
What Do We Mean by “Smart City” and Where Does This Idea Come From?

Three names are to be remembered: Songdo, Masdar and Plan IT Valley.

The city of Songdo, in Korea, was developed by an American company in partnership with a steel-making company called Posco and a company called Cisco with a budget of 40 billion dollars. The city received cutting-edge digital technologies provided by Cisco and is presented as being “100% connected”. The people can work out with their online coaches, commercials will adapt depending on who is watching them, and all access points use biometric scanning. Close behind is Masdar in Abu Dhabi which cost 22 billion dollars. It is a city designed to hold 40,000 people and appears as a cluster of technologies that manage most limitations of a city built on a desert: energy production, water, climate control, integrated transport that removes the need for automobiles, etc. And lastly, we have *Plan IT Valley* in Portugal for an investment of 10 billion dollars, which hopes to hold 225,000 people. Financed by Cisco, Microsoft and a British engineering company, it is meant to provide an archetype for an entirely connected urban system able to manage all connected spaces and networkable activity.

The problem is that none of these cities are lived in, other than Songdo, and even then, far less than it was originally hoped. These are cities designed for rich people where there are no poor, sick or old people and no delinquency. These cities were created in total disconnect with any existing territory, and they have no history and inherited culture. They are mostly showcases for technologies that propose an optimization model for all

urban flows such as traffic, energy, information, etc. through an integrated data-processing system that monitors all information. The most accomplished of such systems is Rio de Janeiro, designed by IBM for 14 billion dollars. This center is not an innovation in the sense where it would change city management as a whole. All it does is collect the data from 30 administrative services in the city. It improves decision making, in terms of quality and efficiency, but does nothing to change the nature of the fundamental problems encountered by a city [GAF 16]. It has no impact on solving Rio's fundamental problems, such as poverty, crime, *favelas* that are constantly growing, pollution: it simply automates what already exists. The city of Rio definitely manages all of this faster and more efficiently, but whether or not it manages it in a smarter fashion is a whole other matter, a political matter which goes beyond the realm of ability of a machine, regardless of how powerful it is, contrary to what the mainstream would suggest.



Figure 1.1. *The operations center of Rio de Janeiro, constructed by IBM*

The prominent actors in these realizations are IBM, Cisco and Siemens. These are “global companies”, “solution integrators” who integrate machines and software to offer high-end solutions such as *Cockpit 15* by Siemens

which aggregates all information produced by a city’s processes into one same decision-making system. A similar type of product is IBM’s *Operations Center software suite*. Other companies such as Samsung, Intel, Philips and Hitachi offer product line-ups for smart-city solutions. These businesses are the root of this conversation surrounding smart cities.

1.1. Not-so-smart smart cities!

As Adam Greenfield [GRE 13] explains it in his book *Against the Smart Cities*, this situation could correspond to the situation if designing the cities of the 20th Century had been granted to Bouygues, Roux-Combaluzier and Renault: concrete, towers and cars (and as we will see, that was the case to a certain extent). Each one of these companies reduces the city to what it knows how to do ...and sell. Thus, for Cisco, a leader in digital networking, a smart city is defined as “*the continuous integration of private and public services provided through a network of infrastructures to individuals, administrations and businesses*”.

Songdo, Masdar and Plan IT Valley are cities that were deliberately created with no territorial considerations, with no past, history, inherited culture and no interactions with their environment other than digital data exchanges. Nothing in the design of these cities takes into account what a city really is as a system of life. The latter is reduced to a technical system that is supposedly reliable, lifeless and impervious to the hazards and unpredictability of human behavior. When we take a look at the conversation surrounding smart cities as Greenfield has, we see that these cities do not live in the present. A sociologist would have a hard time studying its inhabitants, what their social codes are, their myths, their rituals and their founding taboos, and the specifics of this city. Their history is reduced to the promise of a *new age* future provided by technology. Social life is reduced to a perpetually aspiring technology that promises a perfect world. The city is inhabited by an archetype of the perfect family: average education, two children, standardized workplaces, perfect transportation systems that never break down, a city without poor, old or disabled people, etc.

Greenfield goes on to say that smart cities are an ideology based on scientism and positivism, which were dominant during the 19th and 20th Centuries. Siemens said it best: “Several decades from now cities will have countless autonomous, intelligently functioning IT systems

that will have perfect knowledge of users' habits and energy consumption, and provide optimum service...The goal of such a city is to optimally regulate and control resources by means of autonomous IT systems” [GRE 13].

We have returned to the logical positivism of the early 19th Century which seemed to believe that the world could be perfectly known and understood and that we could design perfect systems using deductive reasoning. Logical positivism relies on the principle that reality is empirically countable and that it contains a finite number of possible relations that can be coded into a technical system, with no bias or distortion. Applied to the city, it is the argument to support that there is one and only one correct universal model which is the solution to human, individual and collective needs. The technical system, through algorithms, will find the appropriate solution depending on each input and each situation. Public policy is therefore reduced to designing the information systems that rely on data sensors and algorithms to process and interpret the data, thanks to experts that would be external to the life in the city.

We can consider this way of thinking to be undesirable, in that these algorithms will have no transparency for citizens of the city. We will revisit this essential idea of the relation between smart city and democracy. But it is mostly false on an epistemology standpoint. Logical positivism and its deductive reasoning cannot achieve a real understanding of reality. It was spread by the Vienna Circle¹ during the first half of the 20th Century and was disputed by Karl Popper, who demonstrated the error of the scientific reasoning that constituted deductive logic to which reality is only admissible insofar as it corresponds to theory.

¹ The Vienna Circle was a group of intellectuals united around Moritz Schlick and included Rudolf Carnap, Otto Neurath, Viktor Kraft, Hans Hahn and Herbert Feigl. It attracted a number of renowned scientists such as Kurt Gödel. They set themselves the objective of unifying sciences and eliminating metaphysics, the propositions of which they considered. They were inspired by concepts from Russell and Wittgenstein with an aim to formalize scientific knowledge. Logical positivists considered that only science made sense, and only things that were empirically verifiable were scientific. Their criteria for what was scientific were also a meaningful criterion. They aspired to a world where we could base ourselves on certainty and would be rid of all metaphysics that claim to hold any truth. Popper was opposed to the philosophy of the Vienna Circle, called logical positivism, logical empiricism or even neopositivism. The criticism of this philosophy was the center of Popper's first book, *Logik der Forschung* [POP 34], *The Logic of Scientific Discovery* [POP 59].

This ideology has given way to the cult of the seamless, of continuous processes and optimization. The truth is, however, that life has seams. Everything cannot function without friction, and having seams is necessary in order to maintain data confidentiality or isolate certain processes. The obsessive scientism that comes through when discussing optimization considers the design of a perfect system that would have no elasticity in the face of unpredicted scenarios. Any system that is not simply a mechanical machine with no room for an environment that generates unpredictability requires grey areas that allow for tinkering in order to manage these unpredicted scenarios. This also means that these systems should be decentralized and grant initiative to actors in the field.

Smart cities as envisioned by salesman are therefore just a machine that will only automate existing functions reconditioned by digital technology and robots. We find here the idea of the first age of cybernetics. After the creation of the first computer, an article in *Le Monde*, “La machine à gouverner” [DUB 48] – which was very well received by one of the fathers of computing, Norbert Wiener, in *Cybernetics and Society* – states:

“We may dream of the time when the *machine à gouverner* may come to replace – whether for good or evil – the obvious current inadequacy of the brain when the latter is concerned with the customary machinery of politics”.

An old Saint-Simonian dream of replacing politics with an “industrial society” managed by the rational laws of mechanics. An automation which, just like any cybernetic system, will be incapable of facing events that have not been predicted.

Cybernetics, appearing at the end of the Second World War, was a theory founded by a meeting of the greatest researchers of the time in the field of information theory, engineering and monitoring of systems, both mechanical and social. At the end of the war, the idea was to see if self-regulated systems that used information feedback loops could provide greater regularity and serenity in human decision making. Human systems could be piloted as technical systems, thanks to engineering of complexity and control. It was considered that a system could be studied as if it were a passive piece of data that could be manipulated and perfectly described by an outside observer.

In the 1970s, a second order of cybernetics began to emerge. This new wave of cybernetics considered that reality could be piloted and understood through abstract representations – models – designed by a designer who would not be independent from the model but rather would interact with it. This allows a co-development between the observer and the model which cannot claim to be a perfect representation of reality. These models are then known as *adaptive systems* which co-evolve in this relationship between the observer and the observed. The observer is part of the problem, and the scientism present in the first order of cybernetics disappears. In this new approach, the goal is not to design a perfect city, thanks to an omniscient spirit that is above the chaos, but rather a city made through imperfect construction, one that is nonetheless able to evolve thanks to a modeling process that is either intentional or unintentional if the system acquires irregular behaviors. From then, the smart city is no longer a mechanical system, but rather a human system.

1.2. The smoke and mirrors of smart cities

The dominant theory defines the smart city as an addition of “smarties”: *smart people, technology, governance, building, transportation, economy, etc*². This is the theory of an Austrian regional planning analyst named Rudolf Giffinger³ developed at the Technical University of Vienna and adopted by the EU. And yet, you can have very smart people working in buildings with BIM⁴ on the side, with positive energy and using Web 3.0 technologies, getting around with solar-powered electric scooters, presenting an almost Kafkaesque or Orwellian picture and resulting in a perfectly stupid reality. This notion is rooted in an approach to development that is based on exogeneous growth where technology is an outside factor, which by its very existence transforms the nature of things. This is why the European Union identifies no less than 240 smart cities in Europe based on these criteria!

2 Very vague criteria, and thus inhabitants are considered smart “when they prove to be flexible, creative, favorable to learning throughout life, cosmopolitan, open-minded and involved in public affairs”, which corresponds to the definition of the global modern man and “citizen of the world” in neo-liberal philosophy.

3 For a presentation of the model, see: <http://smart-cities.eu/model.html>.

4 BIM (building information modeling) is a modeling language allowing project managers and coordinators to integrate their projects into a 6D representation (3D plus time, cost and maintenance throughout time).

The truth is, *there is, to this day, no normalized definition of what a smart city is*, no more than there is any such city on Earth, other, perhaps, than Singapore, and we will see why. What we do have, as we saw earlier, are prototypes that are showcases for technologies endorsed by our largest tech companies (Cisco, IBM, Siemens, Microsoft, etc.), such as Songdo (Korea), Masdar (Abu Dhabi) and Plan IT Valley (Portugal), but which are not cities made to be lived in by real people. Similarly, there are a large number of smart-city experiments which only deploy one aspect of a smart city, since no one to this day can define what that is, but which will serve as building blocks for a future architecture of a smart city. Most of these realizations, in fact, rely little, if even at all, on technology, but rather on a way of thinking about a city and its reconfiguration as a life system. Medellín, a city in Colombia, has, over the course of 12 years, gone from being the most criminal city in the world to a livable city based on a reconsideration of the role of transportation in people’s social lives and by de-partitioning the neighborhoods.

The term “smart city” is generally associated with any urban phenomenon based on a cybernetic effect, relying on information technologies where one action is corrected by a computer on the basis of a feedback loop, generating a regulatory or even a cumulative learning process. With digital convergence, these phenomena are amplified, which allows new applications, with feedback processes occurring in nanoseconds.

The basis of a smart city is therefore its digital infrastructure which improves with the appearance of new modes of interconnectivity, such as the Internet of Things, machine-to-machine communication which removes the need for human intervention and Big Data processing. In fact, technocentric approaches are nowadays dominant in research programs.

This presents certain dangers. We saw the same phenomenon with the spread of computing. Companies began developing, on a smaller scale, technocentric approaches based on “solutions”. Companies were no longer selling tools, but rather “solutions”, which supposed that clients had already defined their “problems”. Eric Schmidt, the CEO of Google, announced during a conference in 2012: “To connect the world is to free the world. So if we get this right, then we can fix all the other problems too...” [SCH 12a]. This is the *solutionnism* that Morozov warns about. For solutionism aficionados, the definition of a problem is its technological solution, without looking at the real causes and generally discarding all past

practices. In other words, it is the solution to a problem that has not been defined, where the problem is reduced to the function of the tool.

This is dangerous because companies – and worse, public services – that have given in to this way of thinking have seen themselves lose their technical expertise or failed to develop any in situations that would have required that they update their knowledge base, have become dependent on their suppliers, who were more than happy to provide. This makes going back in any way impossible: this is the case with many cities that have delegated the management of their water to water companies under the effect of an intense propaganda campaign “private is better than public”, or even injunctions such as the practices of the European Union. These cities have lost a traditional expertise and, what’s more, see themselves as hostages of the water companies in the face of arbitration jurisdictions that entitle them to heavy compensations, which is what happened in Barcelos in Portugal, which had to pay the company *Agua de Barcelos* 217 million euros because effective water consumption was lower than predicted during the deal.

This begs the question as to the place and the role of the people in a city. Greenfield tells us that when companies involved with smart-city projects talk about stakeholders, they are referring to companies, public authorities, regulators, owners and a few NGOs. But residents do not seem to exist. All they see is a sum reduced to its role of producing data through a smartphone. The goal in all of this is to provide city officials with all of the means necessary to control the life of the city. The emblematic example of this is the Control Center in Rio (Figure 1.1). A similar *Cybersyn* (contraction of cybernetic and synergy) project was designed in Chile under President Salvador Allende by British cyberneticist Stafford Beer with a project aiming to provide data to the people in reaction to the “command and control” model used by Soviet socialism. It allowed Santiago to be supplied with only 200 transport trucks driven by non-striking drivers during the truck-driver strike which attempted to starve a number of cities. Stafford Beer acknowledges the contradiction of a system designed from the top down but which in its design included the final users who should be its true proprietors: nothing like the Rio project where the stakeholders are government agencies and economic institutions.

This reduction of the resident to an adjustment variable, prevalent in smart-city promoters, is spreading through the technocentric approach pushed along by this wave of smart cities. The slide shown in Figure 1.2 was presented during a science forum by the designer of the smart-city project of a large French city. It is extracted from his excellent presentation which was the design model of a great information system as would be used in a large corporation. From a technical standpoint, it is *state of the art*. Luckily, in the last slide, the designer noticed that the residents had been completely forgotten and that their behavior cannot be reduced to that of a physical artifact. A smart city will effectively be a system with all of its elements fully integrated (we will see the definition of this in Chapter 3) in a process of architectural complexity. We nowadays have available methods for integrating objects (elements of a system) into a coherent system, but only for objects with a defined range and behavior, physical objects that have behaviors that can be defined by the laws of physics. The problem is that this cannot be done for human systems.



Figure 1.2. Forgetting the residents when designing a smart city

We see the same tendency in the Russian project Kazan smart city which reproduces Le Corbusier’s functionalist diagram with very little room for the people who live there (Figure 1.3).



Figure 1.3. *The Kazan smart-city project, a reproduction of the functionalist model with very little room for the residents. For a color version of this figure, see www.iste.co.uk/rochet/cities.zip*

In all of these approaches, there is never any suggestion of the residents appropriating the data processed by these goliaths of information. The residents also have no other role than that of extras in these new “machines for living in”, in the purest Le Corbusier style. As noted by Greenfield, any application of a technology rests on a hypothesis about the relation between people’s behavior and said technology. In the case of a smart city, the first assumption is that urban environment has become too complex to be understood by people who must be guided and assisted via technology. The second tacit assumption is that people cannot be trusted to

manage their own business: governance of the smart city must come down to the “deciders” who know how to operate the machines at their disposal. Under the seductive guise of efficiency, agility and durability, it is the old formal request for the people to submit to experts who know best. They will be given some ersatz “participation” on secondary points, as the European Union does so well, the archetype of an authoritarian system which knows how to present itself with the attractive vision of an “ecological transition” and other trendy themes⁵.

At the end of the day, the debate around smart cities is nothing new: it is a return to the functional city of Le Corbusier, a city with no past, no history, a machine for living in, updated for the 21st Century with a slick marketing language and powered by powerful interests. It is the return to a notion that has already failed over 50 years of urbanism and destroys human communities. It is a voluntary and theorized ignorance of lessons from the past.

However, one could object, do these technologies not allow us to optimize certain functions, to reduce energy consumptions, to manage waste more efficiently, to improve traffic? Yes, this is all possible, but on condition that it is the end that defines the technology and not the technology defining the end, which is what we see with solutionism. Never forget one essential rule in operating complex systems: *to operate a complex system*, control its evolution and operation and not become dependent on the technologists who designed it, *it is important to master these rules of system architecture*.

We have already experienced this adventure with the deployment of computing in organizations. Tech companies already offer “solutions” to very superficially defined problems. This happened with the spread of integrated software packages (*enterprise resource planning*), extremely powerful software which are implanted into a business using state of the art comparative analysis: purchasing functions, human resources, finance and management, etc. The mistake made by many companies was to attempt to integrate the company into this software and not the other way around. This is how solutions and processes that do not correspond to the jobs and the culture of the company get hammered in.

⁵ Regarding the disappearance of politics replaced by budgetary discourse, see [ROC 11a].

It is worse, even, for those that gave in to the sirens of outsourcing. The companies and public authorities that outsourced the design of their information systems to third companies and did not develop their own technological abilities in system architecture became dependent on their providers. Many liberal countries (England, New Zealand) applied the principle of contracting out, which consists of parsing out services to private companies, which, considering the sizes of these markets, used these contracts to establish monopolies and retained the technological expertise, thus taking control of the contracted public services.

The alternative, therefore: operate the technology or be operated by it. For pessimistic authors such as Jacques Ellul⁶, technology will always be able to display charms just like the sirens in Homer's Odyssey, which business managers will not be able to resist. However, as we see, while that can be the case for incompetent or lazy managers, a manager who is clear on his or her strategic objectives has a basic understanding of the dynamic of technological systems that can circumvent this pitfall and establish a healthy relationship with a provider using this approach: *system architecture*.

Is this to say, in conclusion to this chapter, that we should throw out the smart-city baby with the bathwater? Of course not, unless we were to adhere to Jacques Ellul's pessimistic vision for whom the tricks of technology will always triumph against policy. And this, in fact, is the object of this book: uncover the smoke and mirrors and propose a new approach to technology based on modeling complex systems that make technology a tool that serves a purpose, and not the other way around.

1.3. Other mirrors for other smoke: cities of the creative classes

American professor Richard Florida's reasoning was not false. The real asset for a city to attract businesses is not the plethora of tax rebates that they all offer, but the quality of its human capital. However, the argument made by Professor Florida is to first attract the human capital and then the businesses, in the idea that business will go where the talent is, which is not entirely false either.

⁶ Jacques Ellul, 1912–1994, professor of legal history and protestant theologian. His master work is *Le bluff technologique* [ELL 88].

Hence, Richard Florida’s idea: cities must attract the “creative classes” to attract businesses [FLO 02] and revitalize American city centers. They represent 30% of the population and 70% of the wealth creation while covering jobs from the fields of high technology, entertainment, journalism, finance or art and craftsmanship. Richard Florida made a fortune with his ideas which were met with great success in North America. He has since started a consulting business which operates in a number of cities and spreads his theories throughout the world via conferences that bill somewhere in the vicinity of 35,000 dollars.

The city of Milwaukee, an industrial city in decline, strove to redefine its image to attract the creative classes. The results, measured on the scale of the city, are non-existent [ZIM 08], whereas the investments targeted around the city center are performed at the expense of financing equipment destined to the rest of the population. Richard Florida’s approach does not work, other than the aspect of the fees spent by the mayors who have everything invested in the arrival of the “creative classes”. So, why?

An in-depth study on a number of cities in Europe and North America has shown that the so-called “creative classes” are actually very sedentary and are a far cry from the myth of the globalized *smart people* who move at the whim of their desires [BOS 07]. The study showed that more than half of the sample lived in the city where they were born and educated. What makes the talent choose to move to a city? “The primary reason for their arrival is employment (51.2%) and in general the hard factors (69.9%). The soft factors only represent 10.3%, barely more than the overall population” [ECK 12]. The soft factors that are shown by the study to be truly efficient are tied to the natural environment and the atmosphere of the city, which are unlikely to be affected by public policy.

Richard Florida’s reasoning is correct as far as the idea that the human capital, the social climate of a city, its culture and its history are factors of economic activity, as we will see later on when studying smart territories. But he makes the classic mistake of confusing correlation and causality. The culture of a city is a product of its industrial history and its tradition rather than a political decision and a Richard Florida-esque patchwork. A culture is the product of an endogenous emergence, resulting from history. Richard Florida’s approach, on the contrary, is entirely exogenous: it would simply be a matter of importing the “creative classes”. His recipe uses the rule of the “three T’s”: *talent, technology, tolerance*. *Talent*, as we have seen, is in

general rather reserved and does not rush to live in the Bellevue neighborhood in Seattle – an area that is home to a portion of the “creative class” who, unlike what Florida’s theory states, choose to isolate themselves from the city center – unless drawn in with high salaries by the likes of Microsoft and other tech companies that allow them to pay the sky-high rent prices that are in place there. Florida establishes a causal relation between talent and economic development. Yet, the history of economics teaches us that talent is an endogenous process which results from development and which subsequently, through a circular and cumulative relation, attracts further talent.

The focus on *technology* supposes that only high-tech companies are the basis for a territorial dynamic, when there is a dynamism within the cities that is completely ignored and which descend from a technologically obsolete past (in France, see the case of the towns of Saint-Amand-Montrond, Loos en Gohelle and Vitry-le-François, among others, which succeed the spectacular Cholet reconversion) and which have proven to be able to innovate and convert themselves from their social capital, their informal institutions and their history.

The third T, *tolerance*, is part of the current trend toward relativism. Florida even invented a *gay index* which correlates the number of homosexuals in a city with its creativity. Homosexuals supposedly fill the role of creativity indicators, like canaries in a coal mine, marking the presence of carbon monoxide. Add on top of that, a *bohemian index* to correlate the behaviors of marginal chic and creativity. For Florida, a city with no gay community and no rock bars that stay open until 3:00 has no industrial future. Here, once again, he confuses correlation and causality. That industrialization produced an evolution in morals – whether desirable or not – is evidential, but making it causality would be a fallacy.

It can seem appealing at first, and any believers in the systemic approach will no doubt be seduced by the idea that diversity is correlated with creativity. But in reality, it is actually a false diversity and a false creativity because it is based on social standards that are in appearance very rigid and thus generate an effect of increasing returns: groups attract their own, something which is in fact contained in the idea of “creative class” which

only concerns about 30% of the population and who are all more or less from the same schools and programs and pay tribute to cultural values.

The failure of these theories is patent and translates to the creation of ghettos for the rich just like in Seattle and an explosion in housing prices which increase the effect of increasing returns, meaning that people find themselves located more and more with their own. Richard Florida has made a fortune; he is one of the highest paid keynote speakers in the world with a base of 35,000 dollars per conference. He now recognizes that he was wrong and continues to give 35,000 dollars to explain that his theories do nothing but reinforce social inequalities, the segregation between rich and less rich in the name of diversity, and contribute to *gentrifying*⁷ major cities where the centers are being captured by a new branched elite that is evicting the *old-school* population to the periphery, but that he is not the one responsible [WAI 17].

In fact, Richard Florida and his theories only accelerated the gentrification process which affects the working class and replaces it with a new middle class who take advantage of the hike in house prices and aggravate it by rehabilitating – or more accurately using public funds to rehabilitate – old working-class neighborhoods.

The city of Seattle has done everything to conform to the policy of the three T's in coordination with the big companies within it, Microsoft and Amazon. Its urbanization plan authorized the conversion of old factories into modern offices for employees of the “creative class”, who have their cycling lanes and organic gardens. All minorities have their own anti-discrimination program, and in 2012, the city won the “best city for hipsters”, according to the *hipster index* which measures the number of tattoo parlors, bicycle shops, thrift stores, independent cafés open at night, craft breweries and vinyl record stores [INF 16]. Of course, it is the jobs offered by Amazon and Microsoft that attracted qualified graduates who then settle into the city center.

⁷ Gentrification is an urban phenomenon through which people with money begin appropriating a space initially occupied by people with fewer means, thus transforming the economic and social profile of the area, exclusively benefitting a higher social class. Gentry was originally used to refer to a British member of nobility and is now used with a negative connotation.

The old working-class neighborhoods are turning into fancy unaffordable buildings that offer an organic chicken farming cooperative and spas for cats and dogs. All of this is done for the “creative class”, and the working class is pushed to outskirts, as the city can no longer welcome the unqualified workers (servers, cashiers, shopkeepers, etc.) that it needs: there is always a need for low-cost immigrants to deliver pizzas ordered off the Internet. Richard Florida’s creative city collapses under good intentions, policies that are progressive in appearance, the “fight against discriminations”, but:

“incantations to ethnic and sexual diversity translate directly to a step back for social diversity (...) in the counties of Grant or Adams, there are no rainbow flags, no yoga clubs or vinyl record shops (...) From here the Seattle progressivism that promotes diversity but favors creative communities... that advocate for green development while the local economy depends on the intensive farming and wood-chopping, seems incongruous” [BRE 17].

As for Richard Florida, he published a new book and is still giving \$35,000 conferences to explain that he was wrong and advocate for “creativity for all” and the construction of social housing, or even rent control, etc.

But what has happened to the 70% who are not “creative” according to these theories? The “useless” according to economist Pierre-Noel Giraud [GIR 15]. The eternally unemployed who live off of small jobs and welfare, who are excluded from the system and who don’t even dream of entering it anymore, living on the outskirts of the “creative classes”, low-cost immigrants to walk the dogs and deliver pizzas. The worst of inequalities, the one which has no future to build, no fight to fight, no horizon.

“The misery of being exploited by capitalists is nothing compared to the misery of not being exploited at all”, wrote economist Joan Robinson in 1962. The old-school working class fought for a better future to improve its condition, and paved the way for healthcare systems, established labor exchanges, unions, youth movements and social tourism, and believed in a future where class solidarity would prevail. The city of the creative classes rejects this old population and its social rights and solidarities. It prefers to have legions of “useless” and hopeless people, disorganized and unable to

defend themselves other than through sporadic urban riots. This is a worldwide phenomenon, described by American sociologist Saskia Sassen [SAS 12], and is the consequence of financial globalization and deregulation which centralizes the control functions to a handful of cities. In France, this is the *France périphérique* described by Christophe Guilluy [GUI 14], which is no longer under the care of central France, another global phenomenon, because it no longer needs them: the useless are enough.

Nonetheless, this does not prevent the smoke and mirrors from turning into a trap: the “*grand Paris*” project and the creation of the eponymous city are entirely based on the myth of the “creative class” and its supposed hyper-mobility. Jacques Godron [GOD 17], the President of the *Club du Grand Paris*, reapplies this idea with a number of high-ranking officials, according to a well-established French tradition to adopt the strategies that have already failed in the United States after a 10-year offset. This “Grand Paris” is investing in its *grandes écoles*, business districts, clusters, hipster culture with cat and dog spas and tattoo parlors, luxury businesses, air transport and business tourism. There is no intention of creating a housing authority which would mitigate the divide between the rich in the West and the poor in the East; that would not serve to attract

“international business districts, CEO’s, multilingual culture stars, the pioneers of R&D, press and information, international civil servants and pension funds” [GOD 15]

which do not care about inequalities, but on the contrary need the useless to proliferate and bring the creatives’ dogs to the spa. All of this, the author tells us, supposes a “a subtle and accepted management model”. The result, according to Christophe Guilluy, is that “*Paris is the supreme stage for a new type of capitalism. A cool capitalism that offers all of the advantages of a market economy without all of the drawbacks of a “class struggle”*”. In any case, as we see, a highly polluted Paris suffocates under the traffic, resulting from its dreams of being a “green city”.

1.4. So what is a “smart city”?

One canonical definition of intelligence presents it as a set of processes that animate more or less complex, natural, physical systems, man-made or not, that allow them to collect data, interpret them to give them meaning,

take corrective measures, learn from them and adapt to new situations. This adaptation works from the outside of the system to the inside (the system adapts to new constraints of the environment: adapts to the cold or the heat) or, conversely, from the inside out when the system adapts the environment to the requirements of its projects. The two interactions are of course tied: a smart system is in symbiosis with its environment, and there is no smart city without a smart territory.

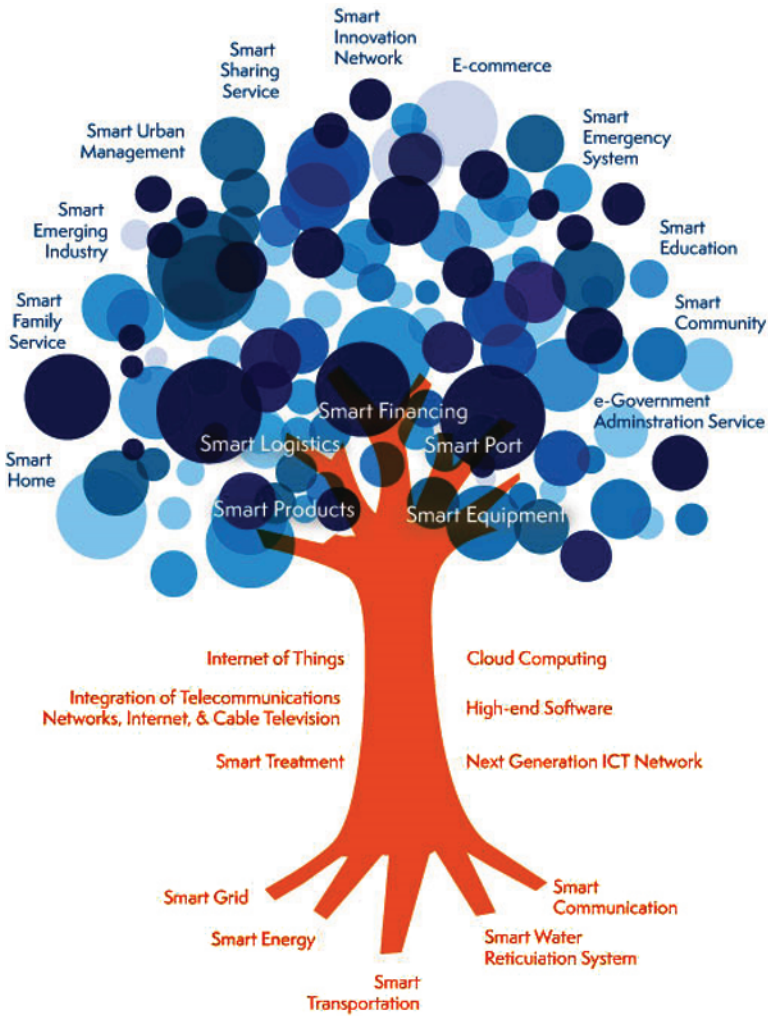


Figure 1.4. The symbiotic vision of the smart city of Guangzhou

A city evolves under the influence of exogenous forces, the most important of which being technology and economics. A city that is no longer able to couple its evolution with that of the economy will be doomed, as we see in the case of Russian monotowns. It will be able to evolve if it is able to *learn*, and this ability to learn will be determined by the vitality of the social fabric and the quality of formal (do they encourage this learning process?) and informal (culture, history, technological history) institutions.

The Chinese city of Guangzhou, in the Chinese strategy of appropriating Western technology, is thus defined as a smart city by its ability to integrate urban functions based on symbiosis. In a symbiotic system such as described by Isabelle Delannoy, an agricultural engineer who developed her research on the symbiotic model at the Université Polytechnique Fédérale of Lausanne [DEL 17], each function evolves by exchanging with others in order to obtain mutual benefits. The trunk of the tree integrates the physical systems that supply the sap which feeds the human systems that are the leaves. They create the energy that is sent to the roots: knowledge. This motion ensures durability. “Durable city” and “smart city” are synonymous.



Figure 1.5. A symbol of permanent learning, the Moebius strip

