

Smart city performance measurement State of the art

Dr. Ir. Jonas Van Bockhaven
Prof. Dr. Nathalie Crutzen
Researcher Smart City Institute
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Liège Belgium

jonas.vanbockhaven@ulg.ac.be

Outline

- Smart city intro
- Critical view on smart cities
- Performance measurement
- Smart city performance measurement literature review
- Discussion

Smart city intro



Smart city intro

Digitalization and open data

Different stakeholders

citizens, government, corporate and academic partners

Technical, sociological and institutional factors

6 smart dimensions

mobility, people, living, governance, economy & environment

Combination of top-down and bottom-up

Critical view on smart cities

What is the role of citizens in a smart city?



Recent smart city definitions agree on a central role for citizens

However, reality shows that:

- main drivers of smart cities are governments and corporations
- digital divide
- citizen participation is sometimes considered as a barrier by governments
- often no guarantees that governments will take citizen participation into account

Critical view on smart cities

The open data question?

- Difficult to standardize various types of open data from different sources
- Governments & corporations are big sources of open data and they will only open up data if there is a clear advantage

Open data is the cornerstone of many smart city developments and more research in this field is indispensable.



Critical view on smart cities



Citizens often do not trust the smart city because:

Fear that their cities are governed by corporations

- recent smart city developments: citizens are central
- continuous critical stance is necessary

Citizens do not always trust open data

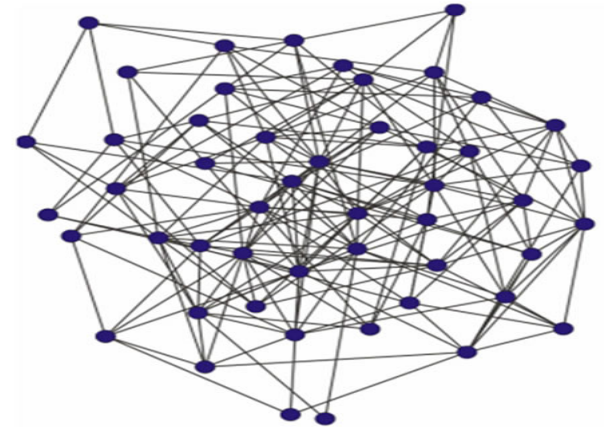
- Privacy issues
- Can open data be trusted?

Critical view on smart cities

Smart city concept is (too) complex for city governments

- Multiple stakeholders, bottom-up approach, citizen participation... all relatively new and complex processes
- Smart city development changes quickly
- It takes a mind shift and often more time/work to implement smart city initiatives

Governments have a lot to win by implementing the smart city concept



Performance measurement



Performance measurement

DEFINITION

To measure the performance of a smart city through the collection and analysis of relevant data and the communication of the results



Performance measurement

REASONS

- demonstrate accountability
- support informed decision making
- inform the stakeholders



Smart city performance measurement

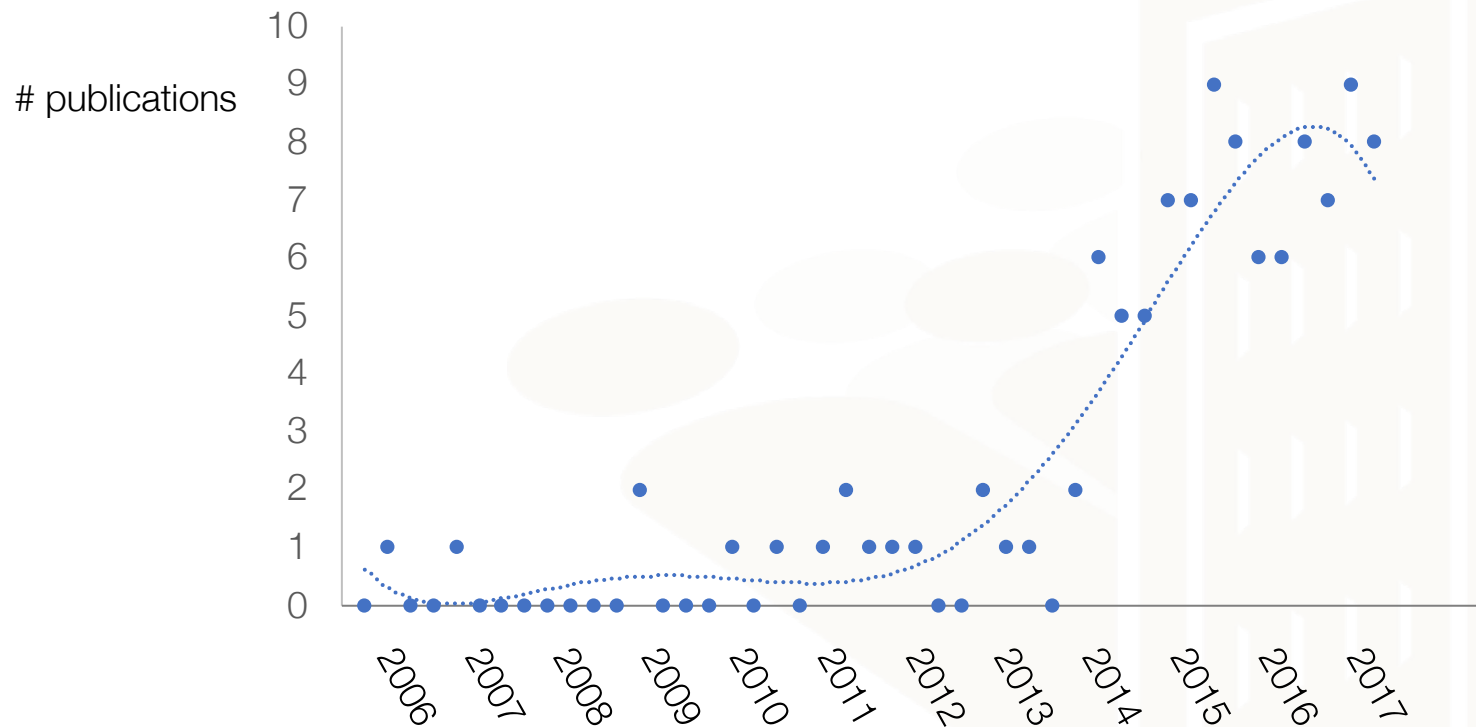
Literature review



Smart city performance measurement

Literature review

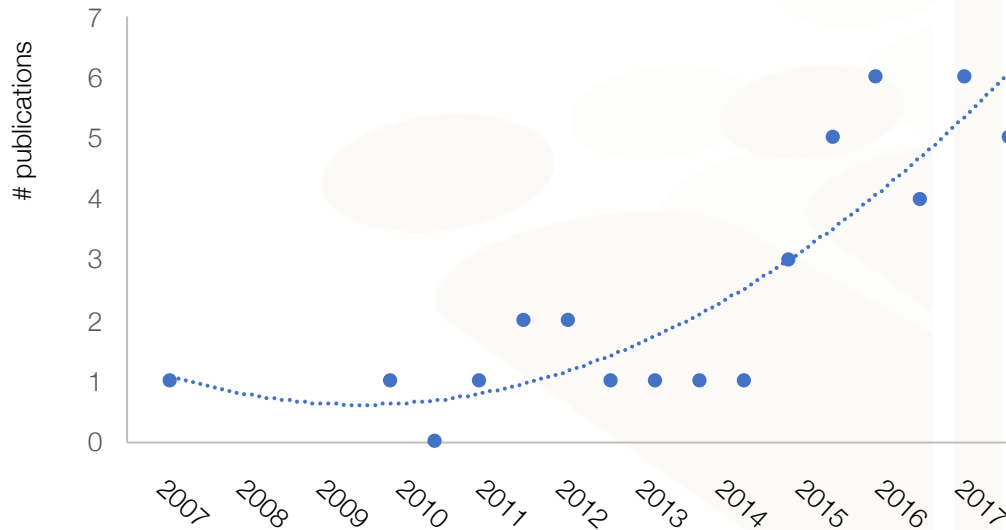
Google scholar, EBSCO & SCOPUS:
 149 hits > 110 available > 41 relevant articles



Smart city performance measurement

Literature review

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Smart city performance measurement

Literature review

Smart city performance measurement

- Strategic plan with clear objectives
- What to measure (choice of indicators)
- How and when to measure (data collection and measurement)
- Interpretation of the data
- Communication of the results (reporting)

Smart city benchmarking (not performance measurement)

- Comparing results of performance measurement with other cities
- Smart city rankings best known example

Smart city performance measurement

Literature review

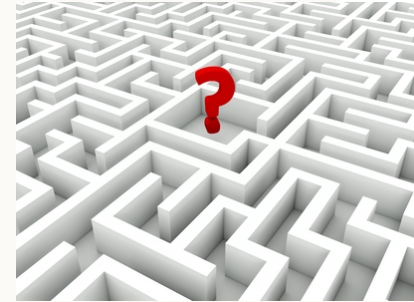
Key findings

- Big differences between smart cities
- Having a smart city strategy is essential
- Few cities measure their performance
- Stakeholders are not equally involved: governments and research institutes, what about citizens?
- Smart city rankings are very popular

Smart city performance measurement **Discussion**



Smart city performance measurement Discussion



1. Cities have difficulties to measure smart city performance

- Public performance measurement is not that common
- Smart city concept is evolving quicker than cities can adapt
- Complex processes:
more stakeholders, bottom-up, social approach
- More work/costs for cities (esp. medium to small cities)

However, smart city performance measurement
is beneficial for cities

Smart city performance measurement Discussion

2. Smart city performance = need for open data

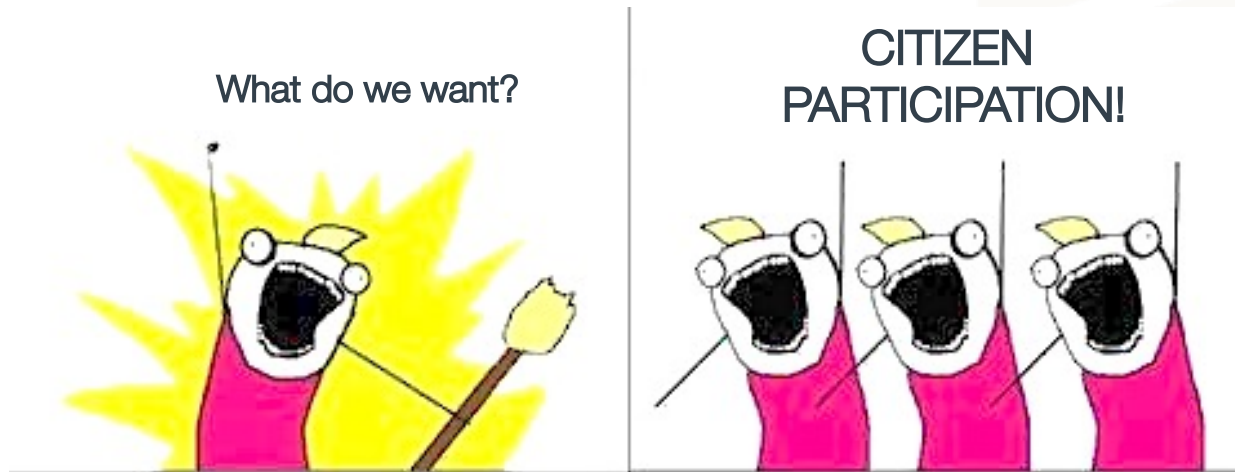
Open data is one of the bottlenecks in smart city performance measurement

- Availability
- Reliability

Smart city performance measurement

Discussion

3. What about the citizens?



Smart city performance measurement

Discussion

3. What about the citizens?

Every smart city wants their citizens to participate, but this requires:

- common understanding of participation
- trust in the government and smart city concept
- mind shift of the city government
- the whole society should be represented (no digital divide)

Citizen participation in performance measurement is relatively new and more research is necessary to see how cities can make this happen

Smart city performance measurement Discussion

4. Why are smart city rankings so popular?



Google Scholar search	
“smart city” AND “performance measurement”	“smart city” AND benchmarking
510 hits	4060 hits

Smart city performance measurement Discussion

4. Why are smart city rankings so popular?



SMART CITY RANKINGS:

- focus on results and not on processes
- based on simplified indicators and data
- mostly performed by external institutes (less work for cities)
- mainly targets bigger cities that are a bit more advanced in their smart city development

Quick and easy comparison with other cities

BUT

cannot replace smart city performance measurement

Smart city performance measurement

Conclusions

Smart city development and performance measurement are relatively new and demand more research

No one-size-fits-all solution

Cities' governments are the main driver

- importance of a smart city strategy and performance measurement process
- mind shift (power and responsibility)
- build trust to enable citizen participation

Open data and citizen participation are key obstacles

Benchmarking (Smart city rankings) is useful, but cannot replace performance measurement

Smart city performance measurement State of affairs

Dr. Ir. Jonas Van Bockhaven
Researcher Smart City Institute
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jonas.vanbockhaven@ulg.ac.be

More information?

 www.SmartCityInstitute.be

 jonas.vanbockhaven@ulg.ac.be

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Smart city performance measurement in Walloon cities

Two master thesis students will start working on smart city performance measurement in Tournai, Mons, Charleroi, Namur and Liège.

We are still looking for cities / municipalities to collaborate with.
In case you are interested, don't hesitate to contact us.

Smart city Intro

“We believe a city to be smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.”

Caragliu, Del Bo, Nijkamp, 2009

Smart city performance measurement literature review

Key findings

- Few cities have a smart city strategy and even less cities measure their performance

e.g. only 13% of Belgian municipalities have a smart city strategy
- Smart city rankings appear to be the most common way of smart city performance
 - results benchmarking
 - mostly performed by external institutes
 - based on simplified indicators and data

Smart city performance measurement

CITYkeys project

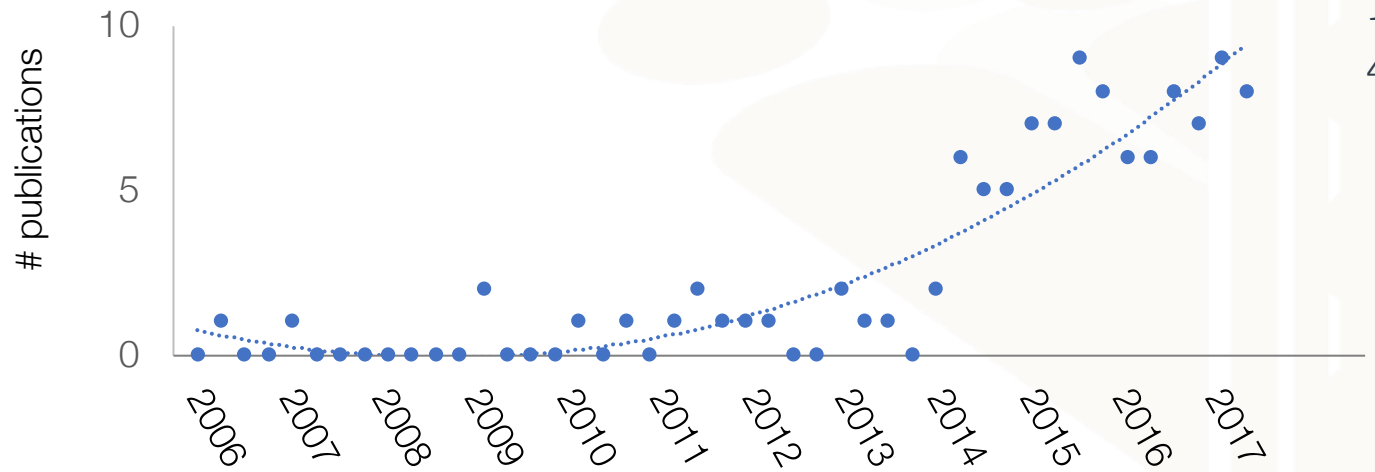
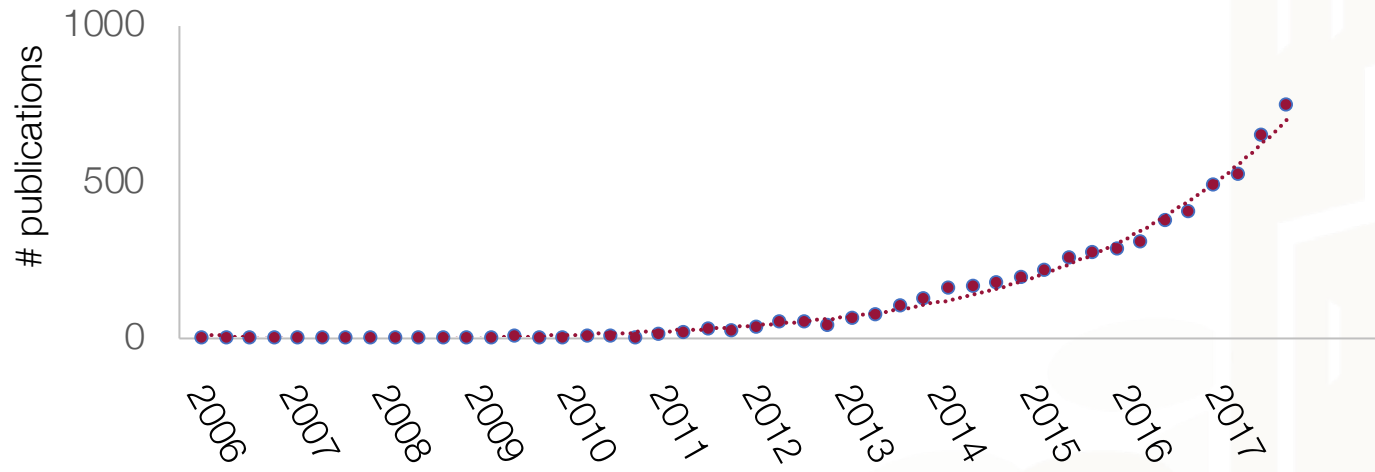
Survey 17 larger European cities:

- 50% don't measure performance

Qsd



Smart city performance measurement Literature review



149 hits > 110 available > 41 relevant articles

Smart city performance measurement

Discussion

2. Smart city performance =
need for open data

