



SMART CITY: TURNING AMBITION INTO REALITY

OBSERVATIONS AND RECOMMENDATIONS FOR THE CITY
ADMINISTRATION

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Foreword

Despite our prudency with hypes, we feel that an irreversible global movement is taking place in the landscape of local government administrations. Smart city may be nothing more than a label that has been allocated to that movement, it is not just a label. It stands for the difficult but undeniable challenge that public organisations face to establish a sustainable strategy to deal with today's and tomorrow's urban challenges making smart use of resources of any nature.

Conferences and publications on the concept 'smart city' are available in abundance and show that many middle-sized to huge cities have started defining these strategies and concrete projects. But they show just as well the urgent need to transform city administrations in order to be able to execute smart city strategies. Furthermore they uncover an absolute shortage of good practice references to get smart city projects out of the experimentation zone and into the DNA of city organisations.

In this report we share insights from an in-depth case study on the impact of a smart city ambition on a city administration. Consequently, each of the insights has been challenged and enriched by putting it up for discussion as a topic in a focus panel of city representatives from several European medium sized cities, all members of the Eurocities¹ network (Amsterdam, Eindhoven, Genoa, Ghent, Helsinki, Torino). It is not a collection of best practices but rather a reference work sharing some observations and attention points for city officials worldwide who face similar challenges.

We would like to thank Fidacity (www.fidacity.eu), a service organisation that partners up with cities with a smart city ambition, for its support in developing and publishing our research and its commitment to explore the inspiring world of managing smart cities.

¹ See www.eurocities.eu

Introduction Smart City: turning ambition into reality

Smart city as a research topic

Smart cities are the talk of the town in local governmental institutions and associations of cities. With this research we want to go beyond discussions on the definition of the smart city and the hype connected to the concept. We are focusing our efforts specifically on the organisational challenges for a city administration as a result of a smart city ambition. A much needed insight for cities that want to make the most of the smart city concept.

What we have learned from our previous research on strategic transformations is that (1) governance will have to balance control with empowerment, (2) teamwork and collaboration will have to take on more open forms, (3) business processes will be co-constructed with an endorsing community outside of the organisation and will, very likely, involve continuous improvement and experimentation, (4) the general cultural stance towards the uptake and adoption of technology will necessarily have to be one of 'want to' use and invest in the technology use instead of 'have to'. The latter puts motivational issues of all the parties that are involved in the digital city ecosystem central to the success of that ecosystem. In sum, the hypothesis is that the actors that design and carry out the organisational transformation in smart cities, will have to dynamically adjust their design, planning, and control of organisational change to reflect the ecosystem perspective and its key success factors. The case study research we have been performing, has led to several points of interest that can serve to better understand the impact of the smart city ambition, and how to turn it into reality. The following observations are noteworthy for any smart city stakeholder.

Research approach

Our research consisted of an in-depth case study at the city of Ghent, Belgium. In Ghent we found an ambitious and self-critical organisation that is locally and internationally well respected for its smart city efforts. To get maximum visibility and Ghent's smart city vision, its organisation and its projects we opted for multiple in-depth interviews with the main stakeholders in the city administration. In a timespan of several months, during autumn 2013, we interviewed members of the management team, the ICT service delivery unit, deputy mayors, the mayor and several subject matter experts. In a second phase we tested preliminary insights with a subsample of the interviewees. Meanwhile we broadened our perspective by organising a focus panel with other European mid-sized cities whose representatives were in Ghent for the Eurocities 2013 conference. The focus panel reflected on our observations and thus increased the validity and generalizability of the study. Finally background information was gathered from several publications, internal files and public documentation to enrich the story.

Case study setting

Our case study object is the City of Ghent², a Western European city in Belgium. Ghent is a city with an authentic historical inner core, housing a growing population of currently 250.000 inhabitants. Its economy is characterised by industrial activity in the port and entrepreneurial activity closer to the city centre. Furthermore it houses a large student population and several university and knowledge institutions. The mayor in Ghent is currently Mr. Daniël Termont, member of the Social Democratic Party (sp.a). His party is governing the city in a coalition with the Green Party (Groen) and the Liberal Democrats.

Even if the city would not claim it is already a smart city today (Eurocities 2013 official opening by mayor Daniël Termont) it is internationally and regionally recognised for its efforts to become a smart city. Ghent certainly shows the ambition to be serious about the smart city. In November 2013, the City of Ghent hosted the annual Eurocities Conference, choosing 'smart citizens' as the conference theme, stressing the importance of 'smart' in its vision on the future. On Belgian national competitions Ghent has received multiple awards and nominations for its smart city efforts.

Strategic outlook

Ghent publishes its strategy via the city website, where it lists the main strategic objectives for the next years in the Ghent 2020 statement. These are the 9 main strategic objectives for the period 2014-2019:

1. Ghent stimulates its citizens to develop their talents and creates equal chances to climb the social ladder.
2. On the longer term Ghent is to be climate neutral and energy-independent by means of maximal efforts on energy reduction and sustainable, renewable local energy production.
3. Ghent opts for sustainable means of transport as a function of accessibility, quality of life and safety.
4. Ghent is a pleasant and affordable place to live for all its citizens with an attractive public and green environment, that is inviting to meet people.
5. Ghent optimally uses the present creativity and space for a diversified and sustainable economy and industry where talent, sense of entrepreneurship, employment and are stimulated.
6. Ghent is a reference with regards to education and culture through its role as a pioneer as a learning and creative city.
7. Ghent is a safe, healthy, and liveable city thanks to a balanced focus on prevention, care and preservation.
8. Ghent addresses its citizens and stakeholders concerning their engagement and solidarity, and inspires them to create and experience the city together.
9. Ghent positions itself actively in a broad, layered network and organises its services for optimal performance.

These objectives indicate the governmental decisions that have been taken to realise the 2020 mission of the city. Each city department has the responsibility to translate these statements into actions within its own span of activities. These strategic objectives thus result in the formulation and execution of several strategic programmes and projects.

² See www.gent.be and www.visitgent.be

Smart in the city

Specific for our case city (City of Ghent) is its approach toward the smart city concept. Very consciously the city has decided to go for a smart citizen focus, as opposed to an approach that has a more centralised flavour in which the city administration attempts to be in control by means of a smart city system from a control room. As a consequence of its focus on participation Ghent has given priority to digital inclusion among other spearheads. If technology is going to be a major enabler in making the city smart, it should be available to anyone in order to avoid exclusion of the weaker groups in society.

As a strategic theme, smart city came as a natural follow-up of previous concepts picked up by the City of Ghent, such as the 'sustainable city' and the 'future-fit' city. More elaborately the smart city in Ghent should be understood as "a city where investments in social and human capital, and in both traditional and innovative communication support sustainable city development. Core elements are sustainable use of natural resources and local governance with a strong focus on participation. The smart city should be a good place to live, with the highest possible standard of living and efficient use of resources. The smart city should connect the citizens with the city and their environment. This includes giving responsibility to inhabitants to co-create a viable environment. Finally the smart city creates efficient relationships between technology, communities, resources, services and activities in the urban environment.

Among the initiatives that were named under the smart city umbrella we found among others Ghent Living Lab³, Open Data⁴, Ghent Climate Union⁵, Apps for Ghent⁶, each in turn covering multiple projects. These initiatives have each in their own way contributed to Ghent's smart city ambition, and provided the city administration great learning experiences to get acquainted with the city's different ecosystem players and several governance systems.

ICT in the city

The city of Ghent has opted for the following organisation design form for its ICT services. Instead of an in-house ICT department it has founded a separate venture, Digipolis⁷, in collaboration with the City of Antwerp. This venture works with the city of Ghent as the single source for ICT services. These services include software development, hardware implementation, network and telco infrastructure. During the course of our study Digipolis Ghent has revised its strategy in line with the City of Ghent strategy. The ambitions of Digipolis include: delivering project-related ICT support, offering professional products and services, be colleague or partner instead of a supplier, and inspiring the city administration and the ecosystem.

³ See www.ghentlivinglab.be

⁴ See <http://data.gent.be>

⁵ See <http://www.gentsklimaatverbond.be/>

⁶ See <http://www.appsforghent.be>

⁷ See www.digipolis.be

Organising for the smart city realisation

Smart city as a topic can be found in different departments and layers of the city administration in Ghent, as we have noticed from our interviews. Yet, as a theme it is largely taken up by a team called e-strategy, a specific cell reporting to the department of Strategy and Coordination. A small team in the organisation - at the time of the interviews it counted 5 people – it relied highly on the interaction with other departments in the city. From its start in 2011, its mission was to articulate a digital strategy for Ghent, and act as a go-between for Digipolis. E-strategy was responsible for advice to the city's leadership with regard to sustainability, and the digital agenda. The objective was to make the city an (active) actor, rather than a passive subject of the sustainability and innovation movements in the urban environment. To that end, the e-strategy cell, connected with other European cities and investigated how Ghent could develop its own smart city initiatives. On an ad hoc base the team communicated with the city's departments. The interaction was mainly linked to specific projects, rather than transferring larger smart city strategies to the organisation.

At this point in time Ghent has evaluated its internal structure and concluded that a rethinking of the e-strategy cell would be advisable. The city is rearranging its tasks by merging part of the cell into the larger policy strategy group and putting its more technical profiles together with the GIS specialists in a data and information management team.

Observations for the ambitious city: becoming smarter



Ecosystem role definition

A city has to think thoroughly about the position it wants to take in the urban ecosystem and how it can achieve that position. The smart city ecosystem typically consists of (smart) citizens, entrepreneurs, businesses, knowledge institutions and service providers. How the city positions itself is a major success factor to engage the other parties. It will influence the willingness of partners to join a conversation, as a first step, or actively participate, as a next step, in smart city initiatives. Often mentioned ecosystem roles in a smart city context are a.o. actor, director, orchestrator, leader, guardian, etc. Most smart city aspirants have opted for a venture that is separated from the city administration as an incubator for smart city initiatives. Noteworthy examples are Amsterdam⁸, Helsinki⁹, and Yokohama¹⁰. Studies about ecosystem management reveal typical paradoxes that have to be resolved such as control-creativity, standardisation-variety, and individual-collective¹¹.

In our case city, we have noted multiple points of view, but the predominant vision was that the city administration has to position itself as an active and activating director in the ecosystem. Interviewees with experience in participation and ecosystem management have pointed out that the creation of a win win situation is essentially the main success factor for a sustainable

⁸ See <http://amsterdamsmartcity.com>

⁹ See <http://www.forumvirium.fi/en>

¹⁰ See <http://jscp.nepc.or.jp/en/yokohama/>

¹¹ See: Wareham J., Fox P. and Giner, J.L.C. (2012) Paradox in Technology Ecosystem Governance, ESADE working paper

relationship between ecosystem players. This does not mean that each individual smart city initiative should yield a win win. But considered over time the outcome for all parties should be positive. Mixed experiences within the case city have proven that it is very hard to find that equilibrium. Where initiating the process is fairly easy, it is extremely difficult to keep everyone at the table. Tangible results and a trust relationship are the only answer to the challenge.

“The city administration has yet to realise that calling on civic responsibility and public use take you only so far. At some point you’ll need to define a real win-win situation.”

(civil servant)

Smart city leadership locus

Even if a city declares that it aspires to be a smart city, that will not suffice in terms of internal leadership to establish that aspiration. For a starter, political willingness and long-term commitment are needed to put and keep things in motion. Secondly smart city leadership has to find a place in the city administration too. A team or even a separate department has to claim the leadership in order to consolidate smart city projects, fire on the city departments to participate and form a point of contact for ecosystem players. Credibility towards internal and external parties is a prerequisite for smart city leadership. An exemplary approach can be found in the City of San Francisco¹² where a true innovation department, headed by Chief Innovation Officer, supports city wide smart city efforts.

Within the case city’s administration that leadership has not been claimed convincingly by any substructure so far. The general expectation of the interviewees was that the existing e-strategy team would be the locus of that leadership or either the management team would set the agenda, yet that has not been truly the case so far. Nonetheless, that leadership is required in order to align and prioritise projects, certainly under a difficult financial constraint, and to express a single point of view towards the ecosystem. Furthermore, this would partially close the gap for business-IT alignment and coordination, other issues that appear in this section. During the course of our research the city decided to integrate smart city in the strategy department and reallocate the resources in the e-strategy team. Also the lack of an aligned vision on behalf of the city management team is to blame for the gap in smart city leadership.

“Smart city does not win you an election.”

(deputy mayor)

Coordination mechanisms

An organisation-wide adoption of a strategic smart city ambition cannot be achieved without the establishment of professional coordination mechanisms. Many smart city initiatives are conceptualised as projects, sometimes being part of a larger programme. Often though, they form an uncoordinated set of projects that are connected to the term smart city because that label provides budget and visibility. To get beyond this stage, the city administration has to install formal and informal mechanisms to support and coordinate smart city projects. These mechanisms can either be found in the existing organisational configuration or have to be newly established. Some

¹² <http://innovatesf.com>

cities have erected a separate smart city cell, other have opted to integrate smart city as a programme under their strategy office's portfolio.

While most interviewees expressed a similar view on the city's ambition as a smart city (i.e. the smart citizen focus), they were reporting various worries as to how the ambition would have to be turned into practice. Among other potential issues they remarked the lack of a structure to discuss relevant smart city projects with other departments in the city and ecosystem actors outside the city administration. Thus many of the smart city initiatives would be uncoordinated efforts performed independently by the departments. The existing e-strategy department had not been pervasive enough to establish that coordination role, although it was known and recognised in different the different departments we spoke to.

"The management team holds the key to supersede the departmental boundaries. On the other hand it can also be the bottleneck."

(head of department)

Business-IT alignment

Business-IT alignment is a core management issue that is especially relevant for smart city strategies with a strong digital presence. In fact it is an internal coordination mechanism, similar to the previous section, that has to smoothen the governance of IT-intensive projects, as there are many in a smart city environment. Many cities lack a clear ICT or digital strategy, when it comes to making choices for a digital agenda. Our advice is to develop an ICT strategy as a spin-off of the city's long term strategy, addressing specifically how ICT will contribute to 'smartness'. Furthermore the city has to figure out how to organise regular Business-IT contact moments, with decision power. Who is to decide on what in ICT-intensive projects at which moment in time?

Interviewees pinpointed the need for a well-oiled business-IT alignment platform. Our case city is currently revising its e-strategy and the organisation of its IT service provider to address this need. Portfolio management, priority setting, digital strategy articulation and direct communication and collaboration between business and IT are required. Also the position of the IT partner with regard to the smart city ambition should be clarified. Essentially these observations lead us to believe that a smart city ambition implies the rethinking of the e-strategy and the role of the IT department in a city.

"We need to redefine our Business-IT governance structures, as they currently lack decision power. ICT choices are rather budget driven than strategy driven."

(civil servant)

Organisational culture readiness

One cannot expect successful organisational change if the existing and desired organisational culture are not taken into account. The smart city is as much about cultural change as it is about adopting technology, formulating strategies and designing structures. The sometimes experimental nature of smart city projects, and the definite consequence of organisational change require an open mindset and creative competences within at least a part of the city administration.

When being asked after the main critical success factors for the establishment of a smart city, several interviewees pinpointed the importance of the people factor. They mentioned the presence of skilled workers, motivated to adapt and even drive change, as a requirement. A forward-thinking attitude in the workforce as prerequisite for a smart city. So besides the usual suspects, budget constraints and political stability, a city should build a capable, resilient workforce to deliver a smart city that is real and more than a statement.

“Our current mindset is not yet adapted to innovation and smart city strategies.”

(deputy mayor)

Going beyond the experimental phase

Finally we want to draw attention to the experimental nature of many smart city projects. As cities engage in smart city projects they often launch them as pilot projects or so-called sandbox initiatives with a narrow scope and usually high visibility. For example, Living Lab¹³ environments are typically created with that purpose. This is certainly a useful principle to incubate innovative ideas in a city, yet to truly become a smart city it is our belief that initiatives should not be restricted to this kind of environment. After all, smart cities should be as much about innovation and new service design as about innovation and redesign of existing city services. Eventually, smart city projects should find their way to the production environment of the city, its front and back office service departments where they can really make a difference for the city, its citizens and its stakeholders.

Our case city has launched its Living Lab in a collaborative modus with research and knowledge institutions mainly, 3 years ago. The results of the Living Lab are satisfactory according to the interviewees that had insight in its activities. Yet, there were plenty of interviewees who indicated not to know what the Living Lab was, and how it functioned. In addition, we gathered several comments that the city had not yet succeeded to get the smart city ambition into the day-to-day processes of the organisation. In doing so these interviewees observed that all too often smart city initiatives were isolated or experimental efforts.

“We have to move beyond experiments, toward initiatives with broad impact.”

(deputy mayor)

Besides these observations we noted that our case city has an enthusiastic group of people working towards the realisation of a smarter city with smart citizens, with a shared vision. Even if the initiatives are sometimes uncoordinated, they clearly bring the city each time a step closer to become a true smart city. Many of them expressed their confidence that they were well on track.

¹³ See http://en.wikipedia.org/wiki/Living_lab

Conclusions

Our observations have convinced us that the impact of a smart city ambition on a local administration is not to be underestimated. It deserves the full attention of applied academic research, in order to professionalise cities' efforts to realise smart city efforts, going beyond experimentation. We have witnessed great enthusiasm as well as constructive criticism towards the topic. Both in our case study organisation, the city of Ghent, and the reference group in the focus panel, city administrations have committed to the smart city ambition. They have embarked on a learning journey, with lots of questions and very few answers but a strong commitment to succeed.

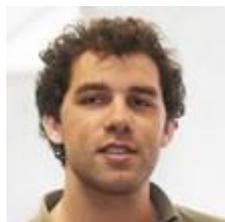
When a city is able to answer to the challenges formulated above it will have a good chance of reaching its strategic smart city ambitions. Even then, it is a difficult journey that needs the support of a strong city administration, a creative and open atmosphere, solid linkages with the ecosystem it is part of, and inspired and persistent leadership at the management and political level.

The smart city ambition will not materialise if it is interpreted as a light strategic sauce on top of a complex organisational dish. It needs to land in concrete strategic objectives and it has to be guided into the city organisation. It cannot exist successfully as a stand-alone experimental platform, but it has to be a combined and coordinated effort between the above and organisational business process change. Smart cities do not exist of new processes and services only, they also care for targeted smart process improvement. To get to that stage cities will have to consider a way to install smart city leadership with internal and external credibility and alignment competencies.

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Fidecity is a reliable partner of cities in the development of their smart city projects. There is no single definition for what a smart city is. Nevertheless, a mandatory requirement for successfully creating a smart city is the willingness and ambition of the city council to implement a long term vision and to provide the tools to engage citizens and to manage the local ecosystem, providing transparency of government and creating local economy.

Stakeholders in the field of smart cities (city administrations, citizens, developers, infrastructure owners, technology providers, local companies ...) often lack a profound insight in a smart city's ecosystem due to its complexity, or simply don't have the means and resources (for example not all cities can afford a city CIO) to establish a network connecting all stakeholders required to realize smart city projects.

Fidecity wants to be a reliable **partner** for cities in the development of their smart city projects by supporting and guiding cities in overcoming obstacles and creating synergies between stakeholders.

Fidecity has developed a sustainable business model and legal framework for a digital smart city platform, connecting stakeholders of the smart city ecosystem. Fidecity focuses on designing effective 'rules of engagement' for ecosystem partners, also known as ecosystem governance; this obviously is a non-trivial management challenge. Having the appropriate governance is key to securing the health of the ecosystem that will develop on the platform. An ecosystem is healthy only if the parties you want to attract on the platform effectively want to join – because there is value to be captured in joining – and then will want to stay on the platform after joining – because the value for them will ideally grow over time. Furthermore ecosystem/platform development takes time and requires learning; governance also includes designing a 'recipe for learning' how to increase the maturity of the platform and the ecosystem's capabilities over time and how to involve (or not) the ecosystem partners in this exercise.

Fidecity's approach towards smart cities is very holistic. Therefore, legal (data protection, privacy) aspects and business models are taken into consideration when defining architectures and technologies. Fidecity also recognizes the importance of citizen input and support.

More information can be found at www.fidecity.eu.



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