DTU SMART CAMPUS

TESTING FOR TOMORROW'S SMART CITIES

Theme: putting research to work

DTU SMART CAMPUS

HOLISTIC CAMPUS PLANNING

INTEGRATING NEW TECNOLOGIES AND PUTTING RESEARCH TO WORK

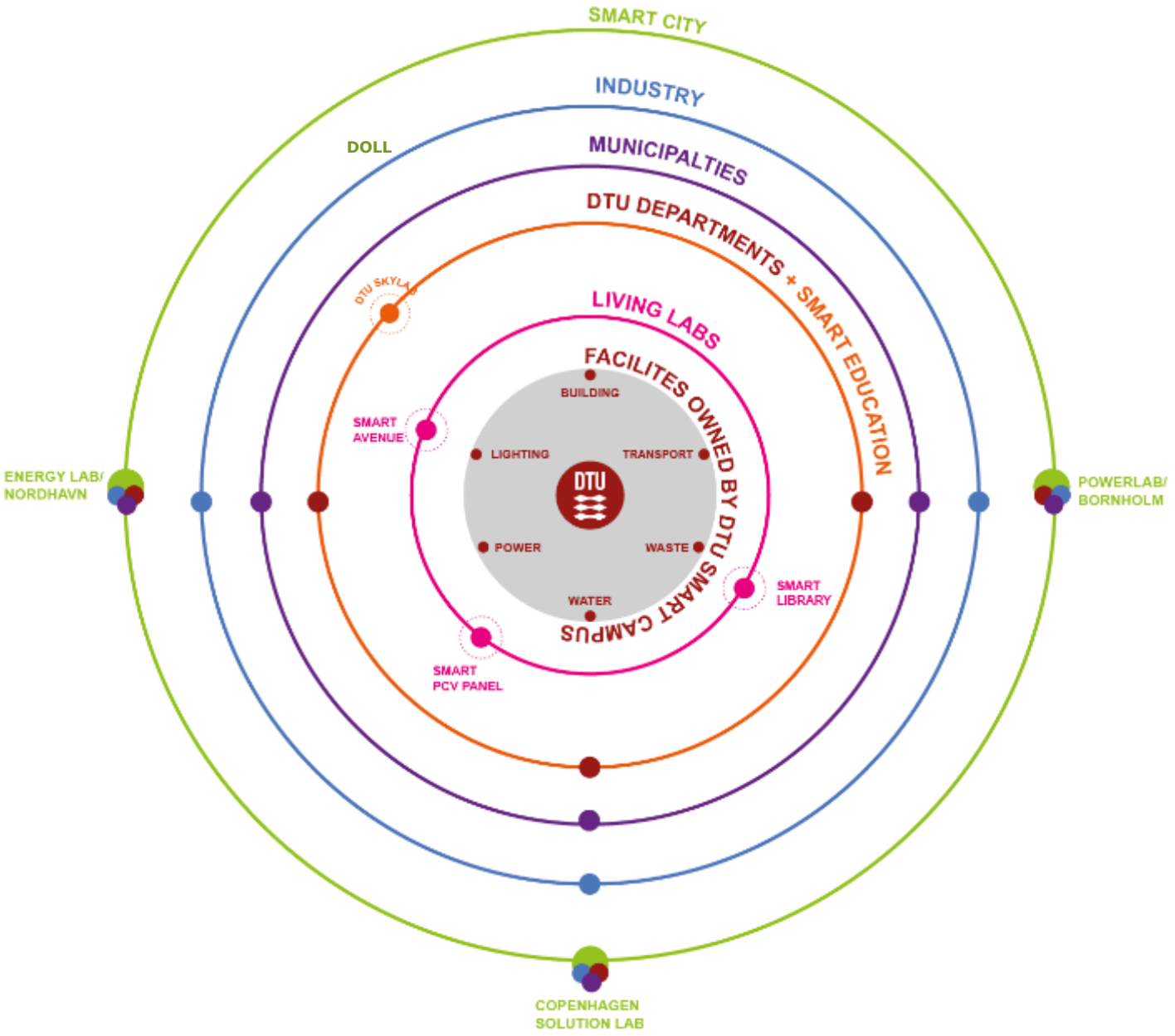
- DTU invests more than 500 million Euro in an ambitious campus transition process
- New buildings are constructed at the DTU campus and existing buildings are upgraded to fulfill the ambitious sustainability goals of the university
- DTU Campus Service got an idea!

SMART CAMPUS - THE HOLISTIC MODEL

By providing students, scientists, companies and municipalities access to parts of the campus infrastructure, building management systems and data, the university is rethinking the role of the **campus as a testbed for smart city solutions**

DTU Smart Campus

- in the Smart City value chain



SMART CAMPUS – Living Labs

DTU Skylab (2013)

DTU's 800 m2 melting-pot for student innovation and entrepreneurship

DTU Smart Avenue (January 2016)

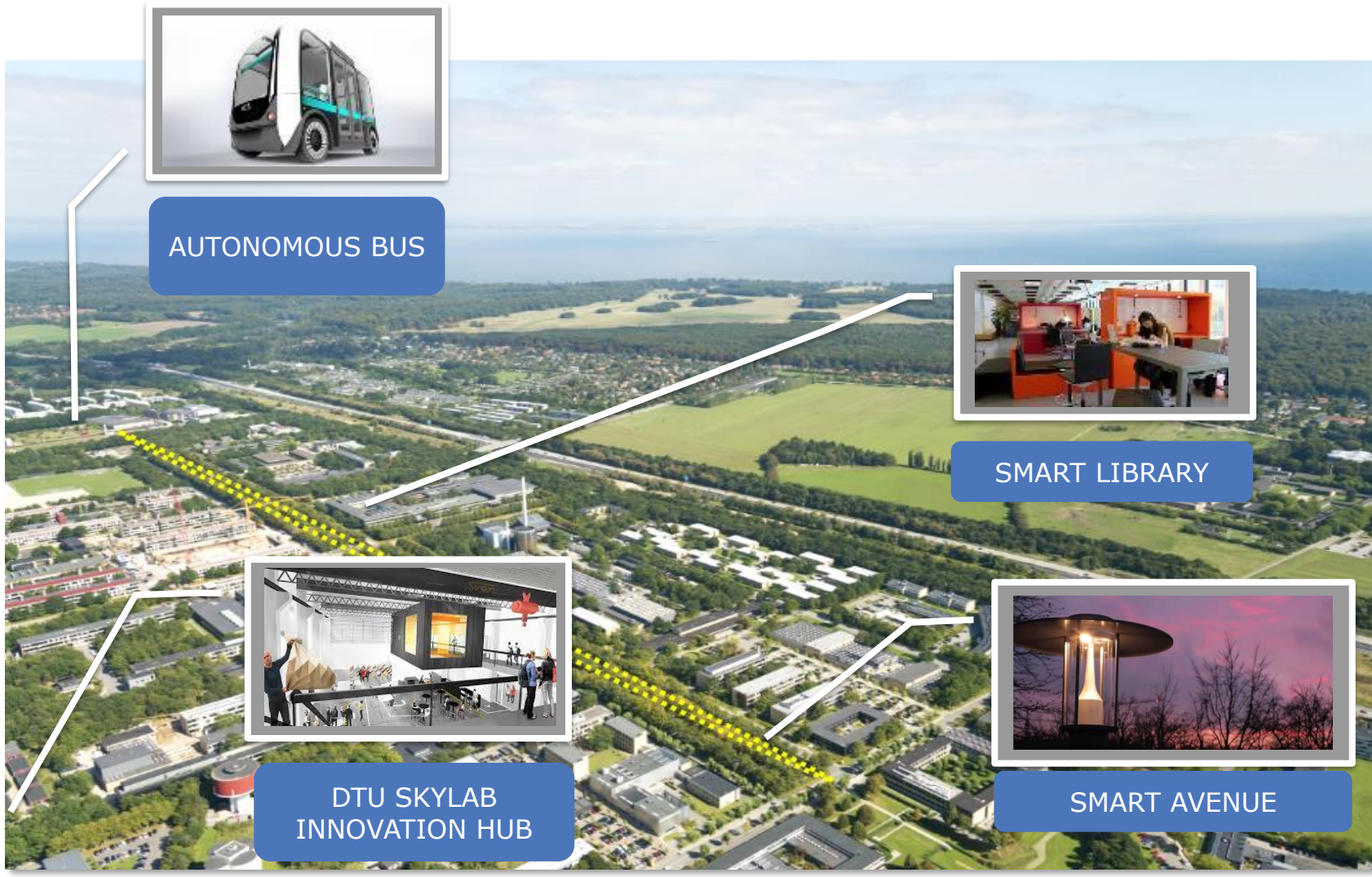
On the avenue there are 106 LED Smart Street Lights with light control and room for equipment to test and demonstrate Smart City technologies at the prototyping stage

Autonomous busses (April 2017)

In 2017, we expect to be able to present an autonomous bus at DTU. The bus will work as a facility for research and student innovation on various topics such as mobility-on-demand

DTU Smart Library (2017)

An indoor living lab, where students, researchers and entrepreneurs can develop, test and demonstrate SMART technologies



Case 4: Shower That Purifies And Circulates Water

- Circulates water to save approximately 90%
- 80% of the energy for heating saved
- UV-sterilisation of 99.99%
- Ultrasound to avoid calcium
- Project involving DTU students and a DTU spinout

Case 5: Smart Water Measurements

- Smart sensors on water inlets makes detailed measurements
- Through machine learning the sensors are trained to recognize which household appliance is using water
- A detailed overview of your consumption is sent to your smart device split by day, week, month and year
- Potential savings of 15% + instant notification of leakage
- DTU spinout

CASE 2: Collecting environmental data at DTU

- Measurements of temperature, humidity, noise and different gas levels
- 8 measurement points on lamp posts and indoors
- Data collection based on a large number of measurement points with lower accuracy rather than few, very accurate measurement points
- Intended for consumers
- Created in collaboration between students and a startup

Examples of spaces, systems and plants which can be used as 'high end' Living Labs

- DTU Management Engineering – Economy models, pay-back time. Business cases
- DTU Energy – Energy storage in power supply systems (cooling, heating etc.)
- DTU Mechanical Engineering – Measuring power supply systems, education in existing power plants
- DTU Compute- Data collection, software, big data
- DTU Space – GPS tracking, GIS-information, IoT and Big Data
- DTU Electrical Engineering/PowerLab.dk – IoT, big data, data on Campus
- DTU Nanotech – Sensor technologies on DTU's power supply systems
- DTU Environment – Testing and measuring on purification plant(Risø)
- DTU Bioengineering – DTU waste and sustainable products

How can industry use Smart Campus as a testbed?

- Participation in externally financed projects, E.g. ViS, Smart Innovation etc.
- Student projects
- Collaboration with DTU start-ups/spin-outs
- OI-X (students working on challenges provided by industry)
- Consultancy and advisory services

What's in it for you?

- Developing new smart city solutions with access to the newest scientific knowledge
- Testing in a real environment before testing on next level
- Recruiting students
- Etc.,etc.

Holistic Thinking And Planning Ahead

Thank you!

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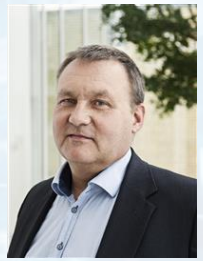

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