The State of Development of "Smart City" Dynamics in Belgium: A Quantitative Barometer

AUTHORS

Jonathan Desdemoustier, PhD Researcher, Smart City Institute, HEC Liège, University of Liège (Belgium)

Prof. Nathalie Crutzen, Director, Smart City Institute, HEC Liège, University of Liège (Belgium)

INTRODUCTION

This research relates the results of a **quantitative research amongst Belgian municipalities**. Pointing out key statistical observations, it provides **a first scientific and quantitative state of the dynamics around the "Smart City" phenomenon in Belgium.**

From a conceptual perspective, this research is built on **three models**: the SMART model conceived by Letaifa (2015), the three fundamental components of Smart City (Technology, People and Institutions) identified by Nam and Pardo (2011) and the six dimensions (Smart Economy, Smart Environment, Smart Governance, Smart Mobility, Smart People, Smart Living) of Giffinger (2007).

The data were collected through an **online survey:** 40 questions were sent to the 589 municipalities of Belgium. The questionnaire was administrated through an online platform (SurveyMonkey). **Two channels of communication were used to administrate the survey.** On the one hand, the questionnaire was sent to a database from Belfius Bank which groups all the municipalities of Belgium. On the other hand, other partners from the Smart City Institute were asked to diffuse the questionnaire as broadly as possible in their network (in Wallonia, in Brussels and in Flanders). The survey was available in two languages: Dutch and French. The data collection lasted **5 months (from May to October 2016).** Calculi and statistical treatments were made with the software SPSS

The research is divided into three parts.

The first section questions how Belgian municipalities <u>perceive</u> the concept and the phenomenon of Smart City (definitions, components, dimensions…). The second section deals with the <u>implementation</u> of Smart City projects (number of projects, actors involved, potential issues and need for awareness...). Finally, the third section addresses how the municipalities concretely <u>manage</u> these dynamics and projects.

FINDINGS

Sample

113 Belgian municipalities participated to the survey **(response rate = 19%).**

This **sample is representative** of the population (Belgian municipalities) in terms of **geography** (Wallonia, Flanders and Brussels) and in terms of **nature** (rural versus urban municipalities)[1]. In terms of size, the largest Belgian municipalities are overrepresented in the research: 8 out of the 9 municipalities of more than 100 000 inhabitants and 23 out of the 31 municipalities of more than 50 000 inhabitants responded to the survey.

The huge majority of respondents are **general directors** and heads of departments of municipalities (55% of the respondents).

Results

1. **How do Belgian municipalities <u>perceive</u> the Smart City phenomenon?**

   The Smart City phenomenon is mainly perceived as (1) "one technological challenge", (2) "**opportunities for cities" and (3) "the future of cities".** While urban and Flemish municipalities see this phenomenon primarily as an opportunity for them, it is rather still perceived as one **technological challenge** in rural municipalities as well as in Brussels and in Wallonia.

   • Globally, Belgian municipalities place the **human component** over technological and institutional aspects in Smart Cities. Again, only rural and Walloon municipalities emphasize rather the technological component.

   • **In Belgium, 66% of the municipalities feel concerned by the concept of Smart City.** Despite this general observation, **34% of the rural and 45% of the Walloon municipalities** estimate that they are **not concerned,** or that the concept is not appropriate for them. In contrast, the huge majority of urban, Flemish and Brussels municipalities feel highly concerned (respectively 77%, 84% and 88).

2. **How do Belgian municipalities <u>implement</u> Smart City projects?**

The respondents listed 264 Smart City projects in Belgium.

   • With reference to the six dimensions of Smart Cities (Giffinger, 2017), most projects are related to **(1) Smart Environment** (75 projects), **(2) Smart Governance** (58 projects) and **(3) Smart Living** (46 projects) and **(4) Smart mobility** (32 projects).

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[1] Brussels counts 8 respondents for 19 municipalities in the Region. With 8 respondents, despite the highest representativeness rate (42%), there is a bigger fluctuation in the responses.

- It is interesting to compare the previous observation with the priorities cited by municipalities. "**Governance and E-services**" is the first priority (of investment) followed by "**Energy efficiency**" and "**Sustainable Mobility**". This is thus a gap between the reality (implemented projects) and the priorities.

- **According to the respondents, public authorities** <u>initiated</u> **80% of the Smart City projects in Belgium.** The private sector is the second initiator (10% of the projects). The Civil Society and the research sector contributed marginally to the initiation of such projects in Belgium up to now (respectively 5% and 4% of the projects were initiated by these actors).

- The key stakeholders who are involved in Smart City projects are:

    # 1: the mayor (3,7/5)

    # 2: the city administration and its various departments (3,5/5)

    # 3: the municipal council (2,8/5)

    # 4: the regional government and its administration (2,2/5)

Federal and provincial institutions are the actors who are considered as less involved in these dynamics for the moment.

The respondents also estimate that private actors are currently not involved a lot in Smart City dynamics in Belgium. Indeed, they attributed them a very low score in terms of involvement (between 1,7 and 2,2/5). Consultants obtained the highest score (2,1/5) while multinationals got the lowest one (1,7/5).

The same observation can be made for actors of the Civil Society as well as scientific experts.

To sum up, until now**, local public actors are definitely perceived as the central and predominant actors involved in the implementation of Smart City projects in Belgium.**

- Globally, Belgian municipalities consider that **it's difficult to implement a Smart City project** on their territory.

The **three main obstacles** identified to implement a Smart City project are:

    # 1: the **availability of financial means**

    # 2: the **insufficient expertise** available in the administration

    # 3: the **complexity to mobilize and engage the various stakeholders** in the dynamics.

In addition, the absence or insufficiency of political support as well as the difficulty to implement new technologies and to involve the Civil Society are *also* identified as potential obstacles in the implementation of Smart City projects in Belgium.

To overcome these barriers, the respondents estimate it is **essential to train and sensitize the various stakeholders to Smart City dynamics and related challenges.** They cite several tools that could be helpful such as workshops, information sessions or a practical guide with concrete recommendations. According to the Belgian municipalities, the primarily audience for these tools should be local governments, public organisations and citizens.

3. **How do Belgian municipalities <u>manage</u> Smart City-related dynamics?**

- 25% of Belgian municipality considers that their local strategy fits the best with the label **"Living City".** 20% of the respondents prefer the "Smart City" label while 18% of them chose the "sustainable city" one.

- **Only 11 municipalities can confirm they have a Smart City Strategy.** Nevertheless, 10 municipalities have integrated some "Smart City" components/sections in their general strategy. 12 municipalities clearly intend to elaborate one in the future.

- **Local authorities** (the mayor, the municipal college and council) are responsible for **the strategic management of Smart City projects**. The administration is then in charge of the operational management.

- **17 Belgian municipalities have one or several people in charge of Smart City (often named "Smart City managers").** The majority of these municipalities are located in **Wallonia (9 municipalities).** Six municipalities have been cited in Flanders and two in Brussels.
  59% of the Smart City managers are working into the **strategic department of the municipality.**

  Any municipality plans to hire a Smart City manager in the future.

- No municipality has a specific service or department dealing with Smart City related aspects and none of the respondents plan to create one.

CONCLUSION

Globally, **Belgian municipalities consider the Smart City phenomenon as an opportunity for them and as the future of cities**. However, nowadays, the concept remains mainly perceived as a **technological challenge.** This latter vision is more pronounced in rural and Walloon municipalities.

Most Belgian municipalities feel (highly) concerned by the concept of Smart City, except in Wallonia and in rural areas.

Smart City projects are perceived as complicated to set up. The availability of funds, the insufficient expertise available in the administration and the **complexity to mobilize and engage the various stakeholders** are identified as the main barriers for the implementation of Smart City projects. Belgian municipalities ask for tools such as a practical guide, training and information sessions or workshops.

A clear and distinctive Smart City - related strategy and management is not developed in most Belgian municipalities: only 11 municipalities have a Smart City Strategy and only 17 have a Smart City manager.

From the survey, it comes out that Belgian municipalities see Smart City dynamics as a TOP-DOWN process involving mainly local public actors. Indeed, according to them, public authorities initiated the huge majority of the projects. In addition, it is mainly the municipal authorities and their administrations, which are involved and managed them. The respondents perceive thus the involvement of private actors, Civil Society and other (scientific) experts as very limited for the moment.

However, they seem to be conscious that Smart City dynamics and projects require the involvement of more actors. The respondents mention that the mobilization of the different stakeholders is the third most important barrier for the implementation of Smart City projects in Belgium.