Interreg North-West Europe SMART-SPACE

European Regional Development Fund

9 must haves for smart urban lighting

For small and medium-sized cities

Swagata Chakraborty

Researcher, TU/e

TU/e

ILI INTELLIGENT LIGHTING INSTITUTE

Problem

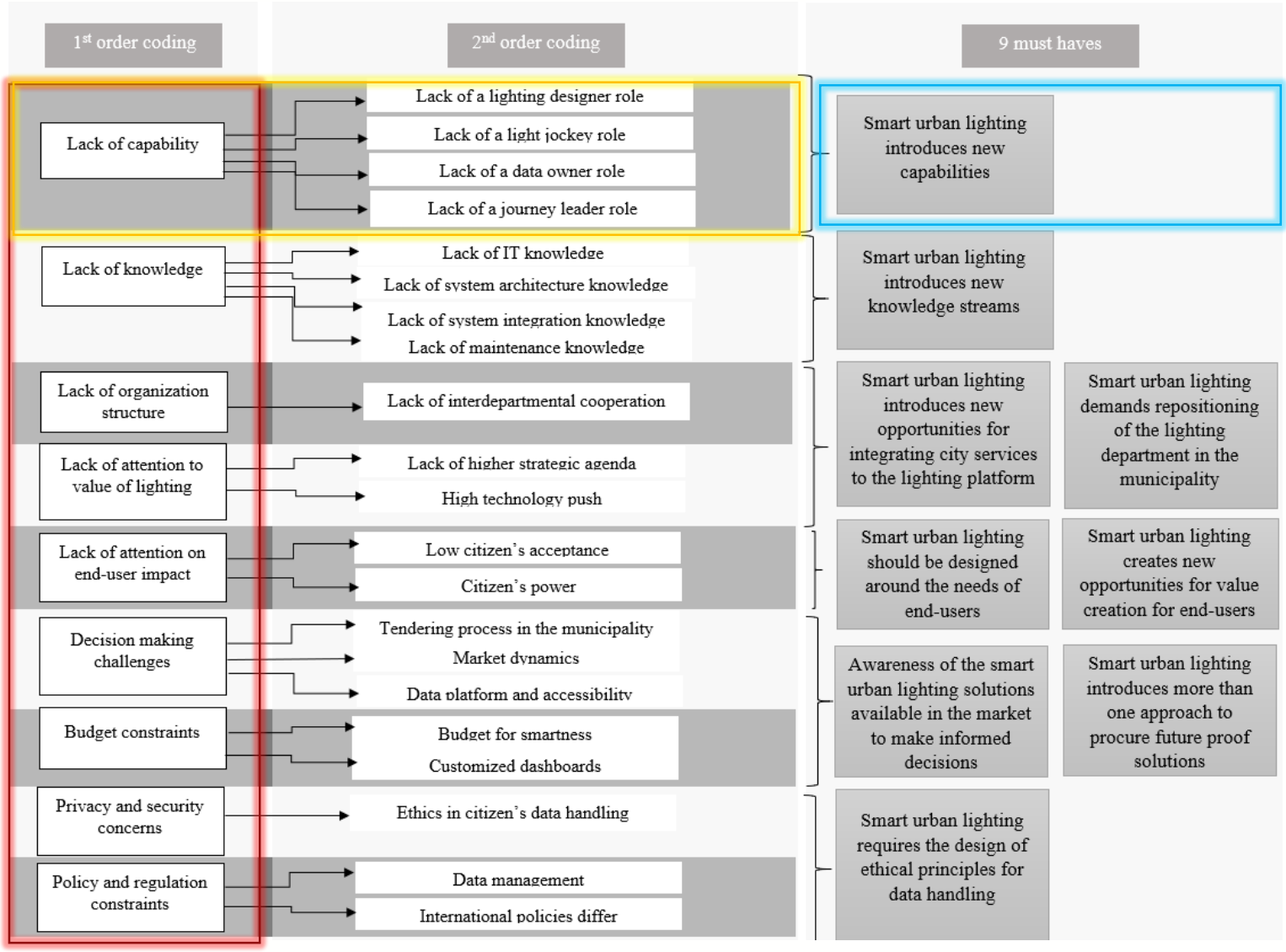
Smart urban lighting brings in:

- New technologies and opportunities
- Adds benefit to the citizens and environment
- Requires collaboration between multiple stakeholders

METHODOLOGY

- Semi-structured interviews with cities (demand-side) in the smart space project and firms (supply-side) in the lighting industry
    - Organizational limitations in municipalities
    - Challenges in collaboration between suppliers and cities
- Grounded theory methodology for cross case analysis and intersubjectivity analysis

METHODOLOGY



1. Smart urban lighting requires new capabilities

Lighting Designer

Design interactive lighting scenarios based on local needs and requirements in the area

Light Jockey

Activating lighting scenes and overruling lighting scenes to maintain public order and safety

Data Owner

Monitoring and management of the data platform

Journey leader

Ambition with smart lighting is accomplished by monitoring the implementation across different interaction levels

2. Smart urban lighting introduces new knowledge streams

IT knowledge

Diverse smart lighting technology concepts including the functionality of the hardware components, software platforms, and communication networks

System architecture knowledge

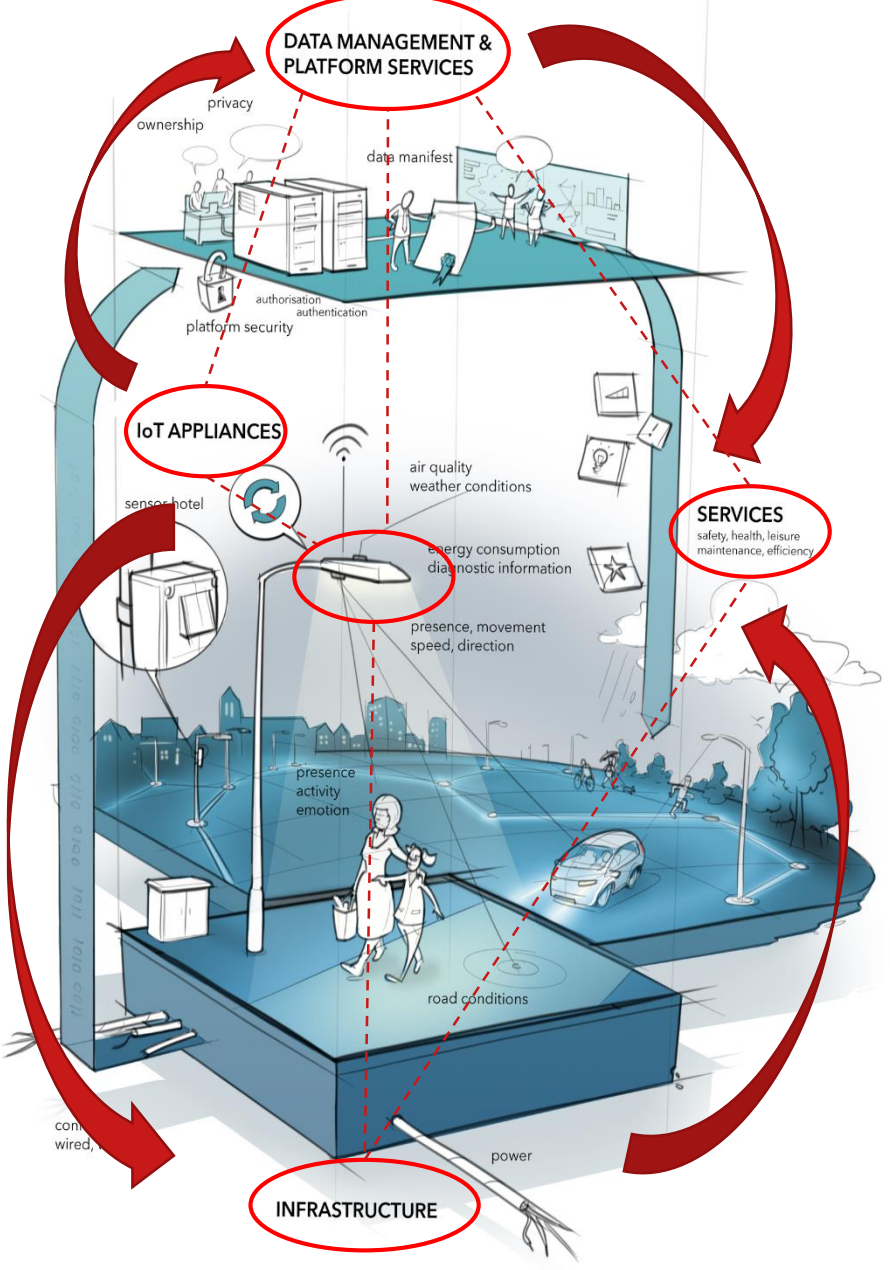
Connectivity of devices to the central management system for monitoring, maintenance, control of triggers, scenes, assets, and other city services

System integration knowledge

Interoperability of systems

Maintenance knowledge

To remotely manage and monitor fault and repair of assets



3. Smart urban lighting creates new opportunities of value creation for end-users

- Integral approach towards the urban space by sharing value across domains that can support other goals and ambitions of the city (e.g. mobility, healthy living, safety and security)
- Focus on the indirect benefits of lighting on end-users and environment and not only on the payback period of the system

4. Smart urban lighting introduces new opportunities for integrating city services to the lighting platform

Business cases that integrate the functionality of lighting and extends to smart city services requires communication and cooperation between departments in the municipalities for shared resources, risks, and maintenance of the infrastructure.

5. Smart urban lighting should be designed around the needs of the end-users

- Co-creation with end-users need to be reinforced for the design of smart lighting use cases
- Knowledge and impact of the smart lighting solutions should be communicated to and tested with the end-users to improve experience and acceptance

6. Awareness of the smart urban lighting solutions available in the market to make informed decisions

Conduct market research to gather insights on the technical specifications of the components of the system and services available in the market, including understanding of the system integration aspects before committing to a smart urban lighting solution.

7. Smart urban lighting introduces more than one approach to procure future proof solutions

Municipalities should choose from ***Turnkey*** or ***modular solutions*** to ensure flexibility and expand the system that are both future proof and best fit for the location or local needs.

8. Smart urban lighting requires the design of ethical principles for data handling

A ***Data manifest*** with code of conduct on data collection, processing, storing, sharing, and authorization complying to GDPR should be created by municipalities and agreed upon by suppliers

9. Smart urban lighting demands repositioning of the lighting department in the municipality

The lighting department should be extended with new competencies to gain:

- fresh perspectives
- change agents
- cooperation skills both internally and externally

Thank you