

Steering the digital revolution in the European Metropolitan Area of Lille

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Abstract:

Digital technology and, more broadly, information and communications technology are major axes of territorial development. They bring along deep changes in both the economy and behavior of individuals, and force local authorities to adapt their actions and development policies. In this sense, steering the digital revolution is a crucial issue for local areas, even a matter of survival. This steering, which consists of making our cities “intelligence concentrates”, entails addressing three major issues: governance, digital infrastructures and data management. By making the “smart city” a strategic banner of its actions, the European Metropolitan Area of Lille (MEL) is striving to develop a wide range of digital services as part of an approach centered on users and the co-creation of public policies. To do this and see to an optimal diffusion of digital technology throughout the metropolitan area, MEL has staked out a position as the prime contracting authority for deploying networks. The value of data and their impact on the urban area are a major axis in the metropolitan area’s digital strategy, which provides for a metropolitan data service.

The surge in digital technology is a major factor of change in cities and in the relations of municipalities with users and inhabitants.¹ It concerns all fields, whether transportation and mobility, the management of circuits and flows, conservation of the environment, support for companies and business activities, social integration and urban planning. Local authorities are faced with changes that have disrupted policy-making. Lacking certainty about their actions’ actual effects, they cannot risk not addressing these issues if they want to develop local infrastructures, services and uses. The executive body of the European Metropolitan Area of Lille (MEL: Métropole Européenne de Lille) has appointed an elected official in charge of digital technology. Further evidence of its commitments in this field is the services in charge of the smart city and digital planning for the urban area. How to steer this digital revolution so as to place it at the service of a balanced, sustainable development of the urban area? To make our cities “concentrates of intelligence”, three major problems must be addressed: governance, the development of digital infrastructures and the management of data.

¹ This article has been translated from French by Noal Mellott (Omaha Beach, France).

A strategic issue for local authorities

Economically, socially and culturally, stakeholders — households, firms, public services — realize, regardless of their location, how important it is to have access to modern networks of information and communications technology (ICT). This is the local aspect of the development of an information society. Nowadays, key factors in local development are not just the supply of new forms of technology but also their costs and pace of diffusion throughout the local area. As several examples have shown, information technology, through the changes it causes or brings along, is shaping and revitalizing local communities. In the business world, ICT has strategic importance for information systems and the growth of business-to-consumer (B2C) commerce. These two aspects concern not just innovative companies but now all traditional businesses, as procedures are dematerialized (“teleprocedures”, online orders, the location of stalls in farmers’ markets, etc.). Efficient communication networks are a *sine qua none* condition for the growth of firms. Furthermore, ICT makes it easier to reorganize activities when changes occur in the time spent working. Changing lifestyles boost demands for a balanced servicing of local areas with modern communication networks. ICT is also a basic tool for reforming public administrations. Ever more present in major services (health, education, culture, etc.), it can help make them more efficient, more simple, more accessible and more transparent. It can also help the state improve its performance and maintain quality services near to users. The information society thus contributes to a “geography of networks” for re-forming local areas. Thanks to communication networks, public authorities have a tool adapted to plans for redesigning local areas.

For these reasons, all studies on the factors underlying the competitiveness and attractiveness of local areas highlight ICT’s decisive role. This is so true that what now counts is less the presence of communication networks than the absence or shortage of the telecommunications infrastructure. Some studies have drawn attention to the risks for local development if local areas remain indifferent to this necessary (but not sufficient) condition. Small and medium-sized firms no longer have qualms about making their plans for installations hinge on the supply of adapted communication systems.

This trend should not be underestimated, since it is causing cleavages among local areas and bolstering the polarization that ICT networks have helped create (to the benefit of urban agglomerations). To avoid the risk of relocations, we must bear this fact in mind. Differences and lags, as they appear or deepen, can already be observed between agglomerations, even in the heart of apparently homogeneous areas. Servicing a local area with high-speed networks is, therefore, a major strategic issue that requires deliberately made political commitments. Like roads or railways in the past, the choices now made about ICT will have a lasting effect on economic development, jobs and, as a consequence, the local area’s social and cultural equilibrium. This long-term program is all the harder to undertake given the fast pace of often unforeseeable changes, not to mention the diversification of uses. Nonetheless, it holds the key to our society’s future.

The smart city as a tool of governance

The smart city is capable of taking advantage of digital technology's agility and ability to speed up changes. It seeks to use this technology (data, artificial intelligence, dematerialization, etc.) as best possible in order to be on time for the transformation of society and to improve relations with users, inhabitants and citizens. A "smart" city's "intelligence" determines not only its proficiency for linking pieces of information but also defines new forms of interactions of individuals with each other and with their material, physical and social environments (via ever more diverse and original media and modalities). Seen as both an urban space and as a social space (a society), the city can claim to be an optimized, connected and shared urban area. Intelligence, when placed at the service of the "good life", intensifies and optimizes the aptitudes of users, inhabitant, citizens and consumers for accessing services corresponding to their aspirations and lifestyles, whether in transportation, mobility, education, training, health, jobs, housing or consumption. Questions thus arise about the scale and register of public actions and the forms of citizen implication and local governance. Intelligence also has an impact on new business models insofar as it affects budgets subject to ever more constraints. By making the smart city the strategic banner of its actions, MEL has adopted an approach centered on users and the co-policy-making. This design-based approach to public policy-making is a major reason why Lille was named the world capital of design in 2020.

Among the forms taken by this approach are:

- The development of a citizen participation platform coupled with projects of "co-construction" designed by MEL's inhabitants, communes and services, an approach that received citizen participation awards in 2018.
- The creation of a landmark event in digital technology: the Grand Barouf du Numérique, a community of innovation with more than 150 participants.
- Supporting and connecting MEL's shared workspaces (with special focus on "priority neighborhoods").
- Support for the social centers that have decided to pool their thoughts so that digital technology becomes a vector of simplification in inhabitants' daily lives.
- The digital transformation of retail businesses via Enjoy-MEL.
- The creation of an application (Melcome) for bringing together all available practical information so as to make the everyday lives of the metropolitan area's inhabitants easier.
- The opening of data.

Developing the infrastructure

For a metropolitan area to have abundant digital (in particular public) services via smart city projects, a preliminary requirement is to be sufficiently equipped with land lines and mobile networks. An infrastructure is indispensable for developing uses. To keep in pace with the expectations of the local area and its inhabitants, major investments are required that private operators sometimes have difficulty raising. As mentioned previously, the priority for a local authority is not the availability of a specific technology but its pace of diffusion throughout the population. Users know about the innovations widely reported in the media and want to have access to them fast. Optical fiber is a "must" on networks accessed over land lines, and 5G will soon replace current standards (4G and low-speed connections via LoRA and SIGFOX).

In metropolitan areas however, the installation of these new networks (unlike the laying of roads, waterlines or the electricity grid) is in the hands of private operators. Urban areas are not the prime contracting authority. This historical fact, which figures in EU regulations, means that cities have to act politically if they want to, if not control their destiny, at the very least be involved in developing their digital infrastructure. In dense urban areas, municipal authorities do not have to fund investments in these infrastructures, since this density ensures that private operators will turn a profit in the short run. However the leeway, when installing these infrastructures so vital to the local area, is limited to negotiations with private interests.

In the case of fiber-to-the-home (FTTH) networks, local authorities forced the government to organize a form of governance (in the plan France Très Haut Débit, FTTHD) for a pooled optical fiber network involving a set of agreements with the operators that lay the cable and local authorities (covered by the Schéma Directeur Territorial d'Aménagement Numérique, SDTAN). Although the FTTHD sees to a fair distribution of investments throughout the country, this master plan provides very little protection to local authorities against the choices made by private operators.

MEL, the first to sign this type of agreement in 2013, was also the first to back out of it when faced with a private operator (SFR) that abided by neither the clauses of the agreement nor, above all, the schedule. It took eighteen months of legal actions (for failure to act) to obtain arbitration from the ministry in charge so that MEL could once again control its “digital destiny”. Regulations and arbitration roost at the national level, but the search for a solution forages at the local level. When MEL formulated an invitation to tender for investments, it was the first local authority to do so; but its intent was to reorganize the lineup of parties. Local authorities can assume the position as prime contracting authority (a hardly natural position in a sector dominated by private initiatives) provided that they have a strong political motivation for doing so and that they are willing to battle for a year and a half with the national operator (and lay out the related costs).

The approach based on private operators has been expanded to cover all digital networks. As telling as this example of FTTH from the 2010s has been, what to say about the coming of 5G? This latest strand of technology holds promises for the Internet of Things (IoT), high-speed mobile devices, driverless vehicles, etc. A preliminary to plans for 5G coverage in a metropolitan area is the schedule of local public works planned for the coming decade. Once again, metropolitan officials are not to be the prime contracting authority for a project requiring major investments and ever more branch offices. This contradiction is probably the biggest enigma about how to distribute roles among stakeholders in major digital works.

For more than fifteen years now, the central government has refused to recognize local authorities as “telecommunication operators” even though this recognition would relieve the current operators of the burden of investments (in laying lines) and thus enable them to focus more on supplying contents. Although decentralization is making local authorities responsible for policies (transportation, waste collection, energy...) as complicated as telecommunications, it does not give them any role in the governance or management of these policy fields. The intent is to favor another business model (mainly based on the legal procedure of “public service concessions”) for creating and managing electronic communication networks that are open or, to put it differently, neutral.

Coming to grips with open data

Since June 2015, MEL has adopted an ambitious open (public) data strategy with the objectives of making local policies transparent and efficient. Open data is a lively topic to which various parties are giving thought; and it has even become a public policy. MEL has a Web platform² for this, and the governance of open data is simple. The aim is to open to the public as many sources of data as possible and thus generate economic and social value. Open public data are the so-called raw data that, once organized and processed, contain information. Sensibly using this information can set off a virtuous cycle as the information turns into knowledge and aptitudes.

However open data on the metropolitan area is more than just a website. It entails mustering a network of actors and experiments. Till now, the platform has been opened to all ninety communes in the metropolitan area. MEL's open data program involves a partnership with Waze³ for a winner-winner exchange with the browser. MEL posts as open data information from several sources (on, for example, the streets closed for road work). This enhances Waze's contents and thus improves the service delivered to its users. In return, Waze sends MEL all information on traffic warnings or jams in the metropolitan area. These new data add to our knowledge of the local

² <https://opendata.lillemetropole.fr>

³ Via Opendatasoft: <https://www.opendatasoft.fr>.

situation and will eventually help improve services to users (knowledge on traffic flows thanks to a use-based approach).

All this work involving open data obviously has a bigger dimension, namely the questions related to: the EU's General Data Protection Regulation (GDPR), the specific sources of data in the metropolitan area, and the powers allotted to metropolitan authorities. To carry out its digital strategy and focus on the place and value of data in organizing the metropolitan area, MEL has set up a metropolitan data service (SPMD).

Given the growing volume of data and the problems of local development to be addressed, local authorities, such as MEL, benefit from a considerable, historical stock of data, an immaterial legacy similar to a material or physical inheritance. This legacy comes out of the investments made by local authorities, and it entails costs (for production, maintenance, storage). To promote this legacy, an adapted form of governance must be set up:

- **POLITICAL GOVERNANCE**, since this legacy is an awesome tool for decision-making. It will soon be necessary to imagine a vice-president in charge of data! Strong political support is necessary to see to the coherence of the actions of all stakeholders in open data and to fight against competition and stave off efforts to take control. Data-sharing means power-sharing.
- **LOCAL GOVERNANCE**, since this legacy is a vector of intelligence at the service of the local area's optimal development. We might mention the arrangements involving artificial intelligence and predictive analytics.
- **A PURELY TECHNICAL GOVERNANCE** for making a catalog available to local public (or even private) stakeholders via a robust, adapted information system.

Besides contributing to the digital transformation of public administrations, a metropolitan data service will manage to draw value from information under one condition: the organization of local authorities must be overhauled so as to place data at the system's core (data as a point common to all public policies for devising a common set of specifications shared throughout the local area). The metropolitan data service must not just be a response to the obligations imposed by regulations (CADA, OpenData or INSPIRE). Governing data opens a real opportunity for setting store on this virtual capital.

But during this era of data liberation, does drawing value from data mean paying? Two baseline scenarios come to mind:

- **PAY FOR USING EXISTING DATA**. Several local authorities have drafted licenses for reusing their data. A Google-like method would be to offer for-free service to occasional users (such as private citizens whose taxes already represent a payment) but to invoice professional users (whose robots or computer applications consume the data and use data services thousands of times a day). In this case, is the payment made for the data or for the service of making them available? Can we imagine that some users pay an annual subscription fee, or dues? If so, the payment is for the service rendered (storage, hosting and maintenance of the website) and not the data themselves; but local authorities might be held liable for the data (rights, GDPR, reliability, availability, etc.). Let us be aware, however, of one point: adopting a financial principle that authorizes the resale of data might hamper the development of big data and thus hinder the growth of knowledge about the local area (for decision-making and public actions).
- **PAY FOR THE PRODUCTION OF DATA THAT ARE NOT YET AVAILABLE OR HAVE TO BE UPDATED**. The data collected would be pooled. This strategy would help local authorities co-finance the production or purchase of sets of master data (for example, aerial views from Enedis and GRDF). To smooth costs and make it possible to investigate more (and more diverse) fields, MEL is multiplying its channels of data procurement: data under municipal control, off-the-shelf purchases, data produced by third parties, and crowdsourcing (Waze, OpenStreetMap). These are low-cost methods for procuring data and improving data sets. Some local authorities have preferred bartering. Why not a policy of a crowdfunding sort in the case of the principal consumers of data (e.g., MEL Makers in partnership with KissKissBankBank)?

These two scenarios can play out in alternation or in combination. It all depends on the definition of the data (an alphanumeric table or a complex global service?) and, of course, on local

authorities' ability to overhaul activities by modernizing many basic functions (budgets, orders, bidding procedures, information systems, geographical data, legal affairs, modernization and performance, etc.).

In the light of these possibilities, we clearly see that the question of digital technology and its effects on public actions and services and on governance is going to be a major preoccupation of the authorities responsible for developing local areas.

Digital technology in the Lille Metropolitan Area

The year 2014 marks a turning point in the place that the Lille Metropolitan Area (MEL) has assigned to digital technology. The latter is to be a full part of urban life, for living in the metropolitan area. MEL wants to develop digital technology as:

- a resource at the service of public administrations and of relations with users.
- a public policy at the service of: *a*) plans for laying the telecommunications infrastructure (fixed and mobile) and for servicing the local area better; *b*) a vision of an optimized, connected and shared city, which benefits from digital technology's agility and its ability to speed up changes and endow the city with a "collective intelligence"; *c*) changes in lifestyles, exchanges and production (economic, artistic, cultural, educative, etc.).
- a vector for creating jobs by furthering the digital transition in "traditional" businesses.

This dynamics is based on a dense network of firms, on an organization of the local area around thematic industrial estates (Euratechnologies, Blanchemaille, Plaine Image and AGtech) and on operators who, along with MEL, have dared to conduct large-scale experiments for 4G and tomorrow's 5G: in the subway system with Orange; the #SoMeISoConnected project for optimizing energy networks with ÉdF, ERDF and others; the interoperability of modes of transportation with Keolis and Transpole; and the "hypervision" center for supplying and distributing water with Véolia and Ileo.

In June 2016, the #RésolumentDigital strategy was adopted for the metropolitan area; and a "community of digital innovation" was set up around Grand Barouf du Numérique, a place for dialogs and debates about this technology's place in society.

To become a "smart city" (in the sense not only of optimizing the management of urban networks or the access to, and availability of, services in everyday life, but also of designing tools for "digital solidarity" and the digital transition), recent efforts have led to setting up MELCOME (an open-data platform) and developing an e-card compatible with the existing Carte PassPass (for persons using the metropolitan transit system).

The platform Enjoy-MEL, besides improving the visibility of neighborhood businesses, enables them to profit from digital technology for updating their customer relations. Launched in March 2018, this platform also gives greater visibility to points of cultural or historical interest in the metropolitan area and to services for persons and to offers from craftworkers. To date, thirty communes are partners; and more than 1400 retail merchants have referenced their businesses on this platform.

The adoption of a "Digital Thursday" has helped to bring public services into contact with the persons or organizations (in particular startups and small and medium-sized companies) capable of providing solutions. During the first semester of 2018, four Digital Thursdays were held on the themes "Neighborhood businesses and tourism", "Smart buildings", "Smart transportation" and "Digital youth". Two others are scheduled on "Sports and digital technology" and "Digital technology and ageing".

The metropolitan area is studded with shared workspaces. Thirty such workspaces have been developed as places of collaboration and vectors of social innovation. The broader objective is to create a network and common services for the approximately hundred shared workspaces already referenced.

MEL has also assembled a group of partners (construction firms, operators in energy, academics and a cluster of small and medium-sized businesses or industries) who are working on sensors and the IoT. Its assignments: share expertise on energy efficiency, buildings and "smart mobility"... and propose experiments close to the needs and reality of inhabitants and users.

In parallel, MEL is a stakeholder in:

- AGTech, a business incubator for developing startups in the market of digital technology for agriculture.
- connected social centers for developing, along with the population and users, a bundle of initiatives for reducing the digital divide and adapting digital solutions to them.
- the call for projects on open data and the resilience of urban networks, the objective being to work out operational solutions so that technical systems in the urban area resist shocks, absorb risks and recuperate.
- the development of laboratories such as LIVE for promoting inclusive innovations on new forms of urban living, around the Pole of Digital Arts and Culture, a citizen laboratory of data.