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European Innovation Partnership
on Smart Cities and Communities

Citizen Centric approach to data – GDPR revisited

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CEO

Chair EIP-SCC Citizen Approach to data

Editor ISO/IEC 27570 Privacy Guidelines for Smart Cities

Context

- PRIPARE commitment 7001
  - Standards on security and privacy
    - Liaison with ISO/IEC JTC 1/SC27/WG5
  - Editor ISO/IEC 27570 Privacy guidelines for smart cities
- EIP-SCC initiative citizen centric approach to data
  - GA 2015 Berlin: proposal for initiative
    - Nov 2015. Action Cluster meeting Brussels
    - April/May 2016. Two webinars on privacy for smart cities
  - GA 2016 Eindhoven: proposal for workshops in GDPR compliance
    - April 2016/Sept 2016: . Espresso webinar / ERRIN workshop
    - Nov 2016. Action cluster meeting Brussels
    - March 2017/July 2017 : Sharing cities PIA workshop
    - October 2017. Action Cluster meeting Brussels
  - GA 2017 Brussels: proposal for sharing GDPR compliance practice
    - Eurocities workshop
  - GA 2018 Sofia: Kicking off ISO/IEC 27570 Privacy guidelines for smart cities
  - GA 2019 Brussels: Using ISO/IEC 27570 for GDPR compliance

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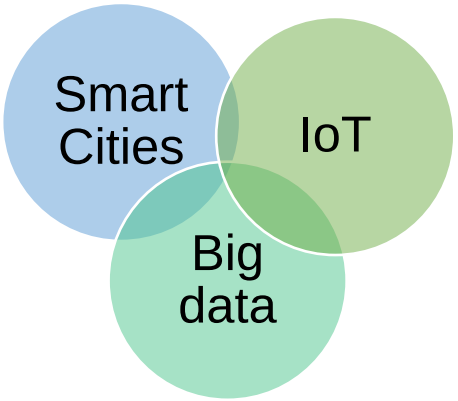
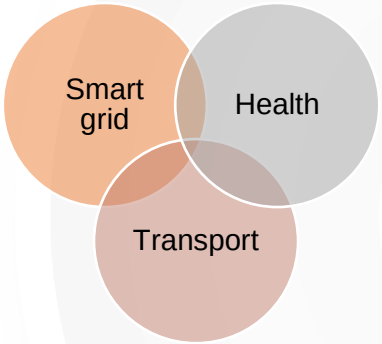
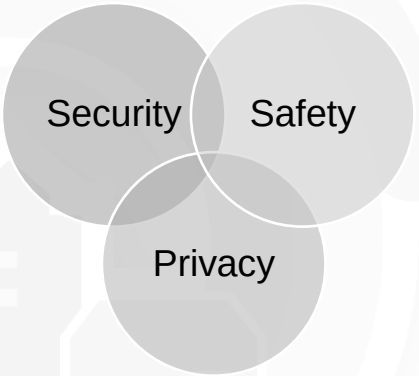
Cities must Manage Ecosystems



Ecosystems



Domains



Concerns

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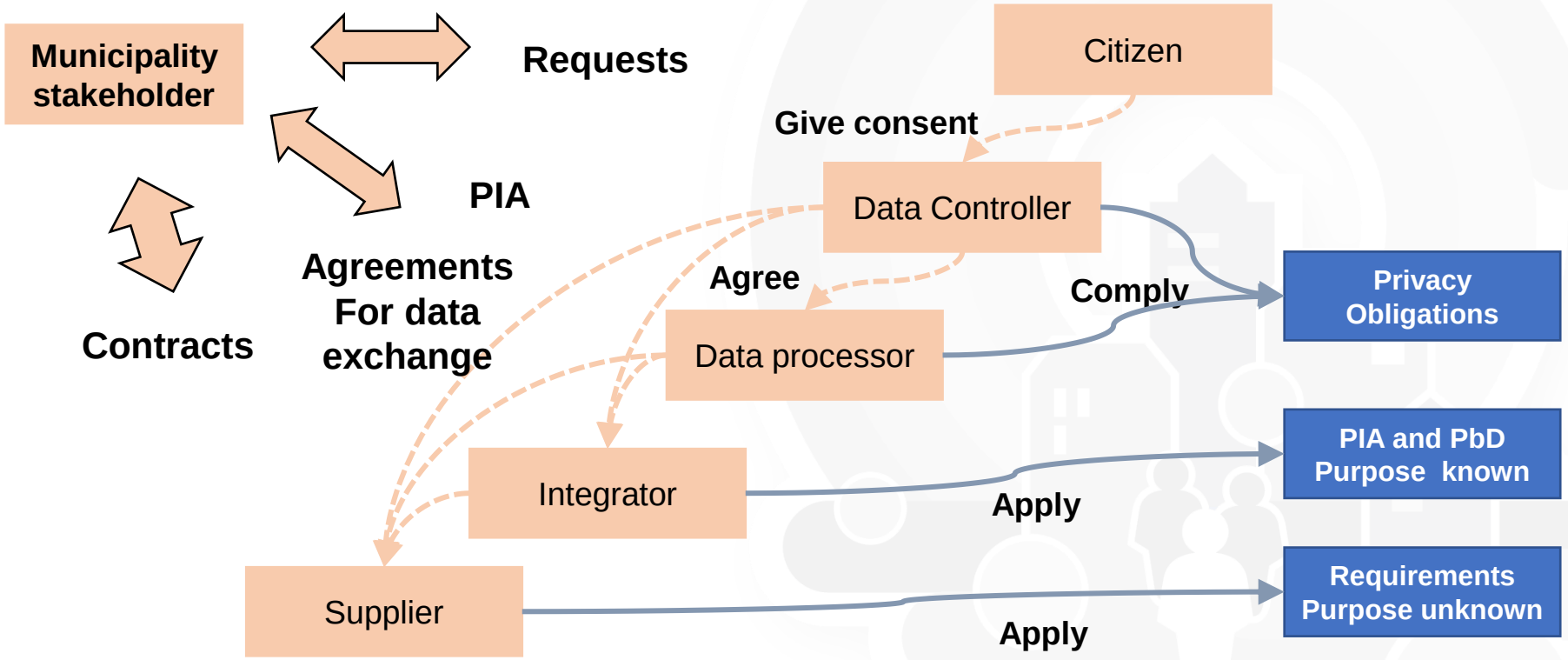
Cities must Manage Ecosystems



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Context of ISO/IEC 27570 Privacy guidelines for smart cities

- JTC1/SC27 Information security, cybersecurity and privacy protection
  - WG1 Information security management systems
  - WG2 Cryptography and security mechanisms
  - WG3 Security evaluation, testing and specification
  - WG4 Security controls and services
  - WG5 Identity management and privacy techniques
- Privacy for smart cities Study period
  - October 2015 - First study period (18 months) initiated by India
  - June 2017 – Second study period (6 months) Initiated by France further to contribution from JTC1/WG11 smart cities
- Privacy guidelines for smart cities ISO/IEC 27570 TS
  - Editors
    - Antonio Kung – France
    - Heung Youl Youm – Korea
  - 20 June 2018 – Registration – 1st WD
  - October 2018 – 2nd WD
  - May 2019 – 1st CD
  - Going for publication – mid 2020

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Scope of ISO/IEC 27570 Privacy Guidelines for Smart Cities

- The document takes a multiple agency as well as a citizen centric viewpoint, and provides guidance on how privacy standards can be used at a global level and at an organizational level for the benefit of citizens.
- This document is applicable to all types and sizes of organizations, including public and private companies, government entities, and not-for-profit organizations that provide services in smart city environments

Ecosystem

System of System Ecosystem

Citizen

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Multidisciplinary content of current 2nd Draft

Smart Cities experts

Smart Cities experts

Security and privacy experts

Smart cities, security and privacy experts

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Smart Cities? Requirements?

Smart Cities experts

Smart Cities experts

Security and privacy experts

Smart cities, security and privacy experts

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ISO/IEC 30145 Smart Cities ICT Reference Framework

Stakeholders			
Business	Citizens	Government organisations	Non Government organisations

Vision & Outcome						
Well-being	Transparency	Sustainability	Economic development	Efficiency & resilience	Collaboration	Innovation

Business process framework										
Business & Operational processes										
City Enterprise processes	Transport	Health & Social Care & Wellness	Resources	Education	Sustainability & Environment	Legal & Regulatory Systems & Services	Safety, Security & Resilience	Open Innovation	External interfaces	Infrastructure & Building
Governance & Integration processes										
Leadership & direction	Stakeholder engagement & citizen focus	Integrated portfolio management	Knowledge management	Integrated management	Integrated city systems engineering					

Knowledge management framework						
Dynamic place	Measurement	Provenance	Validity	Place	Time	Trust

Engineering management framework						
Smart Application Layer	Security system	Construction system	Operation & maintenance system	Identification system	Positionning system
Data & Services Supporting Layer					
Computing & Storage Layer					
Network Communication Layer					
Data Acquisition Layer					

ISO/IEC 30145 Smart cities ICT reference framework

Engineering management framework						Security system	Construction system	Operation & maintenance system	Identification system	Positionning system
Smart Application Layer									
Smart government	Smart transportation	Smart education	Smart healthcare	Smart home	Smart campus				
Data & Services supporting layer									
Service integration									
Service acquisition & aggregation	Service management	Service integration	Service usage						
Data integration									
Data acquisition & aggregation	Data integration & processing	Intelligence mining & analysis	Data management & guidance						
Data sources									
Fundamental data	Shared exchangeable data	Application domain data	Internet data						
Computing & storage layer									
Computing resource	Storage resource	Software resource							
Network Communication Layer									
Public network	Privacy network								
Data Acquisition Layer									
Sensor data acquisition	Human data acquisition								

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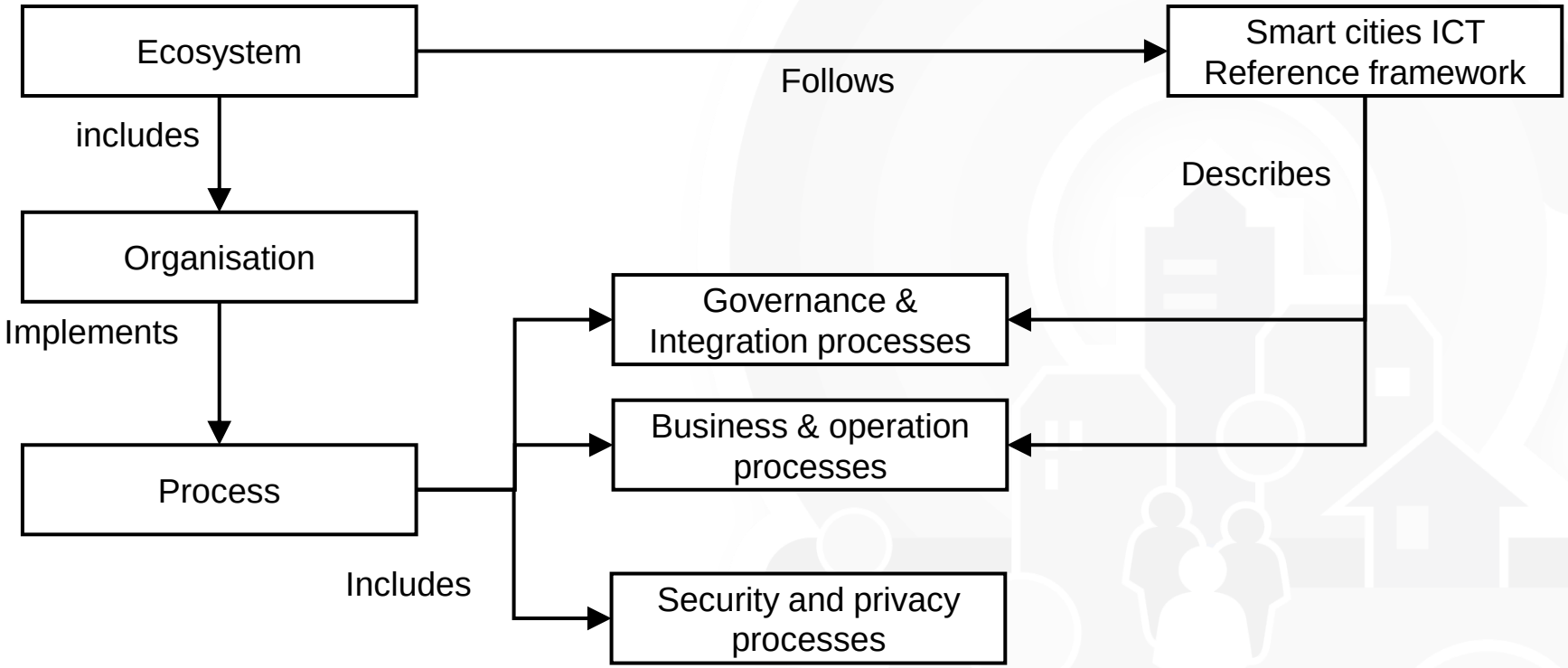
Smart City Ecosystems



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Examples of Ecosystems Concerns

Governance level	Smart city is not able to track all data controllers or data processors. For instance not being able identify the data controllers or data processors that caused a breach.
	Smart city is not able to enforce privacy policies in the governance chain. Not being able to verify that all consents have been provided
Supply chain level	Privacy impact assessments are incorrect. For instance supplier underestimate risks
	Data controllers or data processors rely on suppliers of components that do not support some desired privacy controls. For instance supplier providing data storage does not use state of the art protection capabilities.
Data sharing level	Lack of awareness from stakeholder in the data sharing chain of its obligations. For instance a stakeholder provides personal data to a supplier without informing him.
	Wrong assessment from a stakeholder that it is not a data controller or data processor. For instance publishing open data that is not properly anonymized, or combining two datasets which do not contain personal data into a dataset which contains personal data.

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Which standards to use?

Smart Cities experts

Smart Cities experts

Security and privacy experts

Smart cities, security and privacy experts

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Need to integrate privacy standards with other standards

ISO/IEC 27570 Privacy guidelines for smart cities

Privacy standards
- ISO/IEC 29100 privacy framework
- ISO/IEC 29134 privacy impact assessment guidelines
- ISO/IEC 27552 privacy control requirements
- ISO/IEC 29151 code of practice for PII protection
- ISO/IEC 27550 privacy engineering
- ISO/IEC 27556 privacy preference managemnet

JTC1/SC27/ WG5

Smart city standards
- ISO/IEC 30145 Smart cities reference framework
- BSI PAS 183:2017 Guide to establishing a decision-making framework for sharing data and information services
- ISO 37156 Guidelines on Data Exchange and Sharing for Smart Community

JTC1/WG11

IEC SyC Smart cities

TC268/SC1/ WG4

Cloud standards
- ISO/IEC 17789 Cloud Computing Reference Architecture
- ISO/IEC 27018, Code of practice for protection of PII in public clouds acting as PII processors
- ISO/IEC 23751 Data sharing agreement framework

JTC1/SC38

IoT standards
- ISO/IEC 30141 IoT Reference Architecture
- ISO/IEC 27030 security and privacy guidelines for IoT

JTC1/SC41

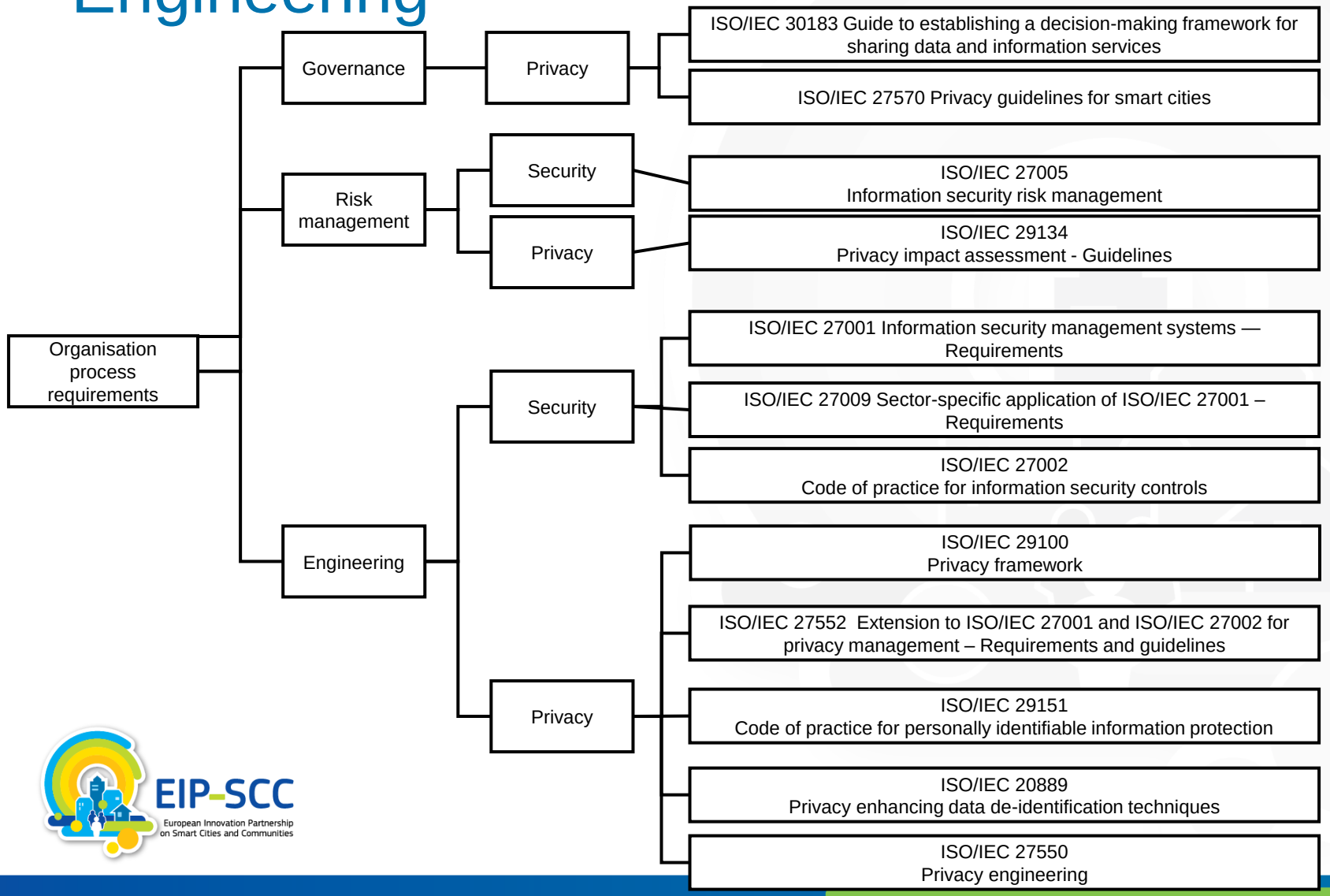
JTC1/SC27/ WG4

Big data standards
- ISO/IEC 20547-3 Big data reference architecture
- ISO/IEC 20547-4 Big data security and privacy

JTC1/SC42

JTC1/SC27/ WG4 and WG5

Governance, Risk management, Engineering



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Smart City Processes for Privacy

Smart Cities experts

Smart Cities experts

Security and privacy experts

Smart cities, security and privacy experts

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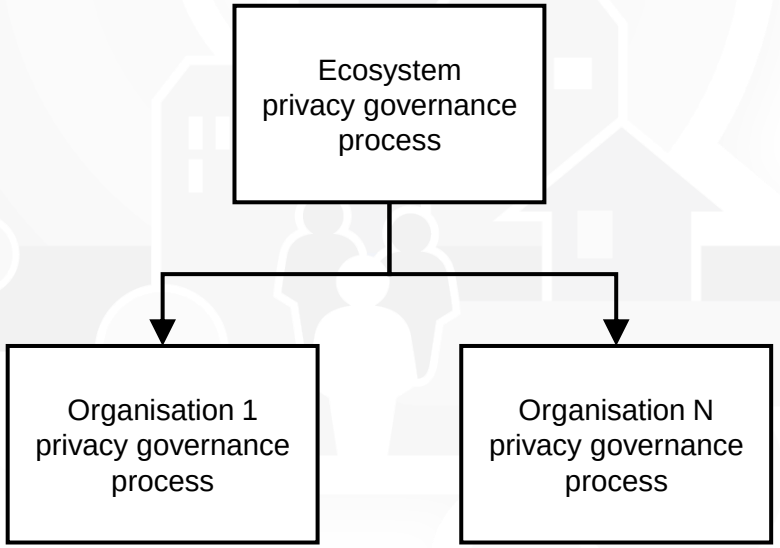
Can benefit from consistency with standards on governance

Governance Process

- Description of activities
  - Establishment of privacy policies
  - Monitoring of their implementation in smart city service
- Guidelines for ecosystem coordination
  - Rules and policies of for chain of privacy governance;
  - Specify supervision requirements
  - Specify supervision process
  - Identify supervised organizations
  - Apply the supervision process
- Guidelines for organizations
  - Enrolment
  - Implement rules and policies
  - Apply supervision process



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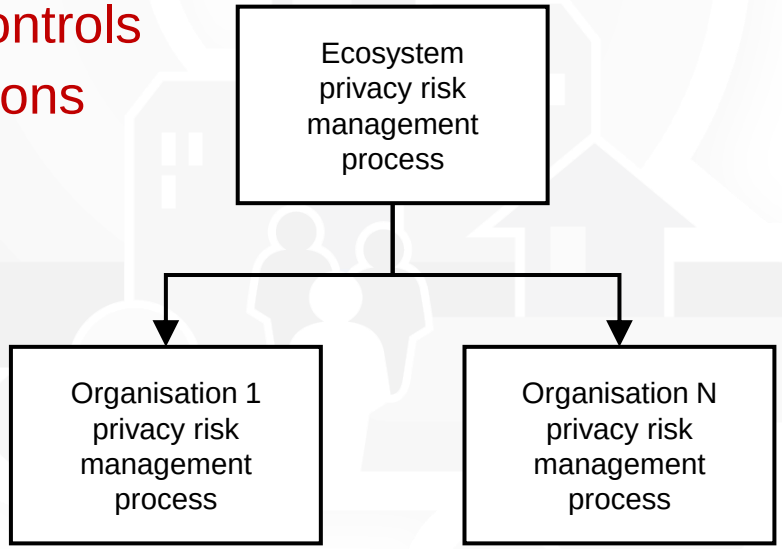
Risk Management Process

Can benefit from consistency with standards on risk management

- Description of activities
  - System of system risk management
  - System-level risk management
- Guidelines for ecosystem coordination
  - SoS risk analysis leading to SoS controls
  - Mapping SoS controls to organisations
- Guidelines for organizations
  - System risk analysis leading to system controls
  - Implement controls
  - Apply risk mgt process



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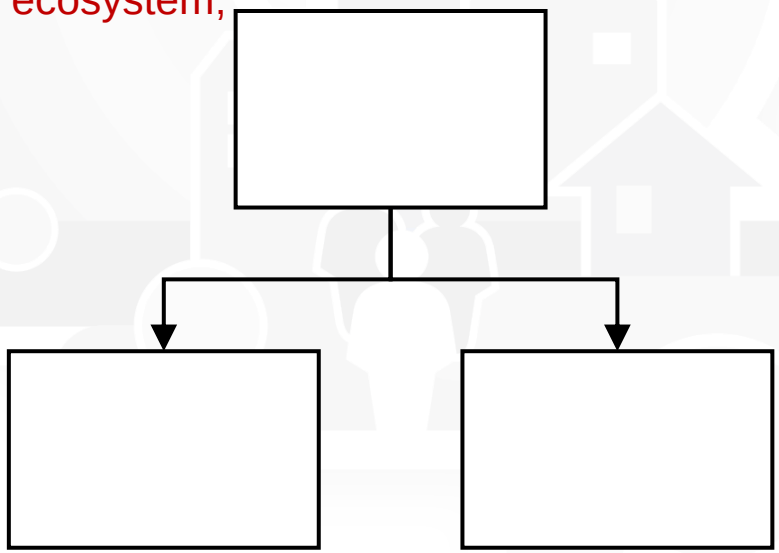
Can benefit from consistency with privacy engineering standards

Engineering Process

- Description of activities
  - Activities for privacy related to the lifecycle of a smart city service
- Guidelines for ecosystem coordination
  - Identify data processing operational requirements
  - Identify security and privacy requirements
  - Identify activities where privacy must be taken into account;
  - Map activities to the organizations of the ecosystem;
  - Establish coordination schemes
- Guidelines for organizations
  - Identify activities where privacy must be taken into account;
  - Identify the controls to be implemented
  - Establish the lifecycle process in accordance with coordination scheme



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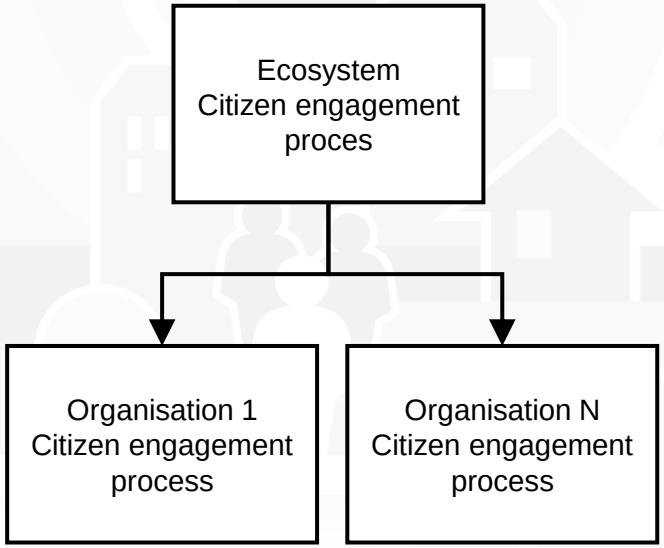
Can benefit from consistency with citizen engagement practices and standards

Citizen Engagement Process

- Description of activities
  - Concertation with smart city citizens
- Guidelines for ecosystem coordination
  - Establish a citizen concertation process on privacy
  - Establish a citizen interaction process
    - Information, enquiries and complaints;
  - Establish review process of services involving citizens
  - Periodic citizen review of services
  - Establish coordination schemes
- Guidelines for organizations
  - Apply concertation support activities



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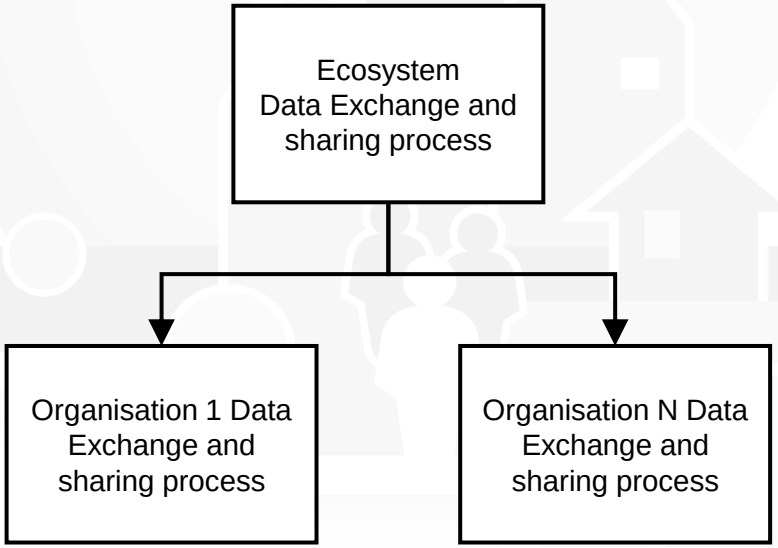
Data Exchange and Sharing Process

Will benefit with consistency with 37156 (TC268) and 23751 (JTC1/SC38)

- Description of activities
  - Integration of privacy in data exchange and sharing
  - Monitoring at smart city level
- Guidelines for ecosystem coordination
  - Specify the privacy impact assessment and sharing agreement templates to use
  - Establish security and privacy coordination schemes
    - measures for compliance, assurance and audit of practice.
- Guidelines for organizations
  - Use templates
  - Carry out data exchange and sharing activities in accordance with coordination scheme.



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Round Table

- Requirements and concerns
- Processes
  - Governance
  - Risk management
  - Engineering
  - Citizen engagement
  - Data sharing
- Use cases

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Questions?

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