

Value creation and capture in Smart City Platform Business Models

Sari Perätalo & Petri Ahokangas

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4 BILLION CONNECTED PEOPLE



50 TRILLION GBs OF DATA



4 TRILLION € BUSINESS OPPORTUNITIES



(e.g. Bélissent 2010; Harrison & Donnelly 2011; Batty 2013; Roche 2014)

What, why, and how?

context.

- **No common understanding of how smart cities could create and capture value through the data they collect.**

- Learning and knowing how to **create value from opportunities**, are vital for both **city government** and **new business entrants** in the city (de Reuver *et al.*, 2017).

- **The content and dynamics of the platform business model for smart cities** → purpose is *to discuss value creation and capture from the data platform perspective in the smart city context.*

- **Conceptual paper builds on a literature review** (smart cities, business models, data, and platforms)

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- Different types of **urban data** will unlock **new business opportunities for platform business models** (de Reuver *et al.*, 2017) in the smart city

Starting points Smart cities:

- Increasing urban population, budgetary restraints, IT systems legacy, and ongoing city developments → **need to become smarter and more data-savvy**
- Importance of smart city ecosystems in order to chart plans for the future (Perätalo and Ahokangas, 2018).

Business model:

- Markets have become a complex network of different actors
- Business models have evolved from closed and firm centric to mixed and networked, and further to open business models that benefit from the ecosystem (e.g. Perätalo and Ahokangas, 2018) → need to define the ways to create, deliver, and capture value in cooperation with the ecosystem partners (Saebi and Foss, 2015).

Smart City Platform perspective

**Smart city is a multisided
digital platform.**

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- **A multisided platform = deals with the role of facilitator between buyers and sellers in the exchange phase (Bourdeau and Hagiu (2009))**
- **Economic perspective aims at explaining and understanding**

Business Model

- the platform competition (Gawer, 2014).
- Platform can be conceptualized as an evolving organization that can
 - 1) combine and coordinate innovative and competing essential agents, - 2) create value by producing and deploying economies from the perspective of supply and/or demand, and
 - 3) build a technological architecture that constitutes both core and the periphery (Gawer, 2014).
- A digital business platform can be defined as a sociotechnical constitution including technical elements, and associated organizational standards and processes (Tilson et al. (2012).
- Digital platforms integrate products, services, and companies using private networks or the Internet, and they concern many business functions (Teece, 2018).
- Platforms create an ecosystem around them (Teece, 2018).
- Moore (1996), actors in ecosystem rely on their resources and environment, and thus the platform creates the core of the ecosystem by co-creating value through turning suppliers into partners and competitors into complementors (Hein et al., 2018).

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Smart City Platform

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- New business models to deliver services to the

citizens

- How to determine which service to develop and business model to adopt?
- How new services and business models change the old ones - How can the sustainability of changes be estimated? (Kuk and Janssen, 2011).
- **A few important issues that influence the business model when a public organization becomes an active actor in the value network** (Walravens, 2015) - Networked infrastructure, technology, urban development, service delivery, and the vision for a better future (e.g. Pardo *et al.*, 2011).
- **The smart cities, the business models, and the platforms have all become more open meaning that the role of one single co-player is decreasing.**
- **One important feature of the platform and platform business model is governance.**
 - Platform has to be governed, not only by the platform provider but also by the actors, to be able to take advantage of platform's collaborative and open infrastructure and having a functioning platform business model (Tiwana 2013).
- **Together, data, technological infrastructure, and governance are the key characters in platform**

business models.

Data platform Business Model for Smart Cities

response to new challenges that they face when globalization and digitalization are changing the boundaries and dynamics in the city

- **City has to be the facilitator between other platform actors:**

- in order to have a control

- in order to keep solid foundation for further development - **Need to be flexible and let power also to the other actors**

- in order to be able to support growth and new innovations in platform context.

- **Thus, the smart city platform can be seen as a multisided platform.**

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- From the perspective of value proposition, urban data and technological infrastructure seems to be in the central role in the city development.

- For cities, urban data related solutions can act as a

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Data platform Business Model for Smart Cities

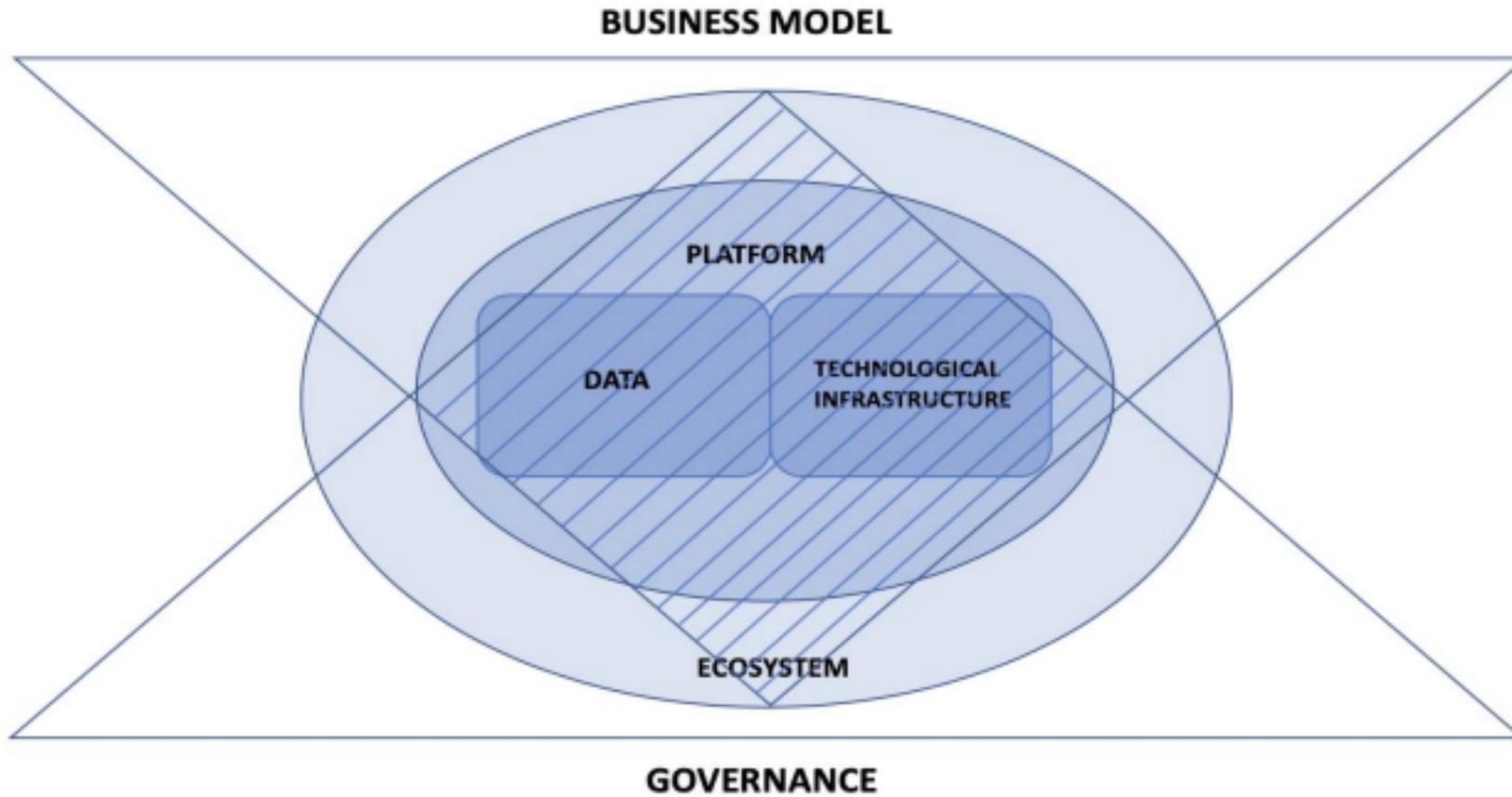
Users
Users

Providers

Infrastructure

business models, with varying degrees of openness on three layers: the platform user layer, the platform infrastructure layer and the platform provider layer (Fehrer *et al.*, 2018).

- It is important to notice that the scope of strategy is significantly wider in platform context because it critically includes control over interactions which do not happen at single organization's boundaries (Bourdeau and Hagiu, 2008).
- There is a wide array of strategic instruments available to implement platform regulation, including for example technological and information design, and the need and consequences of platform regulation may evolve over time (Bourdeau and Hagiu, 2008).



Value creation and capture

network relationships between various actors involved in the platform.

- **Network relationships that co-create and co capture value are mainly taking place through non-hierarchical collaboration and sharing activities (Fehrer *et al.*, 2018) → a certain level of common knowledge.**
- **The consequences of business platform's growth that take place via value creation and capture can be seen in the broader context of the platform ecosystem, not only in the platform context itself.**
- **Value creation is either direct or indirect, meaning that value is either created directly through a network or indirectly through third parties (e.g. Fehrer *et al.*, 2018).**

- Value is co-created and co-captured through

Conclusion

- Public data can connect and bring together national, regional, and local stakeholders (incl. citizens, private and public actors, industries, universities) (e.g. Walravens *et al.*, 2014) who then create platforms in the smart city context. → define the ways to create, deliver and capture value from data in cooperation with different actors that are part of the platform
- Since data is often collected by public bodies in the smart city platforms, considering public value plays an important role, therefore, paying attention to qualitative aspects that imply economic value or regional development is not enough.
- The business model can act as an important tool to help smart cities to reach certain goals they have.

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