Overview of the Technical Specifications on Setting the framework for an ICT architecture of a smart sustainable city

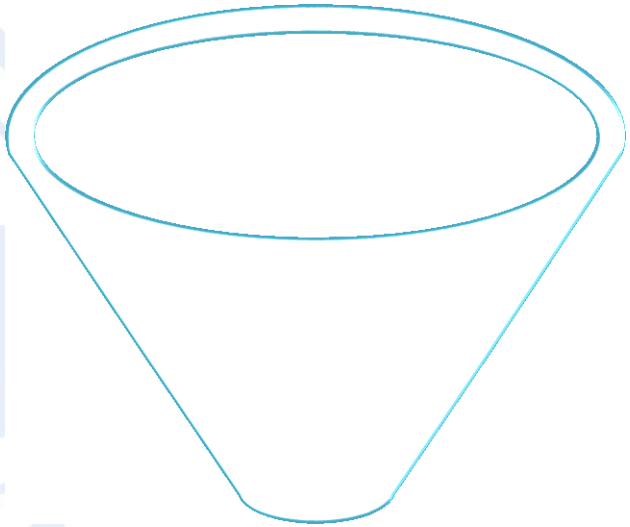
Paolo Gemma Cordinator of FG SSC WG2

Wp3/5 Chairman

An architecture for which city?

Terms' Definition

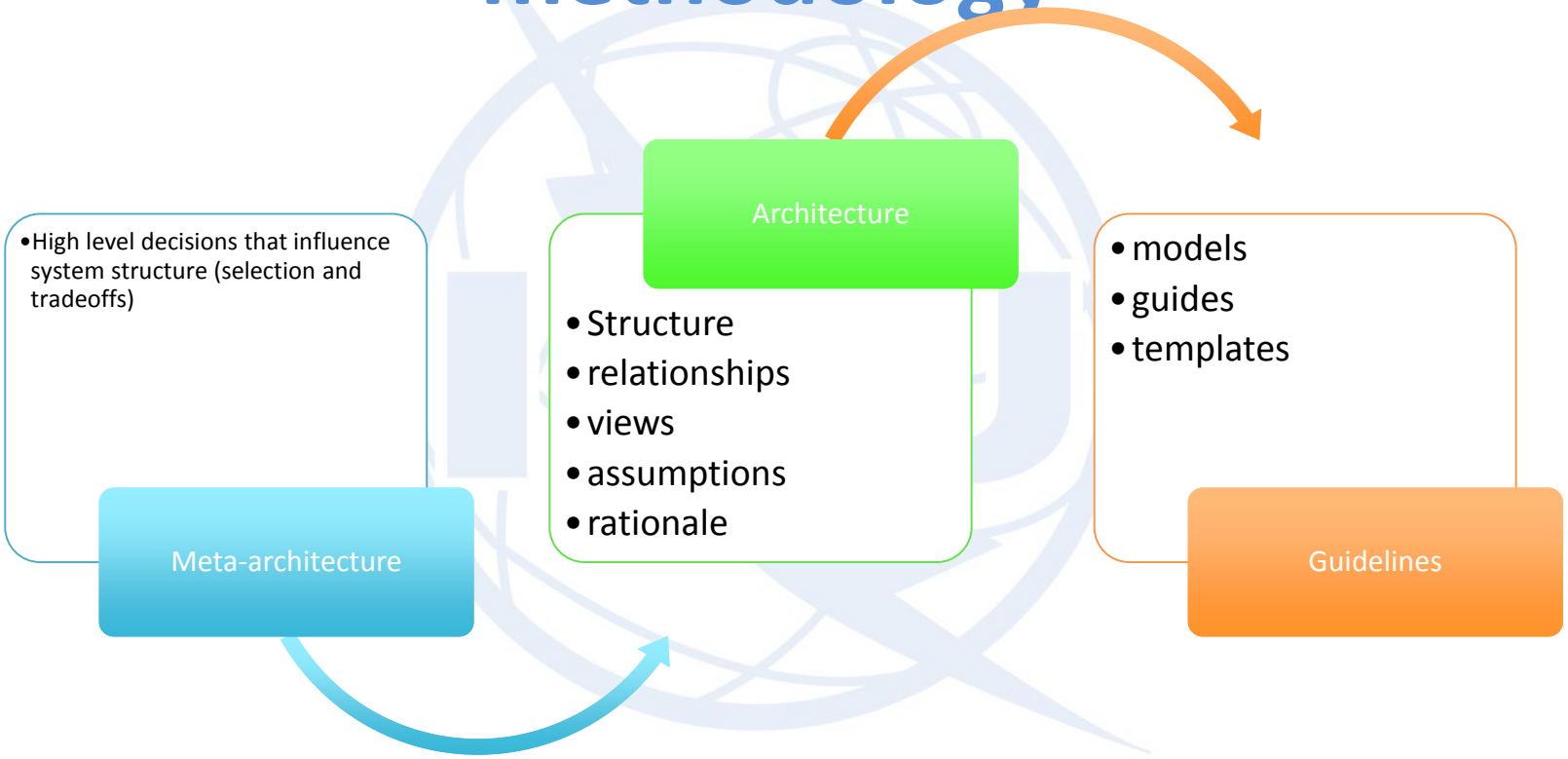
- *Architecture*: structure, relationships, views and rationale of a system
- *SSC ICT architecture*: the architecture of SSC (considered as a system)
- *Architecture framework*: the process that results to the definition of an architecture



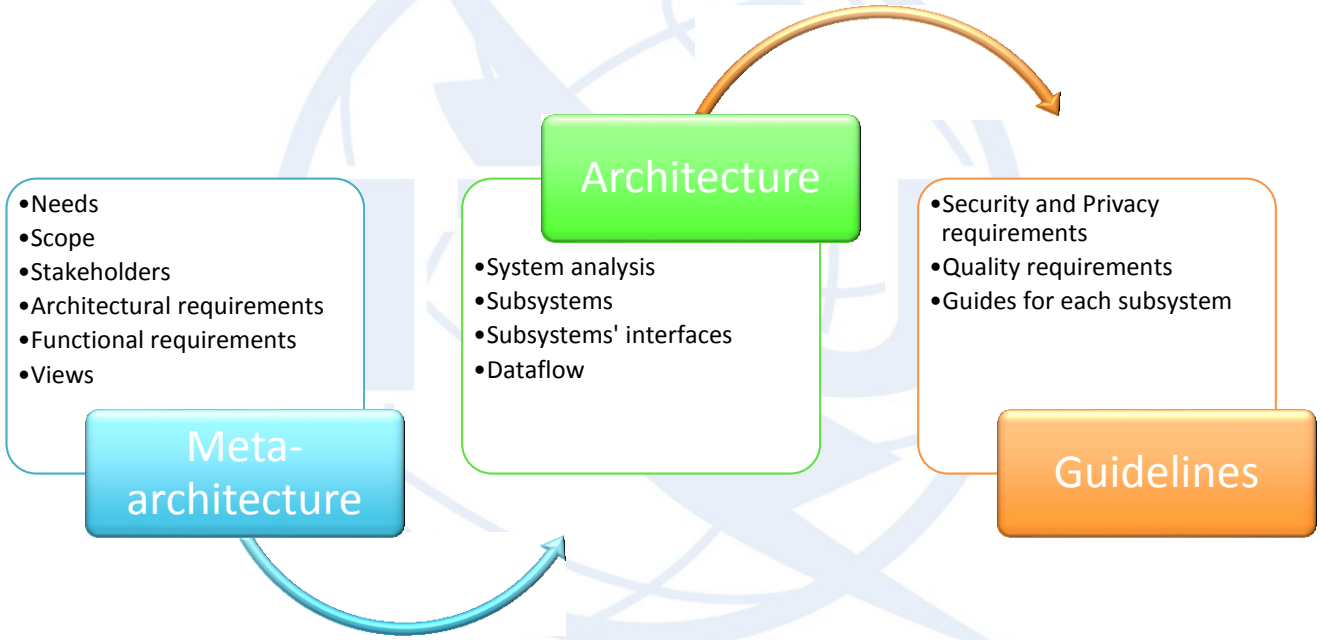
Architecture

(and Shared Vision)

ICT architecture development methodology

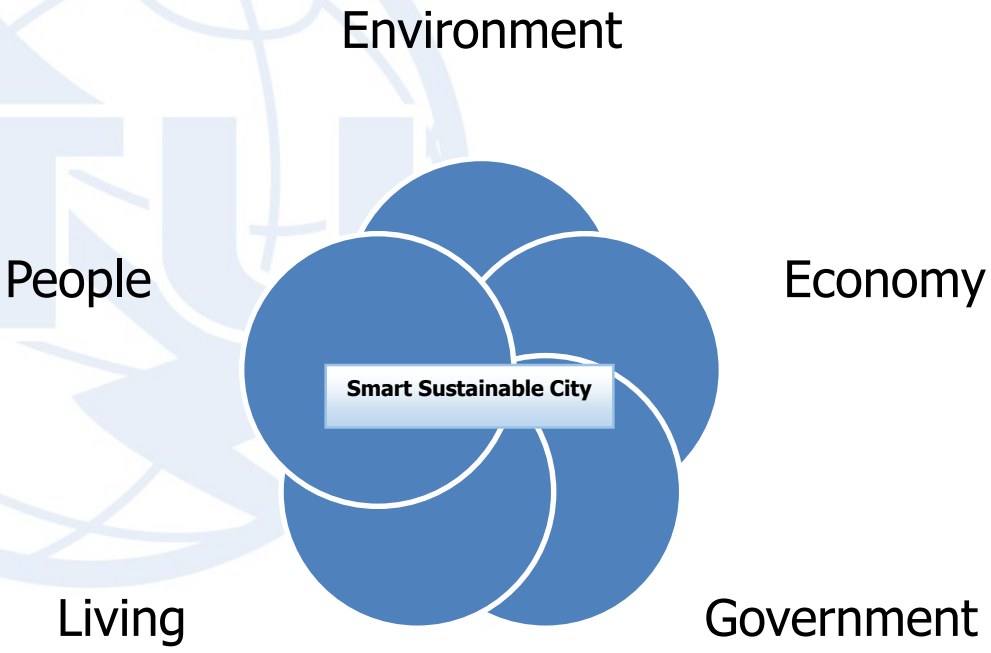


SSC ICT architecture development methodology



Smart City dimensions fitting to the SSC and SSC-KPIs definition

- *People*: in terms of discovering and meeting today and future generations' requirements;
- *Living*: enhancing quality of life and social coherency, as well as efficiency regarding energy, food, water etc.;
- *Environment*: protection, waste and emissions control and efficiency against climate change;
- *Government*: in terms of ensuring urban utility and service availability;
- *Economy*: in terms of sustainable growth and city competitiveness (attracting habitants, visitors and businesses)



Scope Identification

- A SSC ICT architecture has to comply with the particular requirements of:
  - all forms of cities
    - *New cities*
    - *Existing cities*
    - *Smart plants*
  - all alternative smart infrastructure types that have or are being followed by SSC:
    - *Hard infrastructure* based
    - *Soft infrastructure* based

Architectural Principles

- Principles should address:
  - *Different geographic areas*
  - *Different technological artefacts*
  - *Size and type of the city*
  - *Different timeframes*
- Defined principles:
  - *Layered structure*
  - *Interoperability*
  - *Scalability*
  - *Flexibility*
  - *Fault tolerance*
  - *Availability, manageability and resilience*
  - *Standards-based*
  - *Technology and/or vendor independence*

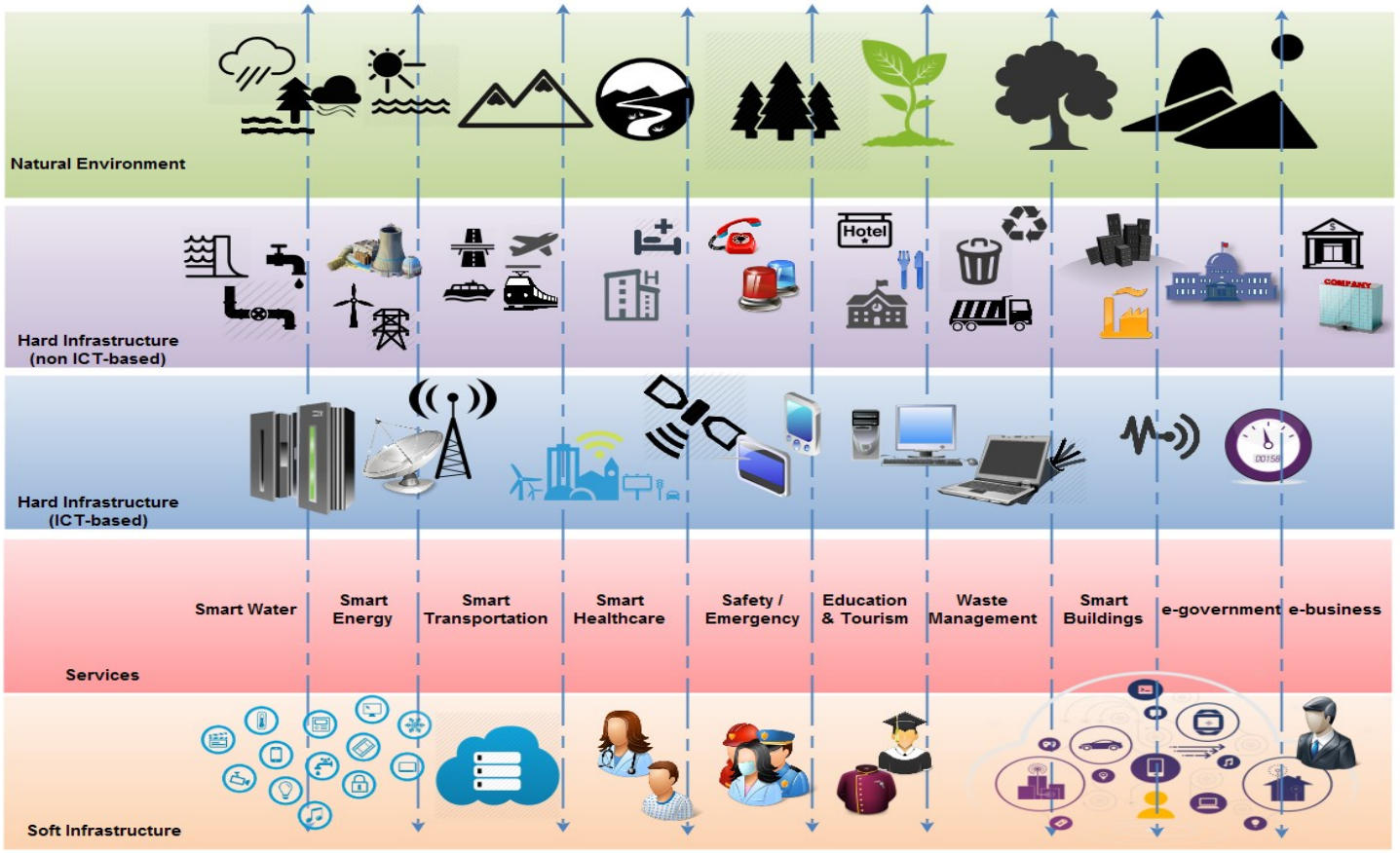
Functional Requirements

- *Cybersecurity, data protection and cyber resilience*
- *Privacy*
- *Integrated Management*
- *Hard infrastructure and environmental management*
- *Service delivery*
- *Information flow*

SSC ICT Architectural views

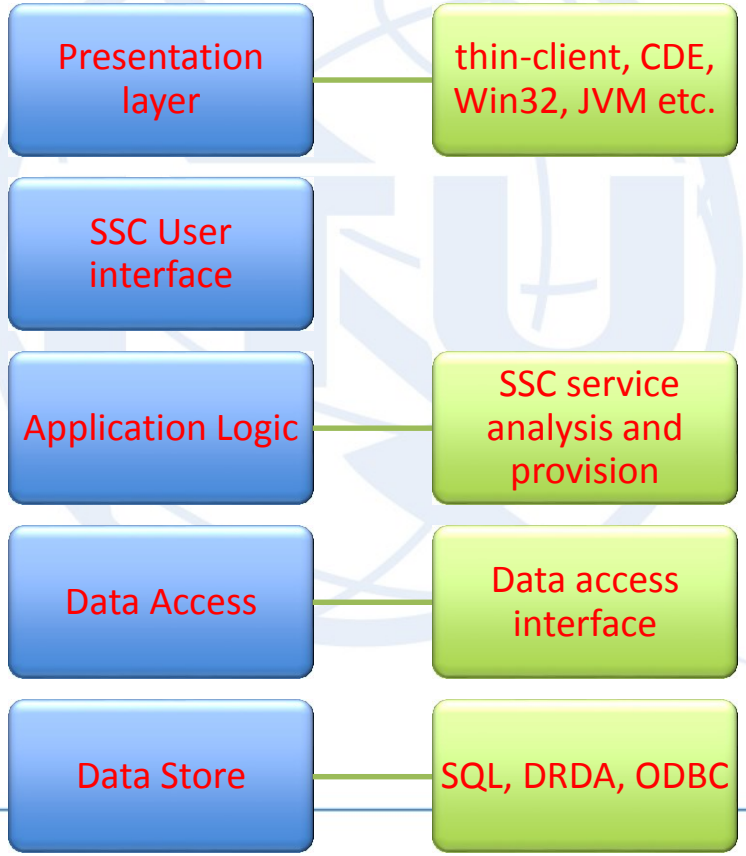
- *Functional views*
- *Implementation views (management, security, builder's, data management, user)*
- *Physical views (computing, communications)*
- *Business process domain view*
- *Software engineering view*

SSC ICT Meta-Architecture

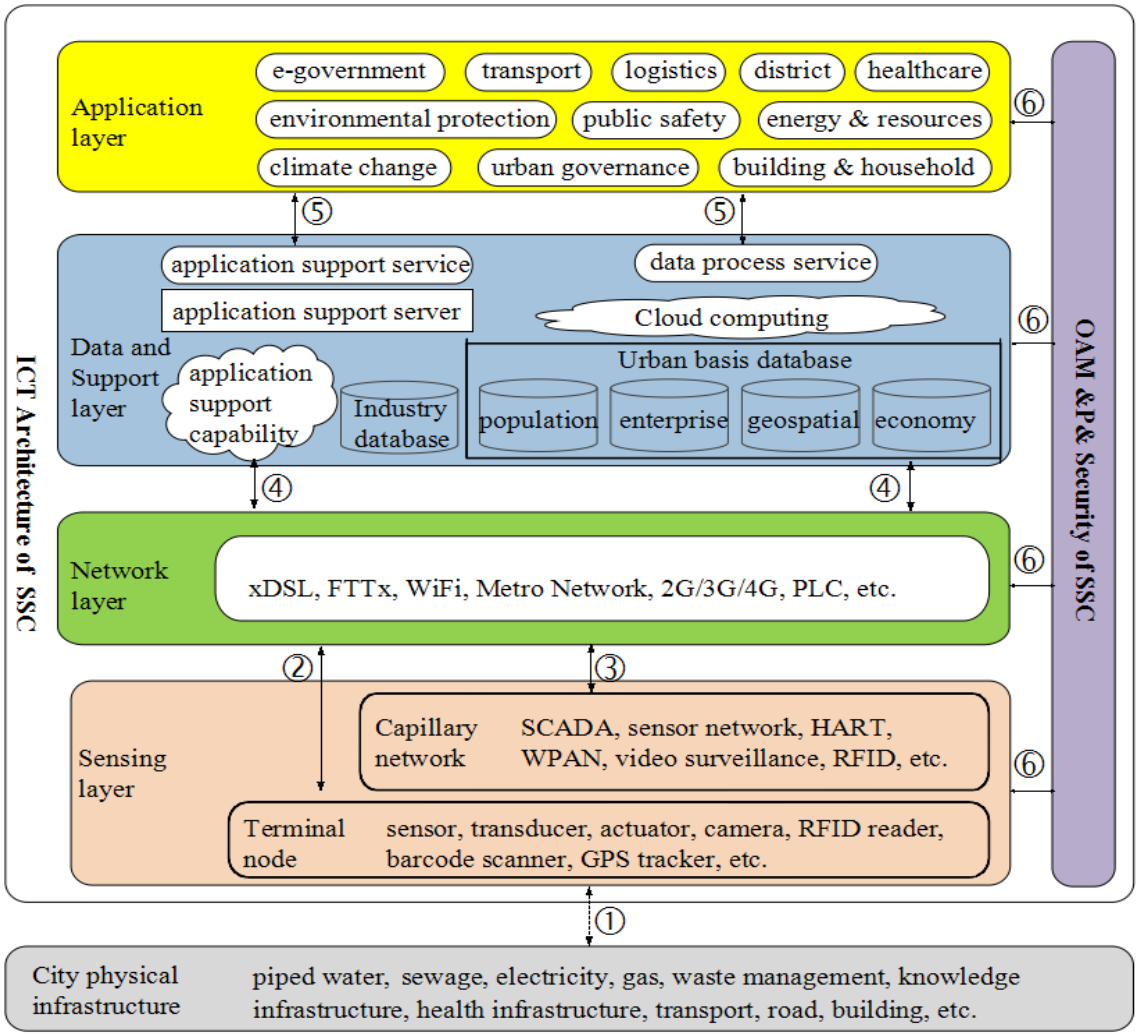


SSC ICT architecture: system and subsystems' definition

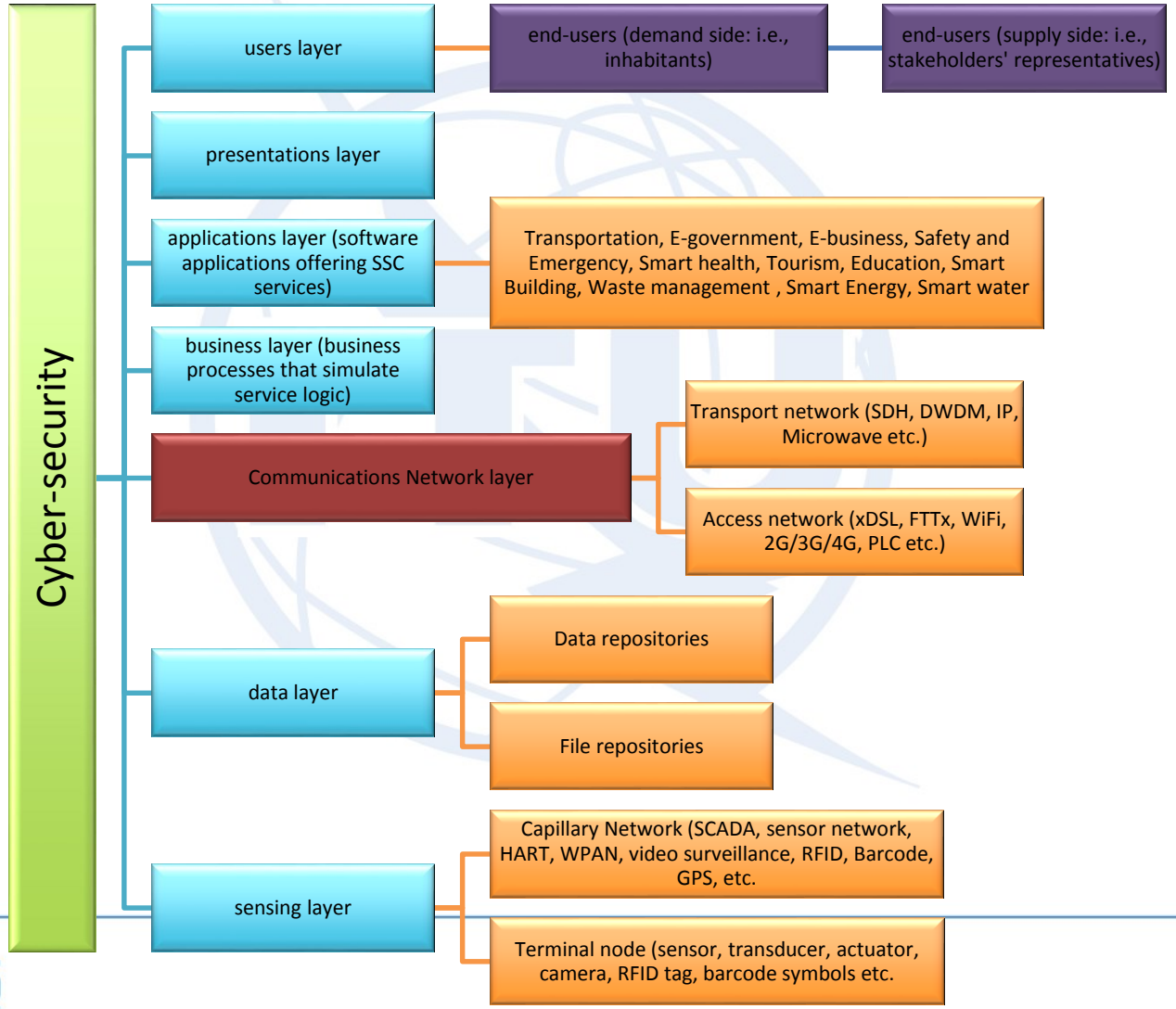
SSC ICT architecture: A software engineering view



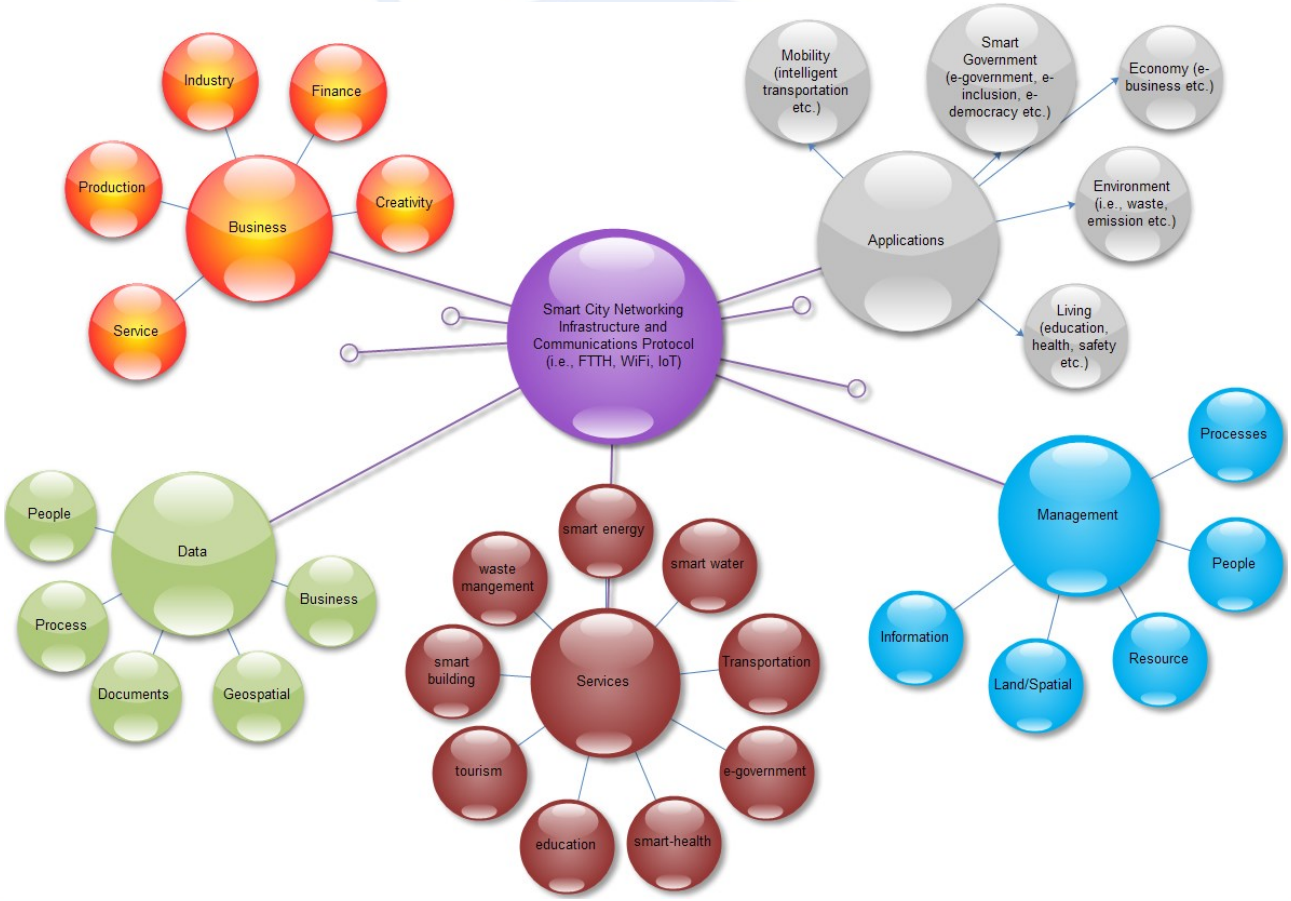
SSC ICT architecture: A communications view (from a physical perspective)



SSC ICT architecture: A communications view (from an information flow perspective)



SSC ICT architecture: A Modular Approach



CONCLUSIONS

- Multi-tier architecture secures SSC ICT good management
- Modular architecture secures flexibility and it is applicable to almost any SSC

- The illustrated architecture concerns a technical architecture:
  - Enhances SSC ICT operation
  - Secure an improved return on existing investment and reduced risk for future investment
  - Enables faster, simpler, and cheaper procurement
  - Establishes flexibility for business growth and restructuring
  - Shortens time-to-market