traditional public services such as urban public transport is reframing the whole question of trust as it relates to e-governance.

The theme of trust as it relates to e-governance has been tackled in two overlapping approaches. The first concerns the trust needed for users to engage in an electronic transaction with the government (Belanger, Carter, 2008) and it is a primary condition for the dissemination and use of such services. The second concerns the impact on citizens' trust in government of service quality and the image of modernity associated with e-governance (Parent et al. 2005). And although the links between efficiency and trust are by no means automatic (Van de Walle, Bouckaert, 2003), the two dimensions overlap insofar as greater general trust in public bodies drives greater use of online services.

The development of private platforms offering services and data-linkage lends a new dimension to this theme. First, some of these private platforms use standard interfaces that customers are used to and expect to find in any public service compatible (Carter, Belanger, 2005) with these standards. Next, these platforms help create trust between users. By offering a chance to rate people on the platform, services such as Airbn'b act like "trust builders" and consequently appear as places of trust. There is therefore potential competition for trust. For example, several cities provide information on the opening hours of various different services such as swimming pools and a wiki that offers the same info plus comments posted by pool users – the latter will inspire much greater trust. A study conducted in France shows that citizens are reluctant to give out information such as their GPS location whereas these same citizen-consumers will gladly provide this location to private platforms. Behind this competition for trust lies the challenge to commitment to public service.

Conclusion

For the running of cities, the transition from e-governance to the "smart city" has been marked more by a series of shifts than by any major overhaul. Movements concern objects (from network administration to engineering), the technologies harnessed following the emergence of connected objects, platforms and data analytics, and the increasingly intricate relationship between public stakeholders, private operators and users/citizens. Because of these changes, applying a few of the hottest e-governance

issues to new “smart city”-type practices and focusing on contrasts makes it possible to both leverage the findings of the primary research field and trace out some original research avenues.

Certain e-governance issues appear totally relevant to the broader domain of the smart city and certain findings – especially those regarding all questions of integration and coordination between services – could be transcribed directly. Nevertheless, changes and shifts observed have helped to renew certain e-governance debates, greater possibilities for interaction in services and more complex links with private sector offerings created by new perspectives, particularly around the co-production of the public service and joint trust-building.

The whole issue of smart city governance lies at the juncture of all these practical questions. The ability of municipal representatives and populations to control these developments is by no means a foregone conclusion and each of the themes tackled here is one aspect of this governance.

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