

The Vision Matrix: A Qualitative Approach to Support Vision-Creation for ‘Smart’ Public Organisations

Walravens, N.

imec – SMIT – Vrije Universiteit Brussel, 1050 Brussels, Belgium

E-mail: nils.walravens@imec.be

One of the biggest challenges for cities today is positioning themselves in relation to the debate surrounding the “Smart City” concept. Based on a thorough value network analysis of 37 international Smart City services in a doctoral study, a number of policy recommendations are formulated. These recommendations lead to a new methodology that local governments can use to build a vision on their Smart City principles and priorities.

I. INTRODUCTION

In an era in which technology and urban life increasingly meet and clash in the Smart City concept, mobile city applications currently are the most concrete proxy to this interaction between the virtual and physical urban space [1][2]. Apart from the multibillion-dollar economic activity soft- and hardware companies have built around these services, there is also a large potential for societal impact and public value creation from mobile apps [2]. However, the nature of this industry makes developing a successful strategy extremely challenging for cities large and small. The goal of this paper is formulating concrete policy recommendation targeted at cities confronted with this challenge. The research question is: “Which inhibiting and contributing factors can be identified in devising an urban mobile app strategy and what are concrete policy actions a local city government can take?” [3]. From these recommendations and the lessons learned from mobile apps, we then derive a methodology that can be used by local governments to consider their vision on Smart Cities in a more general sense.

II. METHODOLOGY AND DATA

The data gathered to answer the research question and formulate the policy recommendations comes from 37 in-depth international case studies, performed during a four-year research project into mobile application business models. This project explored the potential roles of the city as an actor in the mobile services value network. The case studies were developed based on desk research, policy documents and 32 semi-structured expert interviews with city officials and smart city or mobile app industry experts [4]. From this input, we formulate concrete policy recommendations that can serve as inspiration to policy makers in the Region and elsewhere. Finally, these policy recommendations are translated an operationalised into a methodology that can support cities in formulating a vision on smart cities and the related challenges.

III. POLICY RECOMMENDATIONS

This section will give a brief overview of the ten policy

recommendations, formulated based on the thorough business model and public value analysis of the cases mentioned just above.

A. Developing a vision (and personifying it)

Developing and supporting a vision is crucial when it comes to complex projects involving lots of different stakeholders. Getting different actors with divergent interests working together is only possible if it is clear what the final goal is and what the preferred avenues of getting there are. To facilitate this, a concrete recommendation is to create the position of a Smart City coordinator (or similar). This person should – regardless of background - be able to bridge different and divergent interests at play and establish a neutral ground where various stakeholders can meet, engage and come up with solutions to pressing urban challenges.

B. Setting ambitious (and measurable) goals

In the various debates and operationalisations of what the Smart City could be, it becomes apparent that taking a very specific urban challenge and thinking about how technology could alleviate it, is a perhaps pragmatic, but realistic approach. In order to verify whether the use of a certain technology has had any effect, goals or targets need to be specified beforehand.

C. Breaking barriers hindering cooperation

Political structures and the organisation of government with its different jurisdictions cannot be changed overnight and are a political matter. However, the cases that were analysed have shown that within any given context different actors can find agreement and common purpose.

D. Tackling fragmentation in policies

This aspect relates strongly to how public bodies are organised and whether a common goal or vision is in place. Issues come to the foreground for example in open data, where different public organisations may open up data on different portals, using different standards, while missing the potential of the combination of certain datasets.

E. Linking up to existing expertise

The cases show that in some regions and cities, existing knowledge on topics like smart cities and open data are a blind spot, even though a lot of expertise is available in universities and research centres. Maximally leveraging this knowledge is key in efficient smart city advancement.

F. Understanding the return of open data

Correctly gauging the economic, societal, cultural etc.

potential of opening data is difficult. A few years after the first datasets have been opened and the concept is gaining traction, it is only now slowly becoming possible to measure the successes and failures of opening up. A concrete recommendation towards cities is to link open data to an integrated approach in which contact with the market and potential reusers of the data is central.

G. Involving and engaging citizens

The role of the end user is becoming more important in creating innovative digital services that are sustainable over time. Particularly in a context of public policy, participation of citizens becomes even more pressing an issue as local, regional and national governments explore new ways of involving citizens through digital channels, while citizens themselves become more vocal using social media for example.

H. Joining international standards and networks

There are several interesting forms of cooperation and exchange developing on the European and global level. Joining international consortia can be time-consuming and require follow-up, but they can be very valuable towards acquiring best practices and learning from the examples of other cities in a more profound way. Additionally, these networks can be a means to position a city as a Smart City internationally.

I. Fine-tuning infrastructure plans

The main recommendations pertaining to infrastructure projects also relate to the development of a vision. Before large or important infrastructural works are undertaken, they need to be carefully considered and fit the challenge identified. This was the case for network-related projects for a long time (e.g. WiFi coverage in cities), but will remain the case in future IoT-deployments (e.g. sensor networks). Access to the data gathered by those networks is a key parameter to take into account in the procurement of these infrastructures.

J. Investigating innovative funding concepts

Cities should explore more innovative procurement models such as pre-commercial procurement. In a pre-commercial procurement procedure, the government does not define a fixed list of criteria a solution needs to comply with, but rather defines an overarching “challenge” that needs to be addressed by the developed technology. This solution is not close to market and so what government is actually procuring is the research and development required to develop the tools that are needed to tackle the challenge.

IV. VISION MATRIX

As far as putting these recommendations into practice goes, the diverse avenues to go down in part depend on political will and creating an understanding of the potential value with policy and decision makers [4]. Practical implementation furthermore and in first instance depends on the vision that needs to be developed, as approaches might differ depending on the domain that is being tackled. However, these recommendations offer a

starting point, a set of basic actions that can serve policy makers faced with these complex challenges. The recommendations should be seen as the start of a process, not a finite list of boxes to check towards achieving a next state. It will be a process of interaction and deliberation, not of straight implementation [5].

In order to enable policy makers to undertake this exercise, this concluding section proposes a methodology. It is derived from the policy recommendations listed above and starts from the premise that a clear vision is the only aspect where everything can start from, which was highlighted in this section as well. But how can such a vision, which is carried throughout the organisation, no matter how big or small, be established? To enable this, we mainly see three areas that are key: aspects *internal* to the city as an organisation, those that are *external* and those that are *technological* in nature. We then make abstraction of the policy recommendations cited above and bundle them into terms that are easily understandable, while all relating to the three key areas just mentioned. This results in the following matrix.

	Vision	Openness	Organisation	Return	Sustainability	Arguments
Internal						
External						
Technological						

FIGURE 1 VISION MATRIX

The goal of this matrix is to support policy makers inventory various important aspects of a vision on the Smart City. It can be used as a methodological tool to develop a carried vision within the city, by using it as a guide in interviews with city managers from diverse departments, as well as public servants working on related problems in their daily practice. The matrix starts from the perspective of the city and asks questions related to internal aspects (the city as an organisation of organisations), external aspects (the relationship with the market, civil society, citizens and so on) and technological aspects (which technologies should be used and to which ends). The matrix is used to structure conversations with policy makers and public service practitioners. Once a series of interviews has been conducted, the different cells can be easily compared to one another, allowing the identification of commonalities and differences. The common points can be included in a vision, while the differences can be further discussed, e.g. in a workshop or co-creation setting, until a minimal consensus can be achieved. From all of this input, a carried vision on Smart City challenges can be derived and the role of the city as a local innovation platform should become much more tangible.

V. CONCLUSION

Based on the value network analysis of 37 international Smart City services, this paper presents ten policy recommendations to local governments that are struggling to position themselves in the context of current

Smart City debates. Based on these recommendations, the vision matrix is assembled as part of a methodology to support cities in formulating a vision on the topic. By applying this matrix in a co-creation setting with different city departments, policy makers and practitioners, a vision that is carried throughout the organisation can be composed. This method has been successfully applied in two projects with regional and local government and will be further refined in future projects. The goal is to establish a robust tool that can help cities in tackling the complex challenges facing the Smart City.

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