BENVGSC3

Smart Cities: Context, Policy and Government

Assessing smart cities:

how smart is Paris?

April 26, 2016

Word count : 2987

Contents

1   Introduction

In this study, I asses the extent to which Paris, the capital of France, can be considered "smart". I first review the literature related to the concept of *smart city* and provide an operative definition based on five indicators, in order to frame the scope of the work. I then asses the "smartness" of Paris by looking at how new technologies such as mobile phones, internet and internet of things are affecting these five indicators. I found that Paris has a lively eco-system of startups and an innovative administration often at the avant-guard of transport technologies. The public administration is a major actor in the promotion of new technologies and even in supporting of startups and has been traditionally quite fast in experimenting new technologies. Some concerns over privacy are slowing down the adoption of some technologies but they also spark interesting debates. The city administration is currently highly committed to increasing interaction with the citizens and extending participation.

2   An operative definition

The concept "Smart City" is a fuzzy one. In its infancy, it had to do with the idea of introducing a rational, scientific method in the planning and management of the city and in this it is nothing new (see Hall (2002) for an overview of planning history). As a concept, it has no clear definition, but it is related to other terms such as "digital", "intelligent", "ubiquitous". According to Nam & Pardo (2011), "digital" refers to the pure technological aspect, the infrastructure, while "intelligent" includes the use of knowledge to turn this infrastructure into operative management and "ubiquitous" refers to the wide and omnipresent accessibility of the digital content. This technological point of view is typical of an early stage in the formulation of the idea (Hall 2002) and is embraced by major corporations such as IBM, Cisco and Siemens, promoting and selling services for government institutions to make use of the large amount of digital data collected about society (Townsend 2013). This definition is, of course, partial and limited to the interests of the proposers and has been largely criticised mainly because it is considered an expression of neoliberal policies and because of the potential for mass surveillance and privacy issues (Greenfield 2013). Somewhat ironically, Greenfield's critique concentrates on Smart City as described by the very actors he intends to fight, reinforcing their definition to the detriment of other, perhaps more complete definitions. Shelton et al. (2014) argue that smart city is a more nuanced concept than iconic projects such as Songdo in South Korea or Masdar in the United Arab Emirates. They analyse existing cities rather and suggest

that "smart city interventions are always the outcomes of, and awkwardly integrated into, existing social and spatial constellations of urban governance and the built environment" (Shelton et al. 2014). Albino et al. (2015) provide a summary of the definition by several authors of the past fifteen years from which I have extracted what I think are the most relevant key words and their supposed role:

ICT is everything that has to do with new technologies such as broadband, smartphones, sensors, etc.

Open Data and Big Data, the large amount of data produced by digital devices from the users with either restricted or free access.

Growth is the ultimate goal of smart city policies and is generally recognised as one of the main contributors to wellbeing.

Efficiency improved by the use of digital technologies, which allow the monitoring and management of all the key infrastructures.

Sustainability and carbon reduction are now widespread goals for most administrations and improved efficiency is one of the keys to hitting the targets. Digital technology can help with optimal allocation of resources.

Competition between cities at a global level for resources which include human capital and knowledge.

Citizenship and participation improved by transparency, citizen awareness, participatory governance. People are more empowered by an easier access to information and make more informed choices.

Resiliency is a later addition to the list and refers to the capacity of recovering from physical, economic or social shocks (Chelleri 2012).

As it is clear, the concept of smart city includes several subjects and in that is also quite vague. Interestingly, in the list compiled by Albino et al. (2015) we can read a brief history of the concept where the oldest quotation from Hall (2002) reflects the early interest in the use of digital technologies to efficiently manage the infrastructures and the later addictions related to social media and citizens participation. Ultimately smart city is a concept that incorporates what the relevant issues of the time and of the speaker are. From my point of view, I find interesting, albeit not exhausting, the definition given by Giffinger & Pichler-Milanović (2007):

> A city well performing in a forward-looking way in economy, people, governance, mobility, environment, and living, built on the smart combination of endowments and activities of self-decisive, independent and aware citizens. Smart city generally refers to the search and identification of intelligent solutions which allow modern cities to enhance the quality of the services provided to citizens.

They identify a set of key dimensions which they use to assess several medium size European cities:

- Governance

- Economy

- Mobility

- People

- Environment

ICT is not directly mentioned neither in their definition nor in their keywords, but it is definitely the driving force behind the recent innovations in city management: for the purpose of this essay I will assess how new technologies are implemented and affect the above five items in the city of Paris.

3 Assessment

3.1 Governance

3.1.1 Government structure

The metropolitan area of Paris, part of the region of *Île de France*, is governed by a hierarchy of institutions organised according to what Slack & Côté (2014) describe as "voluntary cooperation and special district". At the core of the metropolis sits Paris, with its 2.2 millions inhabitants and 20 *arrondissements* (local councils) directed by the *Mairie de Paris* which is the mayoral institution. Grouped around Paris are further 15 *départements* that constitute the rest

of the metropolitan area for a total population of about 7 million.

3.1.2 The Marie de Paris as a connecting hub

The Marie de Paris is very active in developing digital services to its citizens and promotes itself as a repository of everything that is happening in the city so that people ideally can find everything in one place. The website Paris.fr is an important reference for a huge number of activities which are organised in the city and it collects and organises information coming from its 20 *arrondissements*. It is also one of the main tools to communicate with the citizens and to receive feedbacks (see Section 3.4, p.7). To meet the digital agenda, 180 million euros have been invested in the to redesign the city's website, to create a unified digital account for the citizens to access all the municipal services, and to improve digital technologies in the public administration.

3.1.3 Open Data

In regards to Open Data, there has been a strong drive by the State at the national level and in 2014 France entered the top five in the "Open Data Barometer" (Davies 2015). Paris and Île de France have their own Open Data portals, that offers a large number of datasets from financial and social budgets, to location of ser-

vices, urban master-plans, election results, etc.. Paris has its own Chief Data officer and supports and promotes the applications that make use of the Open Data provided by the city with the platform *ParisApps*. It is also directly involved in organising hackathons with the aim of generating innovative ideas on relevant subjects. Data about transport is made available by RATP, the local transport authority, although real-time data is not open access. The recent diatribe over the right to access live feeds between RATP and CityMapper (Jacqué 2016) poses the question of who should pay for the Open Data's running costs. Another important question connected with the collection of personal data is the issue of privacy and discrimination. France is very sensitive to the issue and a law from 1978 bans the collection of ethnic data on the grounds that it can reinforce discrimination (Delphine 2015). Similar issues prevent the use of a touch-in touch-out systems in the underground. This very precautionary approach to the privacy issue is of course very different from cities such as London. On one hand, it can prevent innovation and more efficient services, on the other hand it protects citizens from unwanted consequences of the big data age (James 2014).

3.1.4   Accessibility

There are a number of initiatives funded by the Mairie de Paris to facilitate the diffusion of digital culture and address the digital divide between different social classes. These include targeted teaching in deprived areas of the city, support to commercial activities to incentivise the use of technology and formation of public officers to diffuse the knowledge to citizens with reduced digital access.

3.1.5   Digital infrastructures

The digital infrastructure in Paris offers more than 2000 WiFi points managed by the Mairie, which is also co-funding the development of the fibre optic network for privates and companies. The Open Technology Institute ranks Paris amongst the best cities in terms of internet speed connection and cost of the services Danielle et al. (2014). The city is also installing about 2000 "abribus", bus stop canopies partially powered by solar energy with interactive screens to browse information about the location, smart lighting and USB plugs, at the same time launching a competition for the development of applications to be used on them.

3.2   Economy

Paris is ranked 11th in the "Startup Ecosystem Report 2012" (Herrmann et al. 2012), which

compares 20 cities to the Silicon Valley, taken as the exemplary case. It is currently the second startup ecosystem by size in Europe after London but the real up-and-coming in 2012 was Berlin, who took over Paris in the 2015 report (Hermann et al. 2015). According to the report, Paris suffered and still suffers of three major problems: lack of capacity to attract talents, a recognised rigidity of the job market when companies have to scale up and a decisive lack of late-stage funding. Compared to London and Berlin, Paris seems to attract fewer talents form abroad the locals seem to prefer big, established companies. On the other hand, Paris scores well in terms of support from the public administration, suggesting that the city is doing well in trying to ignite a startup ecosystem but there are some systemic problems, probably at the national level.

The public administration supports innovative start-ups with the so-called *incubateurs*. Incubators are co-working hubs where selected young companies are hosted and tutored during a three year program. In the first year, called *amorçage* (beginning) the start-ups are supported with the provision of cheap working spaces and the other two years, called *décollage* (take-off), are provided with courses from experts on the different aspects of business and introduced to networks of investors. This comes together with the an-

nouncement in December 2016 (*Lancement de l'Arc de l'Innovation* 2015) of the launch of an investment of 300 million euros for the departments right outside Paris, typically deprived areas, to create 150 000 m^2 of tertiary space for *incubateurs*, co-working and services to enterprises. This is part of a renovated commitment (see also the project "Grand Paris Express" in section 3.3, p.7) at trying to address the historical gap (Saint-Julien & Le Goix 2007) between the richer part of the metropolis, central Paris, and some of the other departments of the North-East *banlieue*. The drawback of this type of interventions is that public money is poured into activities that require high skills and therefore the people who are more likely to benefit from it are the ones who already have an advantage over uneducated, poorer people. These big investments, if successful in creating a dynamic environment, will make the deprived area more attractive to the middle class and might end up in the displacement of the lower income class rather than the improvement of its conditions. On the other side, the relatively tightly regulated house and rental market typical of France and the digital alphabetisation programs run by the city, might attenuate this dynamic and create enough inertia so that the process will be slow enough to benefit different social classes.

3.3 Mobility

Paris has a large share of trips (60%) made by walk, by bike or by public transports. The percentage improved from 2009 to 2011 (Ami & George 2013), and Paris is doing slightly better than Berlin (55%) and not far from the 64% of the most virtuous city in Europe, Amsterdam. Vélib' (in 2007) and Autolib´(in 2011), respectively the bike and car sharing services, are the two services where Paris lead the way in terms of using new mobile technologies for sharing vehicles on such a large scales. Although in both cases, other cities have adopted similar services, Paris made a huge impact for the size of the two systems, featuring 23 600 bikes and 2 300 cars. Both services have been recognised to be great successes, although the fact that they are predominantly located in central Paris poses the question of whether they serve just middle-upper classes. Grand Paris Express and the expansion of Autolib´to the *banlieue* are the two big projects that try to address this disparity. Paris is also planning to test some alternative transports such as driverless boats called SeaBubbles (Fergus 2016) and railless trams called Bluetram.

3.4 People

For the purpose of this study, I assess what tools are available to citizens to interact with the administration of the city. The major gate through which it is possible to send feedback to the Mairie is the website Paris.fr, that has been recently renovated. The website hosts a series of participatory tools such as questionaries, calls for ideas, competitions on different subjects. There are also second and third level institutions, the *arrondissements* and the *quartiers*, which offer an extra level of accessibility to the administration. Since 2016, Paris dedicated 5% of its budget until 2020 to proposals made by citizens through the initiative called *Paris Budget Partecipatif*. Citizens are invited to submit ideas that are of public interest and bears no significative running costs to the mayoral office and these are then voted by residents with budget allocated accordingly. Another interesting tool is the "Conseil citoyens", forums organised in deprived areas to incentivise the involvement of citizens who traditionally do not participate in the political debate, in order to increase the inclusiveness of the democratic process. At the moment, for example, it is possible to actively comment and interact with the authors of the new strategic plan called "Paris intelligente et durable" (Mairie de Paris 2015). The website jemengage.fr is the public platform for charities to promote and make their work known. The account Twitter @parisjecoute is dedicated to the citizens to pose their questions and being answered directly by the public administration. The official Twitter account of the

city, @Paris, has more than one million followers and sends information about events, security and major disruptions. This list of some of the most interesting digital initiatives to increase participation level is not exhaustive and many other tools are available not necessary digital but made more accessible by the new technologies. In order to navigate through this complex system of initiatives, the Mairie also offers courses to understand the meaning and the tools of participatory democracy.

3.5 Environment

An entire chapter in the strategic plan (Mairie de Paris 2015) is on the building environment, the utility grid, the consumptions, the vegetation and the resiliency. Some projects, such as recycling infrastructures, urban agriculture, car reduction, etc. are not directly related to digital technologies and their analysis falls outside of the scope of the present work. Amongst the projects that rely on digital technologies are the experimentation of presence sensors for taxis stations, loading bays and disable parkings to be able to monitor and optimise their use and an application to provide live data on parking spots. On the subject of the building environment, the city committed to labelling every new urban development as "éco-quartiers", a label defined by the French law for top-notch sustainable projects

which requires particular performances of the building and post-occupancy monitoring of the buildings. A 3D model in collaboration with l'École des Ingénieurs de la Ville de Paris is being developed as a tool of analysis and communication for future development. In 2014, the mini-city Sense-City was opened at Marné-la-Vallée, one of the departments just outside Paris. With a budget of 9 million euros, this projects created a realistic environment to test micro and nano-sensors for instrumenting and managing cities and to analyse the results in collaboration with the local university. It is also used a testing ground for technologies to be exploited commercially.

4 Conclusions

One constant characteristic of the Parisian ecosystem is that the involvement of the public institutions is often large and all-encompassing. Most of the activities in the city pass one way or the other through the public administration: not necessarily in the negative way of bureaucracy but also as support and promotion. The drawback of this, which is reflected in the difficulty in attracting foreign talents and capital, is that it gives an advantage to people born and bred in the French system. The public administrations in general, even when they offer support, are difficult environments to navigate for the strangers

to the local system, often designed around the local population. Locals have easier access to information by means of the local social network of families and friends, foreigners do not. On the other hand, Paris administration is really making efforts to extend the participation to different social classes and this even more after the terrorist attacks of 2015. This strong presence of the government has made the city sometimes slow to respond to changes. It is possible that a successful interaction between the a strong public administration and the citizens will be a key element in the future of the city.

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