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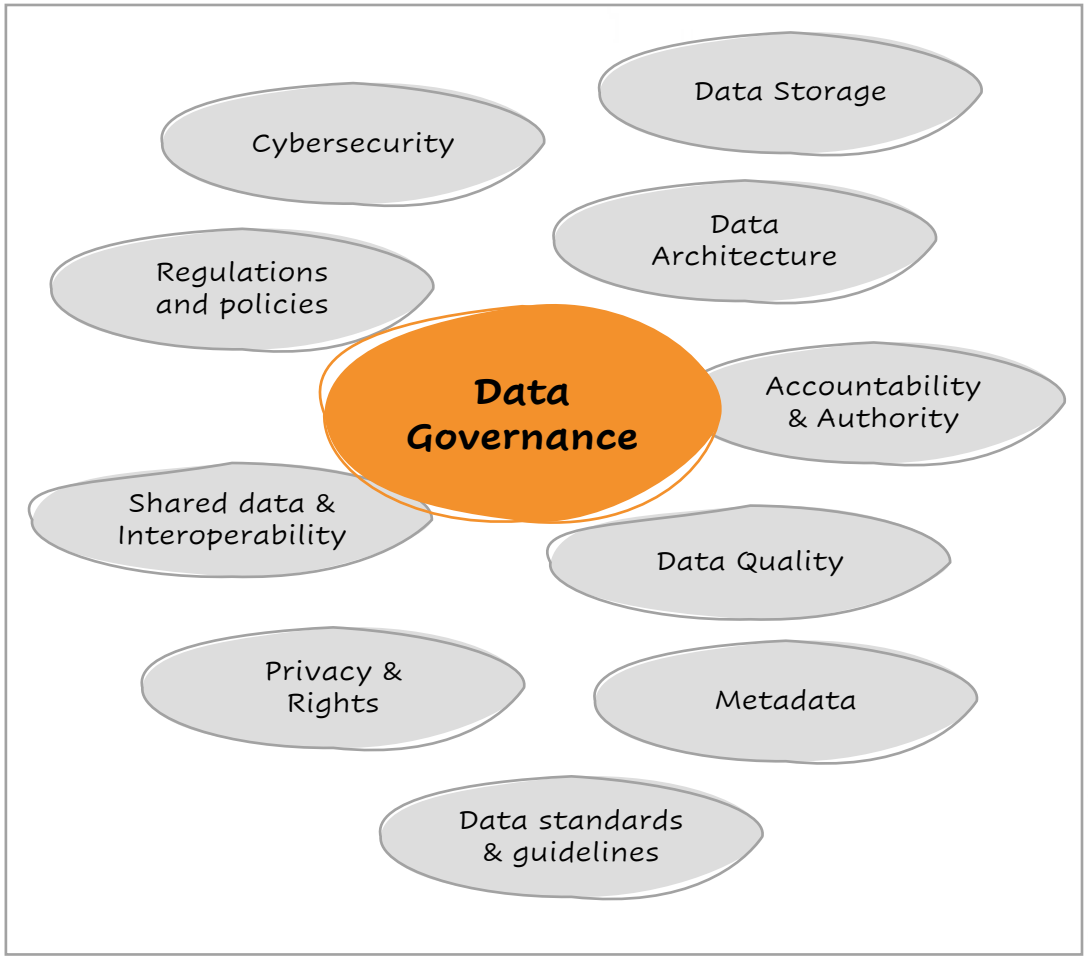
# DATA GOVERNANCE FOR SMART CITIES

## CONCEPTS, PRINCIPLES & PROGRAM FOR DATA GOVERNANCE

**DR. DONYA SHEIKH KHAN**
Senior Specialist in Data Management
Sustainability Consultancy,
Ramboll Denmark

# Presentation outline

- Why govern urban data?
- What is “Data Governance”?
- Scope & Principles
- Data Governance Program
- Examples

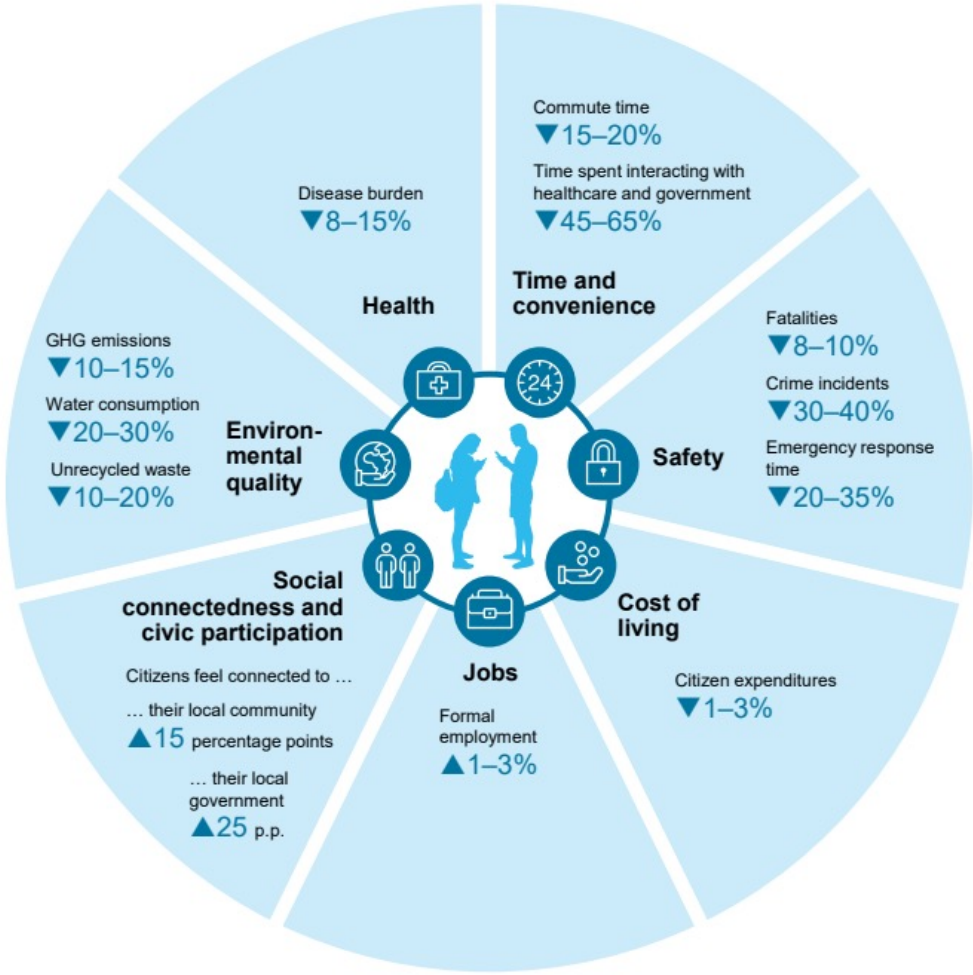


# Data from ICT and data sharing creates new opportunities…

Exhibit E3

**Smart city applications can improve some key quality-of-life indicators by 10 to 30 percent.**

Potential improvement through current generation of smart city applications, from time of implementation




SOURCE: McKinsey Global Institute analysis

# … but the volume, variety and velocity of urban data creates new challenges…

Poor **quality** → Poor decisions → Low trust → Low support

Different protocols, formats and structure → Lack of data sharing, **interoperability** and linking

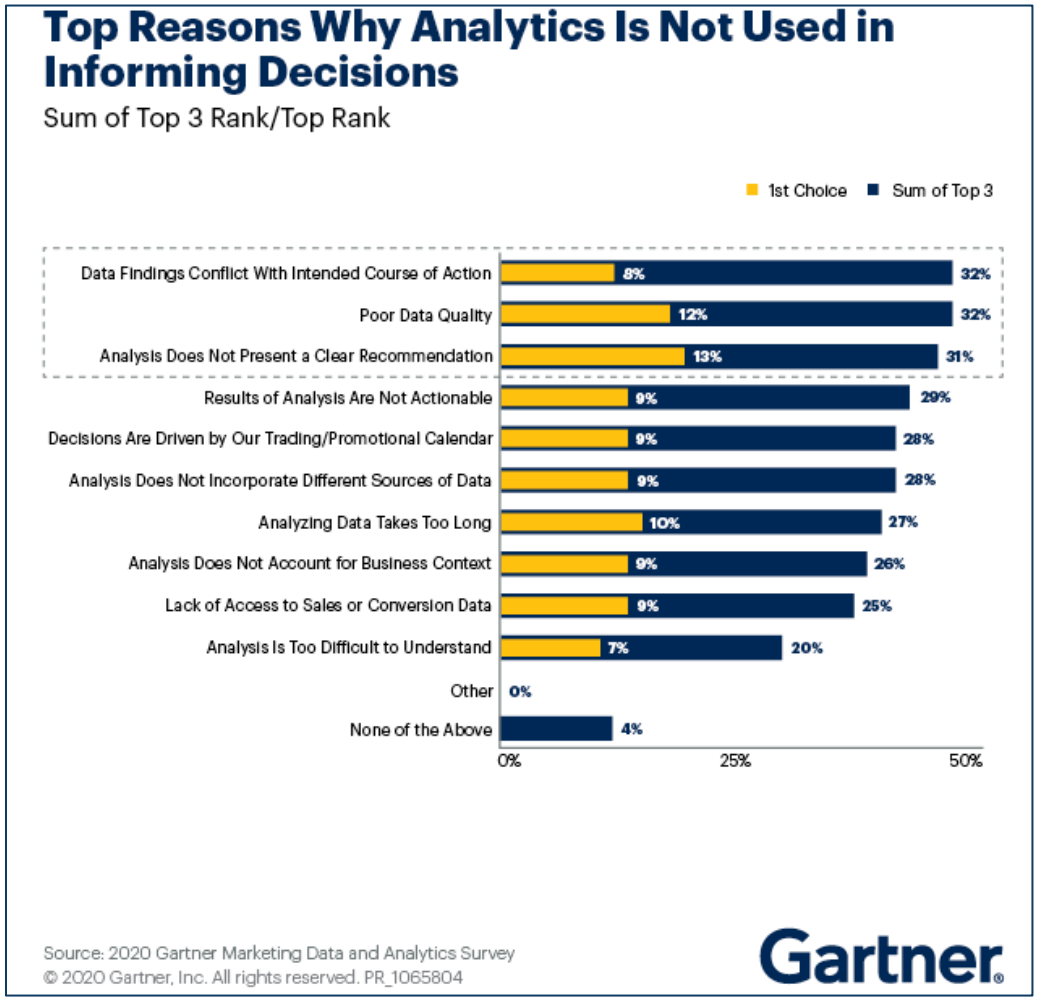
ICT vulnerabilities → Increased **security** and safety risks

Violation of citizens' **privacy** rights → Risk of exploitation → Low citizen trust & support

# Example of consequences to inadequately address the key challenges…

*"…poor data quality is costing organisations up to $15 million on average."*

Gartner's 2017 Data Quality Market Survey



# Data Governance is about…

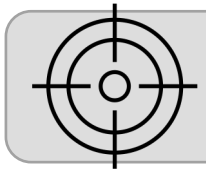
*"…exercising authority and control (planning, monitoring and enforcement) over the management of data assets through formal oversights of people, process and technologies."*

Definition based on DMBOK

# Define the scope and principles for data governance

Establish the city's maturity level to manage data and ICT

Use the Smart City Vision and goals for defining your data management goals and principles



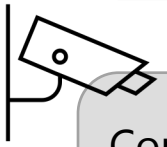
Decide on the appropriate scoping level for a data governance program

Hint: Start small but think big! Focus on your master data or critical/sensitive data!

# Overall data governance principles, some examples…

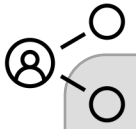
Balancing government involvement and privatization.

Achieve public trust and engagement through transparency and accountability.



Considering smart city project aims in connection to surveillance concerns and citizens' privacy rights.

Securing vulnerable ICT infrastructure against unintentional or deliberate misuse of urban data.



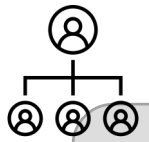
Promote data sharing and collaboration.

*Based on Johnsen et al (2022, J. L. & Mob. 1)*

# An example of why citizen engagement is important…

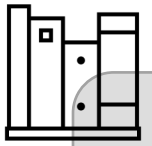
*Quayside Smart City project by Sidewalk Labs. Toronto waterfront.*
*Source: https://www.bloomberg.com/news/articles/2018-11-30/inside-sidewalk-labs-new-plan-for-toronto-s-smart-city*

# Setting up a data governance program for your smart city project



Identify stakeholders, roles and responsibilities for your smart city project

Identify and/or define data governance principles, guidelines and standards for your smart city project

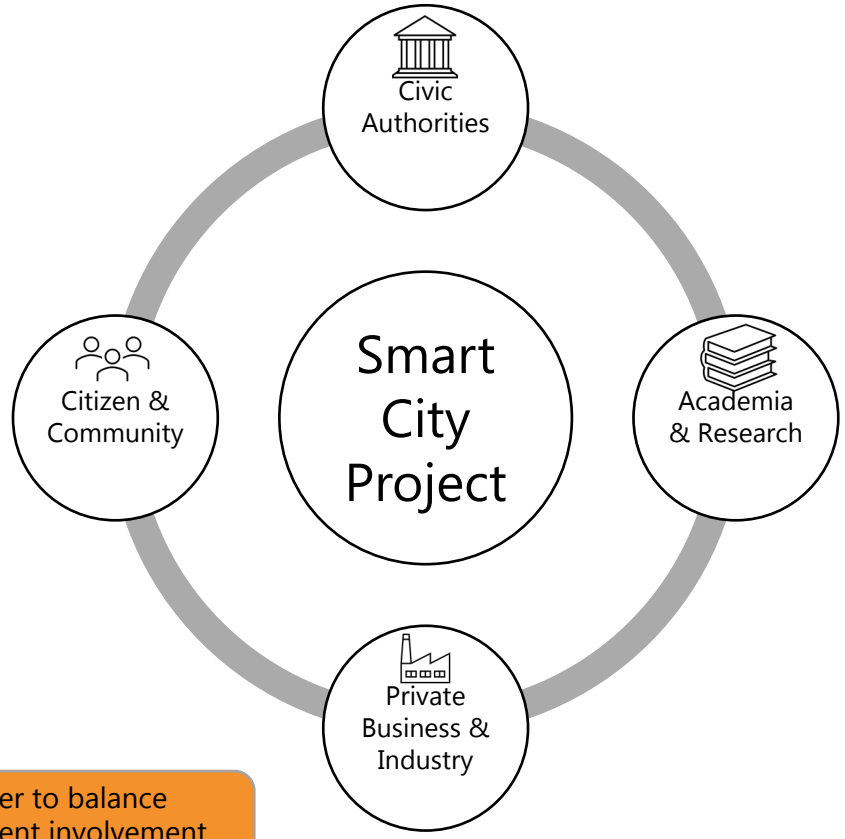


Ensure to make all relevant data governance resources available to all involved stakeholders

Ensure to communicate and inform involved stakeholders about data governance

# Stakeholders and the ecosystem of the smart city project

## Key stakeholder groups




Remember to balance government involvement & privatization

## Establish your data governance organization

**"Executive"**

Approves data governance program. E.g., advisory board of industry partners and government representatives.

**"Management"**

Responsible for executing, planning, monitoring and enforcing data governance. E.g., city planners, researchers, industry partners.

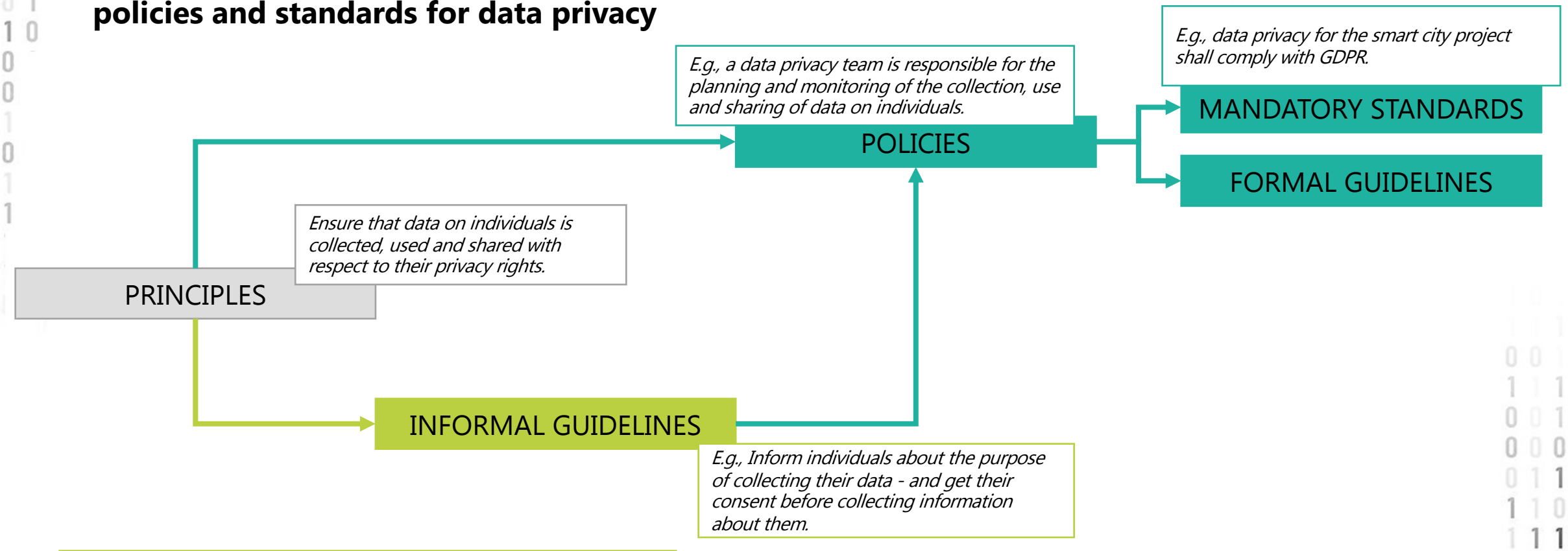
**"Operation"**

Implement, monitor and maintain data governance. E.g., data management experts, data stewards, data scientists, data architects.

*Based on the Data Governance Framework by Fleckenstein & Fellows, Springer, 2018*

# From principles to policies, guidelines and standards

## An example of defining principles, guidelines, policies and standards for data privacy

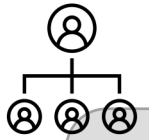



Low maturity level → Lower degree of formality for data governance

High maturity level → Higher degree of formality for data governance

# Inform and educate stakeholders about the data governance program

All relevant resources should be available to all stakeholders working on the smart city project – through an intranet or website depending on the sensitivity of the information.



Assign clear roles and responsibilities to stakeholders in your smart city project for planning, implementing, enforcing and monitoring data governance.

Inform, educate and train relevant stakeholders about the data governance program.

Set up a process in which internal and external stakeholders directly or indirectly involved or affected by the project can address concerns and provide feedback about the data and ICT.

# Conclusion(s)

- Why govern urban data?

*To ensure trustworthy data that is collected and used with respect to the privacy rights and security of citizens.*

- What is “Data Governance”?

*The authority and control of the management of data.*

- Scope & Principles

*Define your data governance program so it supports your Smart City Vision*

- Data Governance Program

*Define, enforce and monitor: (1) Authority & Organization; (2) Principles, Policies, Guidelines & Standards and (3) Communication plan.*

# Thank you!

Dr. Donya Sheikh Khan

dskh@ramboll.dk

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**DATA GOVERNANCE AND SECURITY**