International Symposium

"Perspectives on the transformation of management and public organizations"

2019 event

Topic

The emergence of the Smart City: stakes, challenges, practices and impacts of Smart Cities

LIST and LISER

5-6 March 2019

Belval Campus, Luxembourg

The 2019 Symposium and ADIMAP will focus on the emergence of smart cities and the managerial, technological, organizational, socio-economic and geographical changes brought about by the complexity of the stakes and the challenges to be addressed concerning urban development in the future. The tenth version of this event will be dedicated to the research and discussion of study results related to this topic.

The work of the symposium will take place in Luxembourg at the Belval university campus, a symbolic site due to the changes it brought about in Luxembourg and the border region, which enabled the emergence of this research centre from a former industrial wasteland. Two Luxembourgish scientific institutions will join forces for the event: the **Luxembourg Institute of Socio-Economic Research** (https://www.liser.lu/) and the **Luxembourg Institute of Science and Technology** (https://www.list.lu/). **LISER** specializes in economic, social and spatial research, questioning public policies while carrying out retrospective and anticipated evaluations on the impact of these interventions in an interdisciplinary context. **LIST**, as a public research and technology organization particularly active in the area of information technologies and with a mandate to accelerate the socio-economic development of the country by offering its advice and expertise to national policies, and contributing in particular to bringing technological innovations with socio-economic impacts to the market. As such, LIST conducts research into the development of models, methods, software and measures for intelligent systems combining human and technological aspects.

INTELLIGENT CITIES, THE PROMISE OF SOCIAL, ECONOMIC AND ENVIRONMENTALLY-SUSTAINABLE DEVELOPMENT

The term Smart City does not have one universally accepted definition, but rather characteristics that tend to bring to light its numerous aspects. However, a city can only claim this status once investments in human and social capital, traditional communication infrastructures (in particular, transport), as well as modern technologies (platform, sensors, etc.) supply sustainable economic growth and a high quality of life, with public, parapublic or private management that is well-informed by the different resources available, and organizational choices and policies legitimized by the populations. Smart cities are emerging in response to the needs of a growing urban population, where the major part of the consumption of non-renewable resources is focused. As a consequence, the smart city concept addresses urban development problems by focusing on social, economic and environmental sustainability (Vesco & Ferrero, 2015; ITU, 2014).

Nevertheless, achieving this urban "intelligence" aim seems to be a long development originating from the collective intelligence of different actors: public actors with different territorial competences, private actors from technological, creative and traditional industries, research actors and citizens, to name but a few. Smart cities are emerging in this way as single projects, where their complexity and dynamism make it necessary to take into account the local context, territorial history, their own needs, priorities and resources (Almirall & all, 2016). Therefore, there cannot be one universalist model for a smart city despite concepts of the attractiveness of an area, which are highlighted more from a competitive point of view between cities (Borsekova & Nijkamp 2018; Giffinger & all, 2010). In this way, smart cities represent both a setting and a determiner for new business models.

Whether this is at the level of social interactions or the flows of goods and persons, the city of tomorrow, whether situated in Europe or somewhere else, has a duty to change and to suggest new intelligent, connected functions with efficient organizations, with new forms of data (big, exhaustive and continuous), at the service of citizens who are more mobile, demanding and concerned about the protection of their personal data, which are, moreover, sources of value creation for smart cities themselves (Almirall & all, 2016; Meunier & all, 2017). Studies dedicated to the emergence and development of Smart Cities contribute therefore to the validation of the real challenges that justify the transformation of the representations and relations with time and space, as well as the implementation of new links between public space, private space and personal space within organizations and places of residence.

If the current concept and practices associated with smart cities have already received strong criticism, in particular, those with a techno-centred approach, nevertheless, this criticism must enable a smart city approach to thrive in the discussion on urban development that will take place in the decades to come (Rochet & Villechenon, 2015 ; Rochet, 2014 ; Greenfield & Kim, 2014), indeed, to evoke a "scientific urban management" (Vesco & Ferrero, 2015 ; Batty & all, 2012). It is a question of creating a new urban story, a reference to a set of values to strive for, as was the case with the construction of cities at the end of the 19th century. Technological progress goes hand in hand with a philosophy of urban planning. Currently predominant is an urban model inspired by Silicon Valley (Sadin, 2016). With the aim of considering the future and finding innovative and sustainable solutions, the smart city concept can only be envisaged when taking into account its interdisciplinary nature and its case studies on a European and global scale.

From now on, to comprehend a city as a whole, an interdisciplinary approach is more necessary than ever, in such a way as to tackle the dynamics of the complex systems in place. The organizers of this Symposium, LIST and LISER, embody this simultaneous use of approaches and invite the scientific community to strategically consider the governance of these innovative cities, including, in a broader sense, territories and municipalities and therefore also the question of suburban areas and the compatibility of a vision integrated with developments that extend the impact of the city in terms of the use of new technologies, social networks and their digitalization, or even connected services in urban areas, while having the obligation to guarantee well-being and social justice for its citizens. It is no longer the time to evaluate the diverse impacts of the disruption potential that the generalization of information technologies, *Big Data* and the Internet of Things will add to urban life, but instead to take stock, set up frameworks and more structured research programmes, in particular to enrich the current managerial and technological tools. The examination and characterization of the technological system specifically mobilized are decisive for understanding appropriation capacities, city development, actors potentially concerned or motors, as well as the level of investments and skill development. It will therefore be up to the contributors and participants of the 2019 Symposium to ensure this takes place. The aim of the thematic focuses suggested below is to highlight the interdisciplinary principles and complexity of the systems.

FOCUS N°1: PUBLIC GOVERNANCE OF SMART CITIES

Beyond the importance of the role of information and communication technologies in the functioning of smart cities, the place of citizens faced with the roll-out of sensors and cameras, the Internet of Things and new related applications in the areas of health, urbanism, transport, and access to the labour market poses a challenge to the architecture of the public governance systems that preside over their economies. In fact, the value dynamics and complexity of the challenges, as well as the practical methods for inhabitants to participate in the design, organization, management and running of smart city projects, have not yet been analysed much in literature. But, the transformations of the public governance and the management systems of smart cities are of utmost importance for being able to develop a sense of belonging which translates into a real participation of the inhabitants. The very concept of intelligence pleads for the development of direct democracy and of its forms of expression with the flourishing of new forms of democratic piloting. As much the contribution of history as the feedback related to the sciences studying the city and its territory have shown that the resilience of the urban fabric is based on the inhabitants' ability to take the initiative and therefore on their freedom of action.

This historical assessment invites us to formulate an examination of public governance in smart cities: What role and what conditions allow the systems of governance to succeed in this ambition of sustainable urban intelligence? What are the stakes and the ways the stakeholders can be implicated in the smart city projects? What are the organizational difficulties encountered when getting these same stakeholders to work together? What are the measures and practices implemented to involve inhabitants in smart city projects? What tools are available for managing the participation of the inhabitants involved in smart city projects? How are these measures and practices evaluated? What could these new forms of participation resemble in the context of the use of digital technologies? How can inhabitants adapt the data to create new forms of deliberation, innovation and decision? Is there a place in smart cities for new forms of inclusive democracy? How can we come up with information that is accessible for everyone to limit exclusion and really conform to social sustainability?

FOCUS N°2: MANAGEMENT AND ECONOMICS OF TECHNOLOGICAL INFRASTRUCTURES IN SMART CITIES

More intelligent management, whether carried out by public services or private companies, is today considered with reference to a real-time consideration of flows, traffic, and health, environmental, energy, safety, etc. problems. Concerning smart cities and territories, before thinking about innovation and creativity in services and uses, the strength – and leverage – of these local organizations is precisely their capacity to build a link between the different technological and material infrastructures. This assumes thinking together about the roll-out of the networks and their architecture in a long-term vision, as well as considering emerging digital uses (new needs). This is a real challenge for the relevant authorities to offer a roll-out framework that stimulates and uses energies and initiatives to ensure the convergence between networks but also at the same time ensure that certain urban space territories or sectors are not overlooked. In this perspective, it is therefore important to consider the link, the interoperability – and without a doubt the neutrality – of the public networks and the contribution of all of them to these territories. The role of the technological infrastructure therefore appears critical because of the impact it can have in the area of the structuration of services for residents, users and citizens of the city area. Information and communication systems therefore play an important role in the construction of smart cities. In-depth research and innovations are carried out on a wide range of subjects, in particular linked to the management and economy of *cloud* and network infrastructures, wireless and detection technologies, mobile *crowdsourcing* technologies, and social networks, as well as a *big data* analysis for smart cities. This research and innovation concerns users and includes issues related to technologies and services such as transport, broadband communications, buildings, healthcare and other public services: What role do the norms play in the creation of smart and sustainable cities? What are the implications of the cyber-physical systems as a new example of functioning for smart cities? What role can data analysis play in the technological platforms of smart cities? How to take advantage of the security and confidentiality of the Internet of Things in the technological platforms of smart cities?

FOCUS N°3: MANAGEMENT AND ECONOMICS OF SMART CITIES IN THE SPOTLIGHT OF TRANSPORT SYSTEM MODELLIZATION AND MOBILITY

The constant development of metropoles and the need to guarantee better fluidity for the mobility of persons and goods is forcing deciders to consider mobility in different ways. The possibility of meeting new needs necessitates alternative research into solutions based solely on the continuously increasing growth of the rail and road networks. It is at this level that the notion of intelligent mobility becomes important, incorporating the application of new technologies in the transport domain. This intelligent mobility is currently in rapid and generalized development both due to the maturity of the underlying technologies, such as mobile internet, as well as its environmental and social range, which responds to urgent preoccupations while respecting the budget constraints that touch the public sphere and private companies. Intelligent urban mobility, which turns into an integrated digital system, is becoming a major stake for reaching a group of actors (elected representatives, professionals, households, etc.). This creative approach to urban mobility highlights a certain number of issues related to its management and economy. Although not an exhaustive list, certain questions asked with persistence could be formulated as follows: How should travel be considered or more simply, the connection between the user regarding mobility, in the presence of diverse means of transport (that is, the interaction between the understanding of the urban growth dynamic and its interaction with transport networks), including autonomous vehicles. How to integrate all users in accordance with the mobility needs and resources specific to citizens (vulnerability, level of revenues)? How can we invest in this mobility to give a future form to cities (reduction of carbon emissions, favour innovative mobility, intermodality, etc.? How can the actors of this mobility (management of public transport, private actors (taxis, coaches, bike rental schemes), infrastructure operators (bridges, tunnels) and the manner in which each of them are part of the system, compete with each other and integrate for the governance and leadership of the smart city?

FOCUS N°4: MANAGEMENT AND ECONOMICS OF THE TECHNOLOGICAL, SECTORIAL, TERRITORIAL STAKEHOLDERS AND THE CITIZENS OF THE SMART CITIES

The challenges related to the interoperability and the integration of territorial and personal data are found as much in standards and functionalities in favour of the different stakeholders as in the creation of the value that must be generated.

The use of a smart city process claims to be singular and global, aiming to break down the barriers of public policies in order to reconsider the notion of urban service across the numerous innovations susceptible to being introduced. These innovations, in the domains of transport and mobility, infrastructures and ecoconstruction, water resource management, energies, rubbish, governance of services, etc.), linking networks, sensors and data, both territorial and personal via anonymization mechanisms, emerge, are manufactured and spread, according to varied forms. The intelligence of these territories materializes with the implementation of intelligent and connected equipment linked to objectively verifiable and relevant indicators in order that citizens and deciders acquire the knowledge they need to bring the desired evolutions to their territory. Numerous cities are looking to prove and then institutionalize a management that is consistent with the procedures aiming to create economic, social, and environmental value using strategic management tools, for which it is necessary to have a good knowledge of all the related stakes. The resulting issues could be formulated as follows: Is it possible to make urban systems (infrastructures and buildings) and IT networks (intelligent urban systems and data management) converge, while remaining attentive to the quality of life and respect of individuals and their own data? To what extent is the balance generated between economic, social and environmental values ensured thanks to or with these new technological developments? What is the cost of smart cities, investments in digital technologies and those related to the organization of space, allowing better interactions between inhabitants and economic actors and reducing transport time, waste production time and pollution time? What new metrics can be invented and what new externalities should be taken into consideration to accurately discuss smart cities?

FOCUS N°5: MANAGEMENT, ECONOMICS AND ETHICS OF BIG DATA, CYBER SECURITY, PUBLIC FREEDOMS AND DATA PROTECTION OF SMART CITIES

Citizens, whether resident, passing through, and users of public infrastructures or not, all play a very important role both as beneficiaries and participants of the transformations of the public urban space. This role is very important with the active use of mobile devices and other applications that serve to monitor transformation actions undertaken by those governing the smart cities. Although the use of technologies must be understood as a means of improving the quality of life of the inhabitants, smart cities face numerous questions , from the reliability of the information systems to the use and confidentiality ethic of the data collected, not to mention the issue of the corpus of laws and regulations that have ruled urban life for centuries and with the obligation to adapt to the disruptive acceleration of technology, putting certain foundations of the current economy in danger, like the mechanism of tax systems. The debate on digital taxes, the tax on robots and others show that the time has come to explore alternative governance models for phenomena such as UBER that raise questions with a global range but local impacts. As such, how can the local public services (municipal and territorial) ensure the reliability of the information systems on which smart cities are based? Is it possible that the city could break down? On a larger scale, the history of the informatization of the public sector is our basis for questioning the competence of the public sector for understanding the architecture of such systems. Are the specific competences already present and updatable? How should the cooperation with suppliers be organized? The Snowden and Cambridge Analytica affairs have shown that the manipulation of metadata and personal data could go as far as manipulating the personal vote. What control can we have concerning data confidentiality? How can we avoid a downward spiral into a Big Brother scenario? In parallel, big data and artificial intelligence benefit from endless power to support predictive control tools. Nevertheless, which applications should be designed and with what impact on public performance? How much democratic control is it possible to hold on to for algorithms? How can we ensure that independent learning technologies are capable of facing up to new and unprecedented situations? How can “black box” algorithm decisions be analysed and reconsidered before a competent court? As a reminder, a European decision dating from 2016, which applies automatically in the member states, requires that the actors of smart cities, whether decision-makers or from the economic sector, register their RGPD (general regulation on data protection) procedures from 25 May 2018 onwards.

FOCUS N°6: HEALTH SECTOR IN SMART CITIES:

High expectations for smart cities and the related digital approaches enabling the well-being and health of individuals to be improved. These create new opportunities enabling a large range of behaviours and health problems to be combatted.

One of these new opportunities offered by smart cities is the potential for personalization increased by recommendations and guidance for the health behaviour of individuals. In parallel, the health domains of tomorrow and the hospitals of the future are already being constructed. This concerns patient history, medical and hotel equipment, information systems, buildings and hospital logistics. Intelligent hospitals are emerging with connected objects for medical and paramedical medical processes and procedures and auxiliary services. The data and its analyses become an essential help for doctors (for example, concerning the detection of dangerous infections). We mention the implementation of innovative organizations for caring for patients, in particular, by improving the coordination between healthcare actors, allowing them to discuss or share important information concerning healthcare pathways, the digitalization of the patient and visitor welcome procedure, the geolocalization of delivery drones, maintenance in augmented reality, digital and versatile companion for the patient in his/her room in hospital or at home via telehealth. The excess of information and its relevance can however destabilize practitioners and the technological transformations (for example, operating theatres) can challenge medical organizations or even the boundaries between specialities. Will smart hospitals and the organization of healthcare in one region also be able to render the development of another form of medicine possible, more preventative than curative (earlier diagnoses), more personalized and finally, adapted to the growing challenges of chronic illnesses? Artificial intelligence also involves asking managers and medical staff numerous questions, as well as questioning the content of training courses of future practitioners. What is the impact of these programmes on health organizations, the quality of patient services and the management of care systems within smart cities? How can public, national and hospital actors legitimize and manage these transformations? What new knowledge and economies emerge from them? Which capitalization tools and learning procedures have been developed by the regulation authorities? How will the management integrate all these transformations and reconsider the numerous occupations that exist? How will the connections happen in the territories with all the other actors (elected representatives, health agencies, regulation authority, patients, technological firms, investors, etc.)?

FOCUS N°7: THE LABOUR MARKET IN SMART CITIES

The governments have started to adopt ideas for smart cities to improve the standard of living for their citizens. With the aim of reducing gas emissions and the loss of unproductive time in daily trips, for example, governments and businesses are encouraging new forms of work, such as working from home, teleworking centres and coworking spaces. The technological services and platforms alongside these new measures, strengthened by the automization trends in organizational processes, have consequences on the health and performance of workers, businesses and employer-employee relations. The relationship between questions about the labour market and smart cities is necessary to ensure that this transition can help to construct and manage more innovative and inclusive economies. These preoccupations encourage questions concerning the factors and improvement conditions for the durability of businesses, in particular in terms of social and environmental impacts with the support of digital tools. How do these new organizational forms come within the scope of the areas of smart cities? Are the third places, with a professional, cultural, commercial or fun vocation, likely to transform the volume and nature of the flow of trips, the localization of places of residence and work? How can the creation of employers' networks be supported? How can the relations between public spaces and knowledge production sites (university, laboratories) be maintained and developed, how can the third places be supported to favour informal and unplanned meetings? How can the city be turned into a place of experimentation? Is there a way to reconcile the balance between professional and family life in intelligent cities? Is working from home efficient for businesses? How can we face up to the regulations and competition from digital platforms (Uber, Deliveroo, etc.)?

FOCUS N°8: SMART CITIES: "CITIES AND THE CHALLENGE OF INTELLIGENCE"

If certain common frameworks for sustainable development in urbanism (CASBEE-UD, BREEAM, LEED-ND) are internationally recognized today, these have critical limits to be able to meet the challenges related to technological, economic and social changes in the future. Considering the challenges and limits identified in urban design and planning, the urban planning of smart cities should take into account not only new practices and environmental perspectives, particularly those related to climate change, and technological perspectives, linked to the digitalization of production processes, but also growing socio-spatial inequalities, linked to previous challenges. In 2010, the UN agency HABITAT presented principles for future cities: They have a duty to be inclusive, respectful of the environment, economically dynamic, culturally significant and safe. These principles are jeopardized today in the face of realities that are more complex and contradictory, taking into account the constant dilemma between expansion and urban densification faced by public officials, urban planners and other private operators in the construction domain (paradox of a smart city that is very technological and costly when the access to accommodation is already very problematic and very unequal).

In fact, there are different challenges for urban design and planning management for smart cities. The development of specific land and spatial structures to support urban growth and attract investments is one of these challenges. There is also the challenge of the availability of vast development zones in view of reducing land prices and speculation in order to minimize socio-spatial inequalities. In the future, with a growing population, an increasingly urgent ecological need, the nature of spaces and construction should be reconsidered; if they have been well thought-out, they will contribute not only to improving the urban setting but also the quality of life of its inhabitants. If urban densification strategies are generally favoured, the challenge is now more topical than ever concerning ways to make social, economic and environmental progress easier in such an urban framework. This strategic option invites researchers to consider the manner to take into account paradoxes and dilemmas of the territorial and municipal public action: How can the balance between the city and its outskirts be considered? Do smart cities mark the end of town and country planning? What impact does a smart city strategy have on spatial segregation and the role of public developers? How will their social planning duties evolve in urban and suburban areas? How can the phenomena of gentrification in city centres and marginalization in the outskirts be overcome? Which technologies and data can contribute to the future design of the cities?

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INTENDED AUDIENCE

The organizers of the Symposium particularly aim to promote a culture of discussion and debate between universities, elected representatives, practitioners and public affairs consultants, as well as a transfer of knowledge drafted scientifically for organizations for the common good, general interest and public service. Consequently, the speakers and panellists who will be retained for the 10th symposium will speak to public leaders, high-ranking functionaries and public services professionals, doctoral students and research and teaching staff interested or working on drafting policies and/or the management of public affairs on the international scale whether French-speaking or not.

FORMAT OF THE COMMUNICATION PROJECTS AND IMPORTANT DATES

Official languages of the Symposium: French – English

Communication project: The authors are invited to describe as clearly as possible the issue, theoretical or conceptual framework, the results of the research or case study to be supported later on and the selective references in support of their communication project: (1,500 words, in either French or English).

Deadline for communication projects to be received (1,500 words)	18 September 2018
Response of the Organization Committee to the authors	16 October 2018
Confirmation of the authors (participation commitment)	20 November 2018
Submission of presentation to organizers in PowerPoint format (English)	20 February 2019
Date of the 10th Symposium and of the ADIMAP	5 and 6 March 2019

Location of the Symposium and the ADIMAP: Luxembourg Belval – university campus.

For more information: website will be made known soon

DOCTORAL PROJECTS DESTINED FOR THE ADIMAP: IMPORTANT DATES

Deadline for communication projects to be received (French/English)	20 November 2018
Response of the Organization Committee to the doctoral students	18 December 2018
Confirmation of the doctoral students	15 January 2019
Submission of the PPT presentations to the organizers (English)	15 January 2019
Date of the ADIMAP	7 March 2019

FORMATS OF THE TEXTS INTENDED FOR THE REVIEWS ASSOCIATED WITH THE SYMPOSIUM (THE DETAIL OF THE SELECTED REVIEWS AND FORMS OF SUBMISSION WILL BE MADE KNOWN SOON)

Articles must be sent to the referenced contacts of the Symposium by 31 January 2019.

Articles will be not publicly communicated on the website of the event

REGISTRATIONS FOR THE 10th SYMPOSIUM AND THE ADIMAP 2019: Available online from 10.10.2018

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