

Introduction to Sustainable Urban Development Planning

LECTURE 4

Sustainable Communities and Smart City

Outline

I. Sustainable Communities

II. Smart City Definitions

III. Smart City Considerations & Trade-offs

IV. Case Studies – Different Smart City Approaches

- Case studies illustrating the tools/means but also different approaches whether more top-down/local government-driven planning or citizen's intentional communities and mixes/variations in between

V. Summary

Key References

Intro/Reason for Lecture 4:

Sustainable Urban Development (planning etc.) is to build the frame and conditions for
Sustainable Communities

Smart City as a means to achieve
Sustainable Urban Development and realize
Sustainable Community.

What makes a city smart, and how?

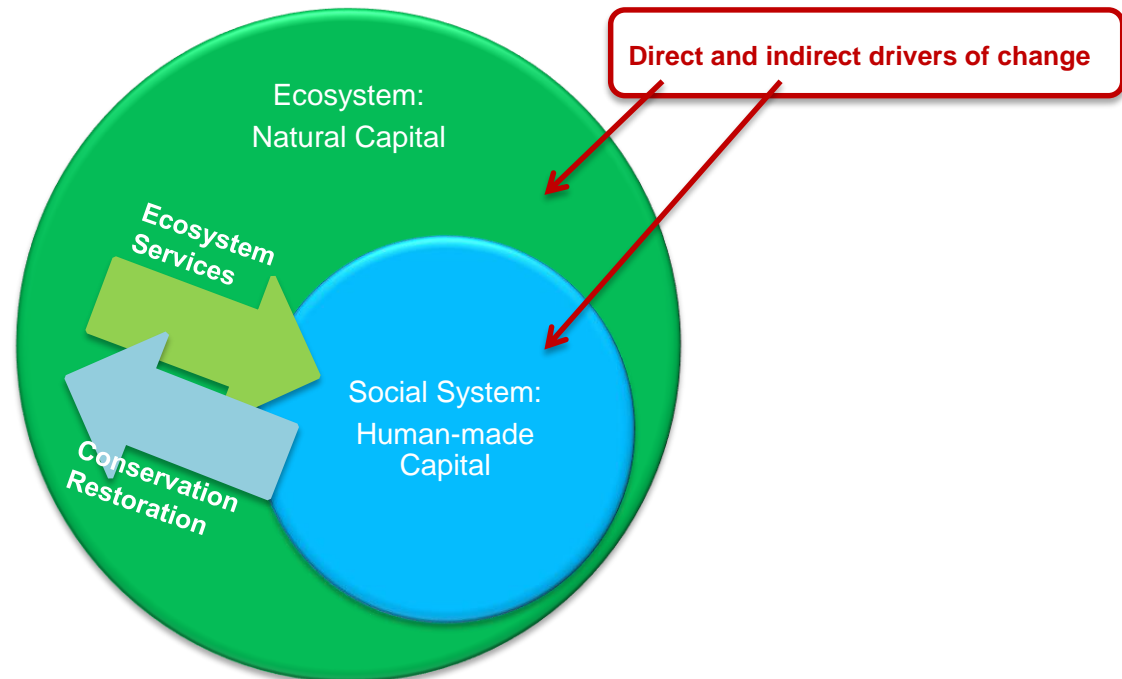
INTRODUCTION TO SUSTAINABLE URBAN DEVELOPMENT PLANNING

I) Sustainable Communities

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Social-ecological systems

A Sustainable Community can be understood as a social-ecological system:



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I. Sustainable Communities

Defining a Sustainable Community (I)

„A sustainable community is a community that uses its resources to meet current needs while ensuring that adequate resources are available for future generations.

*... It resembles **a living system in which human, natural and economic elements are interdependent and draw strength from each other** (Roseland 2012:22)“*

„One-Planet Living“ (Jennie Moore): Living within the means of nature.

It refers to a lifestyle that does not demand more ecological goods and services than the Earth's ecosystems can sustain on a global annual basis

I. Sustainable Communities

Defining a Sustainable Community (II)

Sustainable Communities is concerned with „**Place**“, such as „**Cities**“

‘A 'sustainable city' is organized so as to enable all its citizens to meet their own needs and to enhance their well-being without damaging the natural world or endangering the living conditions of other people, now or in the future. (Girardet 1999: 13)’

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II) Smart City

II. What is a Smart City?



II. Smart City: ICLEI's Understanding

Smart City : A city that uses 'smartness' to achieve its wider sustainability ambitions, e.g. to become more resilient, resource-efficient and livable.

A Smart City analyzes, monitors and optimizes its urban systems, be they physical (e.g. energy, water, waste, transportation, emissions) or social (e.g. social and economic inclusion, governance, citizen participation), through transparent and inclusive information feedback mechanisms.

(ICLEI Smart City Agenda)

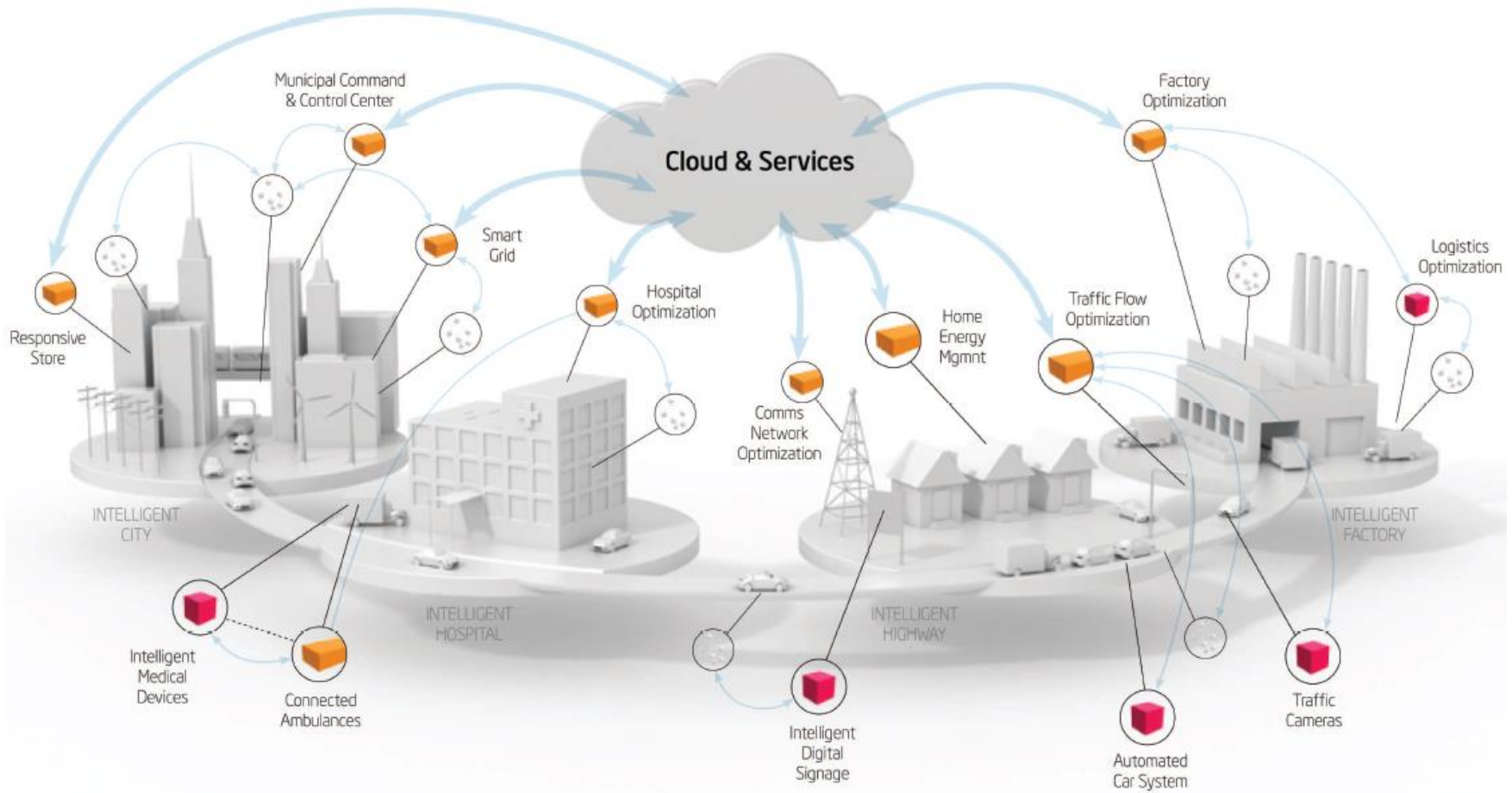
II. Smart City: Other Concepts (I)



‘Smarter cities of all sizes are capitalizing on new technologies and insights to transform their systems, operations and service delivery.’

- IBM Smarter Cities

II. Smart City: Other Concepts (II)



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III) Smart City Considerations & Trade- offs

III. Smart City: What is the role of people?

'City makers' or consumers?

Empowered agents?

End users?

Groups or individuals?

Subjects of analysis?

Participants in governance?

Data points?

III. Smart City trade-offs

Integrated systems

Resilience

Monitoring & data mining

Privacy & data security

Efficiency increase

Absolute resource use

Open data

Data management

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IV) Case Studies

IV. Case Studies: Vienna, Austria

Smart City Vienna Framework Strategy

- A comprehensive and holistic long-term umbrella strategy for 2050
- Overarching objectives for 2050:
 - Minimizing the consumption of Resources
 - Offering the best quality of life to all inhabitants
 - Spurring innovation to put this vision into practice
- Concrete goals for 2050:
 - Reduction of CO2 emissions from 3.1 to 1 tonne per capita
 - Increase of renewable energy consumption to 50%
 - Decrease of motorized individual traffic from 28% to 15% by 2030
- Smart City Vienna projects:
 - aspern Vienna's Urban Lakeside
 - Citizens Solar Power Plants
 - Open Government Data



IV. Case Studies: Songdo, South Korea

Songdo Smart City

- City built from scratch
- ICT and technology-centred approach with infrastructure systems that are dense with electronic sensors
- Hub designed for futuristic technologies and international business
- Yet, rapid increase in population in the area, due to
 - A greener daily life with 40% of the cityscape given to green urban space and streets that are pedestrian and bike-friendly
 - High penetration of prestigious education institutions and universities



IV. Case Studies: Helsinki, Finland

Kalasadama Smart City District

- Experimental innovation platform to co-create smart urban infrastructure and services.
- Kalasadama's IoT (Internet of Things) network has resulted in innovative projects and start-ups:
 - Start-up Foller: Reduction of food waste and change of consumption patterns through RFID tags tracking freshness of selected food items
 - Project Nifty Neighbor: Social networking medium for residents
- One of the goals of Kalasadama Smart City is to **enable residents to gain 1 hour of free time per day** due to improved flow of traffic and logistics, as well as guaranteeing first-rate local services and flexible facilities for remote working



IV. Case Studies: Berlin, Germany

Smart City Berlin

- Berlin is facing several challenges but also has high ambitions:
 - Up to 250.000 new inhabitants are expected to move to Berlin until 2030
 - Rising housing rents
 - Refugee crisis
 - Goal: Reducing CO2 Emission by 2050 by about 85 %
- Smart City Berlin Strategy aims at
 - Finding solutions to ecological, social, economic and cultural challenges through the use of intelligent technology
- Smart sustainable districts - Urban regeneration projects
 - Adlershof – science and technology park
 - Berlin TXL – Urban Tech Republic
 - Moabit West

IV. Case Studies: Tel Aviv, Israel

Tel Aviv's Smart City Strategy

- Supports and advances the four objectives outlined in the City Vision:
 - to create a city for all residents
 - to implement resident-oriented government
 - to maintain an appealing urban environment
 - to advance the city's status as a financial and cultural center
- DigiTel, Tel Aviv's key Smart City project:
 - is a personalized web and mobile communication platform which provides residents with individually tailored, location-specific information and services
 - encourages residents to proactively engage with the Municipality

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V) Summary

V. Summary

Smart Cities come in different shapes and forms.

**Technologies change. People change. Cities change.
Smart Cities need to be locally adaptive.**

Smart Cities learn continuously and share knowledge.

Smart Cities follow sustainability principles.

Smart Cities bridge silos and work with all stakeholders.

**Smartness is a means.
Sustainability is the
goal.**

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Key References

ICLEI Smart City Agenda

- <http://www.iclei.org/activities/agendas/smart-city.html>

Smart City Examples

- Songdo: <http://songdoibd.com/about/>
- Vienna: <https://smartcity.wien.gv.at/site/en/>
- Berlin: http://www.berlin-partner.de/fileadmin/user_upload/01_chefredaktion/02_pdf/02_navi/21/Strategie_Smart_City_Berlin_en.pdf
- Helsinki: <http://fiksukalasadama.fi/en/>
- Tel Aviv: <https://tel-aviv.gov.il/en/abouttheCity/Pages/SmartCity.aspx>