Organizing the smart city transformational process: a narrative view on government strategies

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Introduction

There is an increasing research in social sciences about smart city policies and the strategic principles to frame their implementation process. Research in this field suggests that such policies are complex transformational processes requiring profound changes in cities' "hard" (e.g. buildings, energy grids, water networks, mobility) and "soft" (e.g. human and social capital, urban culture) elements (Angelidou 2014). Such changes are strategic in that they aim at seizing new ICT opportunities to (1) attain resource efficient, safe, inclusive and accessible urban environments; (2) sustain economic growth based on the principles of environmental sustainability and inclusive prosperity; and (3) provide equal access for all to public goods and high-quality services (United Nations 2017). However, policy makers at the municipal level may have different understandings of how smart city projects ought to be envisioned and developed, ranging from a technology-led strategy to a more human-centered holistic view (Desdemoustier et al. 2019a, 2019b). Therefore, national and regional governments might decide to put together strategic guidelines to consistently organize and direction the development of smart city policies at the municipal level. These guidelines have the authority of legal mandates and, thus, exert a powerful harmonizing influence on smart city projects developed at the municipal level within a country; for example, by offering financial incentives to municipalities in return for compliance with the guidelines (Tang et al. 2019). While existing research provides detailed insights into the strategic principles for smart city development at the municipal level (Mora et al. 2019), the way how supra-municipal policy-makers frame smart city development remains underexplored and is the gap we address here.

In this research, we look at how regional governments' strategic guidelines frame the development of smart city projects. To accomplish this, we adopt a narrative view of strategy (Barry and Elmes 1997, Jones at al. 2014) and examine how a governmental policy narrative sets a discourse of direction orientating concerned stakeholders in their context and prospecting solutions to problems.

Section 2 provides the theoretical framework of this research, whereas sections 3 provides results. Section 4 discusses the results and concludes.

2. Theory

High-level texts, such as regional governments' strategic guidelines for smart city development, are important documents for analysis as they embed broadly institutionalized "grand narratives" providing meaning to frame collective action within a field of organizations (Deuten et Rip 2000). These narratives are "thematic sequenced accounts that convey meaning from an implied author to implied reader" and what is *told* by the author (e.g. regional governments) constitutes the strategy as a form of

fiction[1] providing the readers (e.g. smart city stakeholders) with a story about the future and about the due course of action (Barry and Elmes 1997: 431). These future-oriented accounts – i.e. "visionary novels having a prospective, forward-looking focus" (Barry and Elmes 1997: 433) - embed underlying narrative plots reflecting and structuring "people's understandings of what they are doing, of who they are, of what roles they do or can play, and what the organization is or should become, i.e. its trajectory or strategy" (Fenton and Langley 2011: 1176). From this perspective, strategic decisions are identified as a part of an organizational narrative providing an interpretation of the surrounding world and acting as a medium to provide concerned actors with shared cognitive frameworks within which strategic change takes place and the managerial reality is constructed in the form of planned actions and timelines for implementation (Laroche 1995). To put it bluntly, strategic narratives provides the loose coupling that mediates between cognition and action in the structuring of change processes. On the one hand, strategic texts provide an interpretation of the opportunities and threats of an organization's environment; on the other, they also provide a sequenced account of how the organization ought to behave to seize opportunities and/or cope with threats in order to survive or become more competitive in its environment.

A key aspect of this approach is the examination of the narrative plots underlying institutionalized strategy texts in order to investigate how different narrative elements are tied together, establishing different stakeholders as legitimate actors in strategy (Fenton and Langley 2011). Narrative theorists have developed a number of frameworks for examining the structure of strategic narratives. In this article, we rely on the Narrative Policy Framework (NPF) which has been widely used in recent applications for the analysis of strategic texts adopted by governments for public policy purposes (e.g. Grey and Jones 2016, Jones et al. 2014, Weiss 2018).

NPF defines policy narratives as consisting of a setting, characters (victims, villains and heroes), plot, and the moral of the story (Jones et al. 2014). The setting consists of policy-related taken-for-granted facts characterized by very low levels of disagreement (e.g. figures provided by experts or national statistics bureaus). Characters are the relevant actors in a policy narrative, consisting of those that are harmed (victims), those that perpetuate the harm (villains), and those that will correct the situation (heroes). In many cases characters are anthropomorphized abstractions or broad categories such as "the economy", "the environment", "the city" or "the territory". Connecting the setting to the characters and the characters to one another is a plot that spells out the causal arrangements of the policy problem. Plots describe a villain's actions harming the victim and affect "how blame is assigned to the villain, what actions are needed from the hero and what moral is to be gleaned from the story. The moral of a policy narrative typically refers to the policy solutions" (Grey and Jones 2016: 197). Described as such, policy narrative plots enable understanding the causal mechanism through which a government makes

[1] Saying that strategy is fictionary means that it is crafted and embedded in a text, rather than something that is false.

sense of its environment (setting), attributes roles to key actors (characters) and identifies policy solutions for implementation (moral) (Jones et al. 2014).

3. Case study: data and methods

Empirical settings

Belgium is a suitable context for the empirical analysis of smart city policies. According to the Smart City Institute (2018), 66% of Belgian municipal authorities consider the Smart City concept to provide a useful strategic framework for the development of their territories and 35% of these authorities consider themselves, at least, halfway through the process that will enable them to become an accomplished Smart City. The smart city transformation process is thus on the go. Belgium is a federal constitutional monarchy and is divided into three highly autonomous regions: Flanders in the north, Wallonia in the south, and the Brussels-Capital Region. In the last 6 years, regional governments have adopted strategic texts to frame the implementation of smart city initiatives at the municipal level. As explained by the Walloon authorities (Digital Wallonia 2019), regional strategies provide a "framework to support the coherence, acceleration and visibility" of smart city projects across different municipalities in the region. In this paper, we choose as empirical settings the Walloon region. Here smart city initiatives are framed within the broader strategic text "Digital Wallonia 2015-2018". Following the above-mentioned theoretical framework, we in-depth analyze this strategic text on the basis of the NPF approach.

Data analysis

The strategy document was analyzed following established procedures for grounded approaches to theory building. Tenets of interpretive research were followed to discern between first order (close to the language of interviewed actors) and higher-ordered categories (Gibbs 2007). We identified 45 first-order categories that we eventually collapsed into 10 second-order themes that in turn were organized into theoretical dimensions (see Figure 1). Theme 1 emphasized elements of the policy problem to be addressed and its context, and was therefore coded as *settings*. Themes 2 to 6 emphasized elements concerning the policy actors, and where therefore coded as *characters*. Particularly, themes 2 and 3 were coded as victims (those harmed by the problem) and heroes (those that provide or promise relief from the harm), respectively. Conversely, themes 4 to 6 were coded as villains (those who cause the harm). Themes 7 to 10 emphasized aspects of the policy solutions, and were therefore coded as *moral of the story*. The plot results from the interconnection of these elements and is presented in the following section. Findings are summarized in Table 1.

4. Results

The Walloon text begins by defining the policy problem and situating it in a specific context. It then proceeds to the identification of relevant actors with distinct responsibilities vis-à-vis the stated

problem. It concludes with a list of future actions that, following the narrative plot, prospect solutions to the problem and orient concerned actors in their context.

The policy context: setting the problem

"A policy narrative is directed towards addressing a specific policy problem and must situate that problem in a specific context" (Jones et al. 2014). The problem identified in the Wallonia's strategy is situated in the regional digital sector which is deemed not mature yet as its weight in the regional economy remains insufficient and it is preponderantly populated by small or medium sized enterprises, mainly turned towards the national market even though the international market is more profitable. The relevant policy context is thus the regional digital sector and the problem is its relatively small size: "Among the 3.509 companies composing the Walloon digital sector only 48 are large companies (less1%) and 6 are very large companies. However, it is precisely these large enterprises that contribute to employment (24%) and to the creation of added value (42%). Moreover, with an annual growth rate of 12% since 2008, these enterprises are the ones driving growth in the sector." Additionally, "only 42% of enterprises in the digital sector generate a share of their turnover from exports. Among these, the share of the average turnover achieved abroad is 32%, while the median turnover is only 13%".

The cast of characters: attributing responsibilities in relation to the problem

Policy narratives have distinct human and non-human characters interacting differently with the policy problem (Jones et al. 2014). The Wallonia's strategy portrays the regional economy as the victim of the unexploited growth potential of the Walloon digital sector, causing economic harm in the form of job losses and slow growth of businesses revenues. The heroes that can provide relief from the harm are the digital enterprises – particularly big ones called "digital champions" – that are considered the "engine of the industrial mutation" of the region and are the only ones who have the expertise and capacity to "create digital value and maintain it on the territory". Nevertheless, even if such heroes have the expertise and the capacity to improve the fate of the Walloon economy, three villains complicate their mission. Firstly, traditional administrative procedures and structures burden entrepreneurship and inhibit the creation of new digital businesses: "administrative formalities remain a major obstacle emphasized by entrepreneurs: creation of the company, engagement procedures, obtaining aid, etc.".

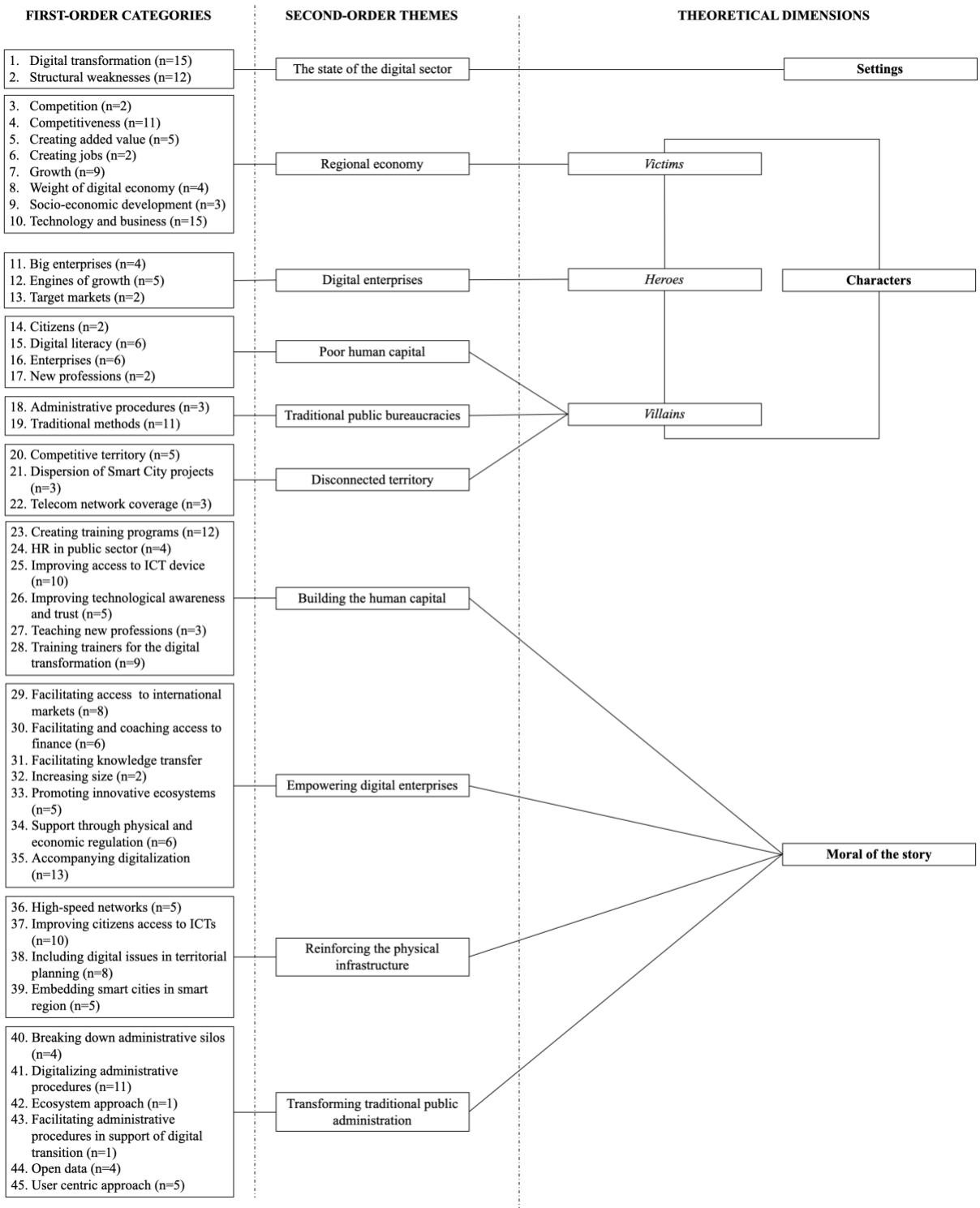

Figure 1 - Data structure (n = number of coded passages)

NPF ELEMENTS		DESCRIPTION
Settings		The unexploited growth potential of the digital sector
Characters	*Victims*	Regional economy
	Heroes	Digital enterprises
	Villains	• Traditional public administrations • Disconnected territory • Digitally-illiterate citizens
Moral of the Story		• Financial and regulatory support to digital enterprises • Reforming the public administration through networked governance • Construction of new telecoms networks and development of Smart City projects that facilitate ICT penetration in urban systems • Building the human capital through ICT-related training programs
Plot		Strengthening the regional business environment

Table 1 – Results summary

Secondly, a "disconnected territory" - characterized by insufficient coverage of telecoms network, namely 4G - hampers cities' ability to store and exchange data, while depriving digital enterprises of the physical infrastructure they need to operate their business. Thirdly, Walloon citizens' low digital literacy has negative effects on both the supply- and demand-side of digital enterprises. On the supply-side such low literacy might result into a workforce deprived of the technological skills that digital enterprises need to operate their business. On the demand side, such low literacy might affect the market demand of digital services since Walloon consumers do not have the technological skills to access to and to use the ICT solutions provided the digital enterprises.

The moral of the story: prospecting solutions to the problem

The Walloon government envisages the use of four typologies of policy instruments[2] to achieve the objective of unleashing the unexploited growth potential of the digital sector and, doing so, to overcome the problems harming the regional economy. These instruments articulate through 23 actions to be implemented over a four-year time period (2015-2018). 9 actions (39%) establish financial and regulatory instruments enabling digital enterprises to make new investments to grow their business and to reach new foreign markets. 3 actions (13%) propose a reform program of the public administration through a networked governance approach following the quadruple helix innovation model. 4 actions (17%) propose the adoption of a regional plan for the development of the Walloon physical infrastructure through the construction of new telecoms networks and the development of Smart City plans – in different public service areas - at the municipal level that facilitate ICT penetration in urban systems. 7 actions (30%) aim at strengthening the Walloon human capital through training programs to improve the digital literacy of Walloon citizens.

Interpreting the plot: building the regional business ecosystem through smart city plans

[2] Policy instruments are tools such as taxes, spending programs, incentives, public opinion campaigns, laws, etc) used by governments to pursue a desired outcome.

The plot manifests the narrative logic through which policy problems are linked to solutions. Across the lines of the plot of the Wallonia's strategy we see an instrumental approach to smart cities, meaning that smart city plans are framed as a policy instrument to support the transformation of cities into hubs for high-tech digital business. As explained by Tang and al.'s (2019), governmental policies embedding smart city plans designed to aid the transformation of cities into hubs for high-tech business may be considered to belong to the business ecosystem model. This model is usually adopted in former industrial areas - see for example Walloon cities such as Liège, Charleroi, Vervier, Nuy, etc. - willing transforming themselves into financial and/or high-tech digital centers. Smart City projects in such urban contexts are usually framed within a wider strategy of economic restructuring where urban planners and policy-makers seek to rejuvenate the productive structure of their cities by establishing them in the new economy. Such a model for Smart City development usually emphasizes digital skills training as a necessary accompaniment to create a trained workforce. Therefore, it usually promotes the establishment of digital literacy programs and ICT workforce training. Within this model, Smart City initiatives are instrumental to the transformation of industrial and manufacturing centers transitioning into the new economy. Through the adoption of this model, policy-makers want to enhance the business environment of their territories - i.e. the network of organizations operating including suppliers, distributors, customers, competitors, government agencies, and so on - in order to unleash the maximum growth potential.

5. Discussion and conclusion

This article contributes to the literature debate on smart city policies by adopting a narrative view of strategy.

Desdemoustier et al. (2019a) show that smart city policy-makers at the municipal level may have different understandings of how smart city projects ought to be envisioned and developed, ranging from a technology-led understanding to a more human-centered holistic view. Therefore, policy-makers at the supra-municipal level - national or/and regional governments – may adopt strategic guidelines to frame and to direction the development of smart city policies at the municipal level (Tang et al. 2019). Elaborating on Desdemoustier et al. (2019b), we argue that Smart City plans at the municipal level may be framed at the supra-municipal level (e.g. regional governments) as instruments to achieve supra-municipal policy objectives (e.g. connecting territories) linked to ongoing processes of strategic change (e.g. digital transformation of the regional economy). We additionally argue that such processes can be better defined as system-wide change processes (Pettigrew et al. 2017), characterized by combinatorial complexity as they involve multiple, diverse, and interconnected changes in terms of physical infrastructure (e.g. construction of new telecom networks), human capital (e.g. establishment of training programs to increase citizens' digital literacy), and governance arrangements (e.g. adoption of quadruple helix cooperation model) (Appio et al 2019). To address such complex change processes, the strategic organization of smart city projects ought to consider diverse although interconnected

components, namely stakeholders, structures and organizations, processes, roles and responsibilities, technology and data, legislation and policies, and exchange arrangements (Ruhlandt 2018). Our narrative analysis of supra-municipal strategies sheds light on how policy-makers formulate stakeholders' responsibilities and tie them to policy solutions that prospect how to cope with technological, regulatory and organizational challenges. As we explained, they do so through the formulation of macro-level 'grand narratives' (Barry and Helmes 1997) that: (1) define the policy problem and situates it in a specific context; (2) identify relevant actors with distinct responsibilities vis-à-vis the stated problem; and (3) list policy actions that, following the narrative plot, prospect solutions to the problem. However, as suggested by Fanton and Langley (2011) to understand how these supra-municipal grand narratives contribute to strategy practices in particular municipal settings, their local translations (Latour 1987) also need to be examined and related to the city's context. This requires a greater diversity of materials going beyond the macro-level texts analysed in this article and including interviews and observations with city-level actors. Therefore, future research ought to beyond the examination of the narrative form and content of a regional strategy texts and investigate how, why and with what effects macro-level narratives are translated or drawn on in particular city contexts.

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