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# Governance and stakeholders of Smart Cities:

A call for stronger theoretical foundation to tackle the  
complexity

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# 1. Introduction

- **Smart City: a fuzzy concept and no agreed definition** (Allwinkle and Cruickshank 2011; Chourabi et al. 2011; Hollands 2008; Komninos, Pallot, and Schaffers 2013; Anthopoulos and Vakali 2012)
- Smart City research is fragmented and lacks of cohesion (Mora, Bolici, and Deakin 2017).
- Numerous Smart City frameworks and models emerge from the literature.
  - They complicate the further identification of the concept
- Governance in Smart City is a recurring and transversal theme:
  - The development of Smart Cities requires well-conceived and effective governance (A. Meijer and Bolivar 2015; Nam and Pardo 2011; Dameri and Benevolo 2016; Gil-Garcia, Pardo, and Nam 2015).
- Co-creation process and multidisciplinary perspective are promoted (Ben Letaifa 2015)
  - Emphasize on the interactions between various stakeholders in the city.
- The paper critically analyses the state of development of the literature on governance and stakeholders in Smart Cities
  - What are the theoretical approaches and empirical research focusing on these subjects?
  - How do models and frameworks address these issues?
  - Which governance principles are highlighted?
  - Which actors are studied?

## 2. Key concepts: Smart City

- Definition of Caragliu et al. (2009): a fairly comprehensive vision of the various goals which motivates the Smart City phenomenon:
- *“We believe a city to be smart when investments in human and social capital and traditional and modern communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance”.*
- Smart Cities combine objectives to:
  - ***enhance the quality of life***
  - ***adopt ICTs and technologies***
  - ***implement new governance***
  - ***focus on human capital and sustainability***

## 2. Key concepts: Stakeholders and actors

- The notion of actors represent individual, legal person, structure, organisation... and covers different realities and conceptions depending of the theories.
- The term actor encompasses a broader notion than the concept of stakeholder.
  - Actor: human and non-human actors
  - Stakeholders: *“any group or individual who can affect or is affected by the achievement of the organization's objectives” (Freeman 1984).*
- In the Smart City literature, one stakeholder model is prevalent:
  - The four helix model: government, industry, universities and civil society which operate in a complex urban environment. (Leydesdorff & Deakin 2011)

## 2. Key concepts: Governance

- Governance is developed along multiple trajectories and theories.
  - A processes of societal coordination and steering toward collective objectives (J. Pierre 1999).
- Different aspects are underlined:
  - Actors and networks (underlying powers and relationships)
  - Process, architecture and structure of governance (formal and informal norms and rules)
  - Quality of governance (including elements such as rule of law, legitimacy, equity and effectiveness)
- Governance in the political sociology sense is defined as:
  - A process of coordination of actors, social groups and institutions in order to attain appropriate goals that have been discussed and collectively defined in fragmented, uncertain environments (Le Galès 1995)
- The concept of governance emphasizes that both state and non-state actors can play a role.

## 2. Key concepts: Governance

- Other governance approaches:
  - Territorial governance: shifts the emphasis towards the territory on the questions of scales and spaces
  - Multilevel governance: studies the processes and the institution operations at, and between, varieties of geographical and organizational scales involving a range of actors with different forms of authority (Hooghe and Marks 2002)
  - ‘Stakeholder governance’, “collaborative governance”, “networked governance” and “Interactive governance”: centre their focus on the interconnectedness of multiple actors.
  - Urban governance: the different types of agency and institutions are studied in urban context (Pierre, 1999)
    - The city is a pluralistic political space which means a process of multiplication of actors and a dispersion of resources
    - External dimension (vertical integration) and internal dimension (horizontal integration).
  - Smart Governance: implies pro-active and openminded governance structures, with all actors involved, in order to maximize the socio-economic and ecological performance of cities, and to cope with negative externalities and historically grown path dependencies (Kourtit et al.2012)
    - Four ideal-typical conceptualizations of Smart governance: (1) government of a smart city, (2) smart decision-making, (3) smart administration and (4) smart urban collaboration (Meijer and Bolivar (2016)

## 3. Meta-theoretical debates

- **The “normative-positive” dichotomy**
  - Highlights the distinction between descriptive versus prescriptive, facts versus values.
  - Hume's dichotomy: the distinction between ‘what is’ and ‘what ought to be’ (Mill, 1981)
- **The Structure-Agent debate**
  - The interplay of structure and agency implies that social orders (structures, institutions, routines, etc.) cannot be conceived without understanding the role of agency in producing them, and similarly, agency cannot be understood “simply” as human action, but rather must be understood as always already configured by structural conditions.
  - Agency can be understood as “an actor’s ability to have some effect on the structure” (Scott 2008).
  - **Structure:**
    - Structure operates in the social discourse as a powerful device, identifying some part of a complex social reality as explaining the whole.
    - Structure can be represented as "hard"/ "material" or derived as "soft"/"mental" and connected to culture.
    - Structure shapes people's practices, but it is also people's practices that constitute (and reproduce) structures.

### 3. Methodology : Collect of data

- Advance search query with the keywords “Smart City”, Stakeholders” and “Governance”
- Four databases (January 2017): Ebsco Host, Scopus, ScienceDirect, and ProQuest
- Articles, book chapters and proceedings papers are considered, conference papers are ousted

Keywords (2017)		Scopus	Sciences Direct	Ebsco	Proquest	Total
"Smart Cit**"	Stakeholder*	130	15	38	5	188
"Smart Cit**"	Actor*	75	14	17	4	110
"Smart Cit**"	Governance*	180	13	58	9	260

- **222 articles remain after deleting duplication**, reading of titles and abstracts:
- Only papers which contain stakeholders’ approaches or governance considerations as central thematic or subject of analysis are selected
- Papers on conceptual cousins of Smart City as ‘intelligent city’, ‘virtual city’, ‘innovative city’, ‘digital city’, ‘ubiquitous city’ ‘knowledge city’ ‘creative city’ are not taken into consideration
- **The result offers a corpus of 61 papers**

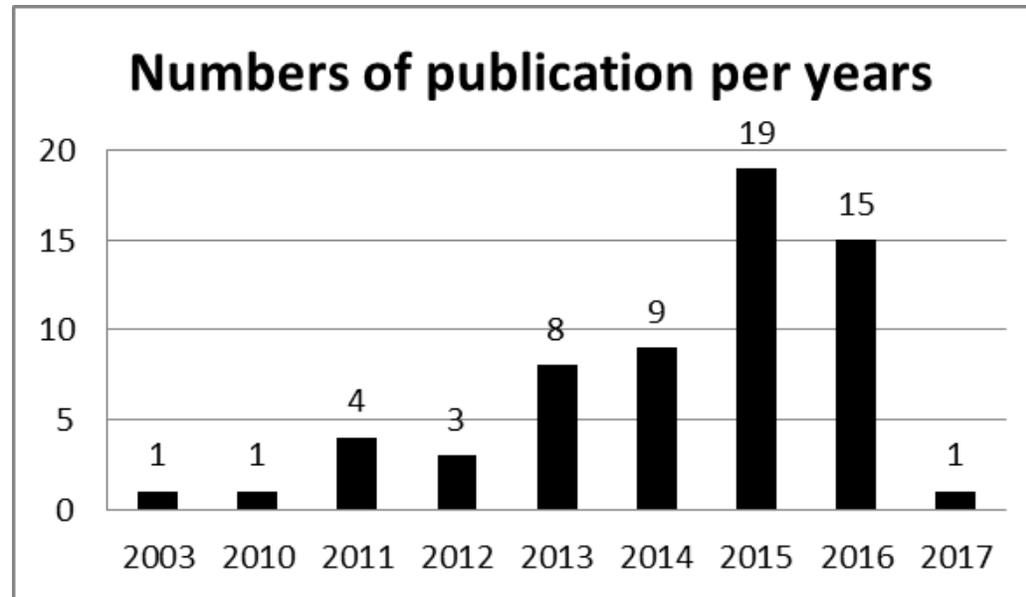
# 4. Methodology : Analysis framework

- The documents are analysed according to three dimensions: theoretical foundations, methodology and content (Crutzen and Herzig, 2013).

<i>General Information</i>		<i>Theoretical foundation</i>		<i>Methodology</i>	<i>Content</i>
Year of publications		Theories mentioned		Research method (Quantitative, qualitative and review of literature)	Stakeholder's types (Leydesdorff and Deakin 2011)
Type of document (book chapter, article)		Epistemological positioning:		Models and frameworks developed Empirical method used (Subject studied)	Governance focus (Albert Meijer and Bolívar 2016)
First author's department		Normative/ positive	Structure/ agent	Location and scale (Countries, scales)	

## 5. Results: General information

- The number of papers is constantly growing
- The literature selected still includes a large number of book chapters



- The first authors' affiliation emanates mainly from two orientations:
  - Technical and technological field (informatics, ICT, engineering, technology...): 22 papers
  - Economic and management field (business, management, economy...): 20 papers

# 5. Results: Theoretical foundation

- Only 25 articles refer to a theory, among them 7 mentions more than one theory

Type of theory	Nb	Name of theories
Theories connected to urbanism and planning	8	Urban sociology, Urban Growth, Urban comparative, Urban geographic economy, Critical urban studies, Planning (2x), New urbanist, Development
Theories related to Governance and Governance principles	10	Urban Governance Theory (4x), Governance theory (1x), New Public Management (NPM) (2x), Public choice theory, Participatory democracy, E-governance
Theories focusing on stakeholders and actors dynamics	5	Social Network Theory (2x), Stakeholders Theory (2x), Actor-network theory
Institutional and grounded theories	3	Institutionalism (2x), Grounded theory
Other theories	6	Replication logic theory, human capital theory, human resource management theory, complex systems theory and socio-techno change theory

- Normative-Positive positioning :
  - Papers are concentrated on “what is”, “what’s happen” and “how function” a Smart City: Positive.
  - Authors expose ‘what ought to be’ a Smart City: Normative
  - Both approaches

Positioning	Nb
Normative	18
Positive	28
Both	15

## 5. Results: Theoretical foundation

- Structure and agent distinction
- The concept of structures is considered as "hard" or "material" and as "soft" or "mental". It concretely consists of infrastructures, organisations and functioning/non-functioning compositions.
- Articles with an “Agency” focus, both human and non-human agency
  - They influence the structure and are the core subject of the articles.
  - Human agencies are stakeholders like citizens, companies, governments while non-human agencies are apps, and discourses are also considered.
- **42 paper has a structure focus:**
  - They mainly emphasis how a city or its governance could become smarter (more efficient, inclusive, transparent...).
  - The structures are composed of technical solutions (platforms, ICT infrastructures, data usages), governance forms (established on frameworks and models) or ideal configuration to reach (for a city, an organisation, an ecosystem).
- **19 papers deal with agencies:**
  - 11 articles are based on the different stakeholders and 5 others focus on one of them (citizens (2x), entrepreneurs, workers and companies)
  - 3 papers are based on non-human agency, they highlight in their corpus apps (2x) and discourses.

## 5. Results: Methodological approach

- Research method:
  - 40 empirical papers
  - 17 theoretical papers
  - 4 literature reviews
- 40 empirical researches:
  - **31 single and multiple case studies**
  - 6 papers with an quantitative methodology: survey (3) and on data analysis (3)
  - 3 papers display a qualitative analysis (Delphi, expert interviews, focus group and policy documents analysis)
  - Scales of empirical researches (36):
    - The micro level: Smart City projects (transversal or not):19
    - The mezzo level: Entire territory of the city and reaches a global scope (Smart City Strategy): 15
    - The macro level: A wider scope than the city perimeter (region, country ...): 2
- 29 papers developed models or frameworks:
  - 13 purely theoretical reasoning or on the results of a review of literature
  - 16 papers develop models in relationship with field analysis

# 5. Results: Content

- Actors**

- Interaction of actors in the articles : 45 articles on 61
- The four helix model's actors -Government, Companies, Citizens, are subject of an examination (positioning, perspective, criticism... )

Actors' name	Nb of papers
Government Administration	55
Companies	52
Citizens	49
Research centres universities	27

- Governance**

- Four categories of Smart Governance (conceptualized by Meijer & Bolívar (2016):
  - 1 Smart City Government, 2 Smart Decision Making, 3 Smart Administration and 4 Smart Collaboration

Conceptions of governance	Nb	Nb of conceptions	Sum
Smart City Government	30	0	11
Smart Decision Making	20	1	16
Smart Administration	8	2	21
Smart Collaboration	42	3	10
None of them	11	4	3

## 6. Discussion

- **Evolution of the literature: origins and publication paths**
- Papers dealing with the governance in the Smart City really emerge in the literature after 2014.
  - Small in number of annual publication average (3 between 2010 and 2012) in comparison with the mass of publication on Smart City topics (more than hundred referenced annually).
- The first authors 'disciplines show the Smart City governance is treated among several specialities.
  - The literature remains confine by authors emanating from technology, economy and management which are already traditionally connected to the literature on Smart Cities.
- **Theoretical foundation**
- The theorization and conceptualisation of the governance and stakeholders within the Smart City are still under construction.
  - Little theoretical grounding and a lack of homogeneity in the approaches adopted, few papers are inscribed in a theory.
  - Significant presence of conceptual papers, reviews of literature as well as models and frameworks empirically and theoretically developed
  - Substantial number of normative papers and papers mixing normative and positive approaches
  - A focus on structure more than on actors of the Smart City
- It miss scientific articles which deeply study how one or several actors understand, appropriate, influence and/or impact the creation, implementation and dynamics of a Smart City.

## 6. Discussion

- **Methodological approach**
  - The corpus of paper concentrates a high number of empirical methodologies. These case studies are mainly located in Europe, worldwide cases are missing.
  - The literature lacks of qualitative methodologies which deeply analyse the stakeholders understanding and positioning on the notion of Smart City.
  - The corpus of papers do not offer multilevel analysis as well as some territorial and spatial considerations of the stakeholders dynamics in the Smart City

## 6. Discussion

- **Stakeholders and governance**
- The literature highlights different conceptions of Smart City governance, pointing cooperation between stakeholders and governmental management as main developments.
  - Governmental and private actors are the two most discussed players in the papers.
  - Actors of the civil society are also gaining in importance in the literature.
  - Universities and research centres are slightly analysed
- The huge majority of the papers discussed on interactions between actors.
  - It shows an illustration of the principles of horizontal integration
  - The vertical integration is not addressed as a considered concern in the literature.
    - Researches are concentrated on local dynamic of cities or on their substructures, at a micro or a mezzo level. Only two papers work on a territorial macro level (Region, country).
    - What about the dialogues, influences, coordination, representations, conflicts with the other levels of territories and powers and their respective actors?
    - Authors have to pay attention to the “multilevel governance” in Smart Cities and study the processes and institution operations at, and between, the varieties of geographical and organizational scales.

## 6. Conclusion

- What do we know about the governance and stakeholders in the Smart City ?
  - It emerges from this study that the literature on governance and stakeholders in Smart City has a late development (2014)
  - A normative positioning is strongly present in the set of papers confirmed that the academic formation of the governance on Smart City is still under construction
  - The research is fragmented and lacks of cohesion, numerous frameworks and models -empirical or conceptual- are elaborated

*It is necessary to reach global explanatory frameworks on governance and stakeholders in Smart Cities through the development of in-depth theoretical analysis.*

- The literature lacks of qualitative methodologies which deeply analyse the stakeholders in Smart City.

*It miss scientific articles which deeply study how one or several actors understand, appropriate, influence and/or impact the creation, implementation and dynamics of a Smart City.*

## 6. Conclusion

- The stakeholder's interactions and the collaborative governance are addressed in the literature.
  - **Horizontal integration of actors in the Smart City governance is preponderant.**
  - **The main subject of analysis remains the local or supralocal territory of cities.**

*There is a lack of national and regional Smart City analysis and a lack of large empirical studies on local level with a national and/or regional scope.*

*The literature misses a vertical integration of actors and a multilevel analysis in the governance of Smart City.*

**Thank you for your attention**

