



# Making Cities Smarter: Capabilities For Successful Transformation

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**Editorial:** Prof. Dr. Ines Mergel | Chair of Public Administration | Department of Political and Administrative Sciences | University of Konstanz | Universitätsstr. 10 | Konstanz, Germany

**Contact e-mail:** [openPA@uni-konstanz.de](mailto:openPA@uni-konstanz.de)

## **Authors**



**Prof. Dr. Ali A. Guenduez**

**Contact: [aliasker.guenduez@unisg.ch](mailto:aliasker.guenduez@unisg.ch)**



**Prof. Dr. Ines Mergel**

**Contact: [ines.mergel@uni-konstanz.de](mailto:ines.mergel@uni-konstanz.de)**

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## **Making Cities Smarter: Capabilities for successful transformation**

### **Abstract**

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Becoming smarter refers to cities transformational capacities in developing towards a better place of living, working, studying and having fun (Lara, Moreira Da Costa, Furlani, & Yigitcanlar, 2016). The analysis of 40 semi-structured interviews of SCMs examined *dynamic managerial capabilities* and *organizational readiness* as key enablers for smart cities transformation. Prerequisites for smart city transformation are resources and openness to new ideas and change. If these requirements are present, SCMs with skills to integrate and empower stakeholders, to detect new trends and to remodel public administration working procedures will manage smart city transformation.

### **Context**

Cities are ambitious to reach standards in governance, security, health, and mobility. To accomplish transformation in these areas smart city projects are launched worldwide. These projects are exploiting the potential of new and innovative technologies to better serve citizens, develop new service models for businesses or improve security and quality of living. In light of this, a great deal of research has focused on technological aspects and policy innovations of smart cities. Still, the implementation of innovation projects in public sector often fails. Mostly, organizational barriers and lack of managerial skills are inhibiting change (see Gil-Garcia & Pardo, 2005). To overcome these obstacles precise information about administration requirements and practical implications for SCMs are needed. Taking the viewpoint of those responsible for the transformation process is key to understand which barriers administrations need to overcome and which management capabilities SCMs need to make their cities smarter.

The concepts *organizational readiness* and *dynamic managerial capabilities* were deduced from the existing literature as necessary components of a smart city strategy. *Organizational readiness* indicates the organizational setup that cities need to drive transformation. Cities with a higher amount of organizational readiness will have lower aversion to adjustments and higher abilities to implement innovations (Armenakis, Harris & Mossholder, 1993). Smart city transformation is therefore dependent on what extent cities possess the necessary capabilities to foster and facilitate change and innovation.

*Dynamic managerial capabilities* on the contrary refer to individual skills. Manager's abilities to identify opportunities, anticipate external changes or prevent organizational rigidity is decisive to continuously promote organizations effectiveness (Teece, 2016). Which competencies SCMs need and which organizational requirements should preexist for smart city transformation is topic of this article.

## **Method**

As part of a qualitative multiple case study expert interviews with SCMs were conducted. The 40 selected interviewees are public servants who have insights into the smart city transformation of leading smart cities partially listed on the Smart City Index (2019). To verify details that SCMs supplied, several supporting documents (e.g. archival materials, policies, strategies, presentations a.so.) were analyzed. The analysis of the interviews was carried out in a two-stage coding process, in line with the approach of Saldaña (2013).

## **Results**

40 interviews allowed the identification of five central managerial capabilities of SCMs and uncovered three organizational factors explaining cities' readiness for successful transformation. Below findings for successful smart city initiatives are highlighted.

### **Dynamic managerial capabilities**

To guarantee smart city transformation, the following managers should be equipped with the following skills: (1) integrative capability, (2) innovation capability, as well as (3) seizing, sensing and empowering capability.

### **Horizontal and vertical inclusion of different actors**

Making use of integrative capabilities is one key skill of SCMs. Within the smart city context innovation only happens through collaboration. Smart city ecosystems rely on sustainable partnerships between several stakeholders. To reconcile all actors coordination and integration of activities or technologies inside and outside the organization is fundamental for successful smart city transformation. To strengthen collaboration SCMs could, for example, find facilitate a common purpose between key actors involved in the transformation process.

### **Remodeling public administration working procedures**

SCMs need innovation management skills to create and design new digital processes and service models, to drive innovation and creativity within the city. To realize this, SCMs should question existing procedures, rules and beliefs.

Furthermore, SCMs need to rethink the way cities work. The implementation of a single point of contact, 24/7 services or the introduction of end-to-end process design from user's perspective could be initial approaches. Additionally, simplifying and automating processes, eliminating silos, and ensuring data flow across departments and agencies might stimulate transformation of public administration working procedures.

### **Detect new trends, seize opportunities and empower stakeholders**

SCMs should be able to recognize emerging issues, new trends, best practices and procedures. Expertise is obtained through exchange with other SCMs at conferences, workshops or informal discussions. Besides, the interviewees emphasized the need for entrepreneurial thinking to seize opportunities. Exploiting new possibilities offered by modern technologies leads to successful transformation. For example, the Internet of Things (IoT) might be used to collect and analyze data to improve cities infrastructure, public utilities or services. Lastly, SCMs are obliged to empower different actors involved in or affected by the city transformation process. Relevant actors are, for example, cities administration staff and citizens.

## **Organizational Readiness**

Three organizational factors are required for smart city transformation: (1) Participatory governance and collaborative networks, (2) resource and strategic readiness as well as (3) openness to ideas.

### **Establishing participatory governance and collaborative networks**

Participatory governance and collaborative networks are needed to develop innovative solutions. Willingness to cooperate can mostly be observed in cities' efforts to simplify internal communication, coordination and collaboration as well as in their capacities to establish co-operations and partnerships with companies from private sector and universities.

### **Examining the availability of critical resources**

To implement smart city initiatives successfully, the administration needs appropriate financial, human and technological resources. Human resources matter, because not only skills of SCMs themselves are decisive. Moreover, SCM should recruit qualified employees (e.g. employees with project management skills, soft skills, digital literacy and openness to continuous learning) who will drive smart city transformation.

In addition, strategic political support determines cities organizational readiness. A clear shared smart city vision aligned with the political agenda makes it easier for SCMs to communicate the goals to the rest of the organization and reduce resistance within the organization.

### **Fostering openness to new ideas**

Crucial for successful transformation is cities general attitude towards change. The city administration must be open to new ideas and encourage the acceptance of change. This requires the city to be flexible on a cultural (e.g. evolve towards data-driven innovation), operational (e.g. learn from failures) and structural (e.g. create innovation teams and a shift toward an agile institution) level.

## **Theoretical & practical implications**

### **1) Mere adoption of new technologies alone is not sufficient**

As cities invest in new technologies, they also need to invest in building the necessary organizational capacity and managerial capabilities to successfully manage the transformation into a smart city. These two requirements will help policymakers to create the basis for successful smart city transformation

### **2) Recruit SCMs with necessary managerial capacities**

The described capabilities could be used to recruit skillful SCMs. They provide clear insights into the dynamic capabilities managers need to lead smart city transformation. Furthermore, organizational readiness of the city administration should be included as an integral part of cities future strategic orientation.

## **Key Points**

The study illustrates the importance of SCMs individual role and focuses on the micro-level of smart city transformation. In keeping cities attractive, SCMs must go beyond everyday routines and best practices. To enable change towards a smart city, SCM need capabilities such

as sensing new ideas, seizing possibilities, transforming working procedures, integrating and empowering public servants and citizens. However, achievable change is highly dependent on the city's organizational readiness, its general resources and attitudes to drive change.

## **Literature**

- Armenakis, A. A., Harris, S. G., & Mossholder, K. W. (1993). Creating Readiness for Organizational Change. *Human Relations*, 46(6), 681-703. doi:10.1177/001872679304600601
- DiMaggio, P. J. (1988). Interest and Agency in Institutional Theory. In L. G. Zucker (Ed.), *Institutional Patterns and Organizations: Culture and Environment* (pp. 3-22). Cambridge, MA: Ballinger.
- Buck, N. T., & While, A. (2017). Competitive urbanism and the limits to smart city innovation: The UK Future Cities initiative. *Urban Studies*, 54(2), 501-519. doi:10.1177/0042098015597162
- Gil-Garcia, J. R., & Pardo, T. A. (2005). E-government success factors: Mapping practical tools to theoretical foundations. *Government Information Quarterly*, 22(2), 187-216. doi:10.1016/j.giq.2005.02.001
- Lara, A. P., Moreira Da Costa, E., Furlani, T. Z., & Yigitcanlar, T. (2016). Smartness that matters: towards a comprehensive and human-centred characterisation of smart cities. *J. open innov*, 2(8). doi:10.1186/s40852-016-0034-z
- Saldaña, J. (2013). *The Coding Manual for Qualitative Researchers* (2 ed.). Thousand Oaks, CA: Sage.
- Teece, D. J. (2016). Dynamic capabilities and entrepreneurial management in large organizations: Toward a theory of the (entrepreneurial) firm. *European Economic Review*, 86, 202-216. doi:10.1016/j.euroecorev.2015.11.006