AARHUS UNIVERSITY

OPEN & AGILE SMART CITIES

What Cities and Communities Need

Use Cases and Requirements for Data Processing and Management for IoT and Smart Cities & Communities

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IoT and Smart Cities and Communities

- The global situation of IoT and SC&C
- The role of cities and communities in FG-DPM
- Working Group 1 overview
- Working Group 1 results
- Next steps

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ALL HAVE AND NEED DATA
ALWAYS
ANYWHERE
AI 100
CONVERSATIONAL AI/ BOTS
VISION
AUTO
ROBOTICS
CYBERSECURITY
IOT/ IIOT SECURITY
THREAT INTELLIGENCE
ANALYTICS
BUSINESS INTELLIGENCE & ANALYTICS
AD, SALES, CRM
MOBILE SECURITY
HEALTHCARE
CORE AI
CLOUD SECURITY
DECEPTION SECURITY
INDOOR MAPPING
SERVICE ROBOTS
TEXT ANALYSIS/ GENERATION
IOT/IIOT
COMMERCE
FINTECH & INSURANCE
OTHER
LOSS PREVENTION
AT-HOME SHOPPING BUTTONS
SMART DRESSING ROOMS
SAFETY & SECURITY
ENERGY & UTILITIES
PARKING
ENVIRONMENTAL/LOCATION
DISASTER MANAGEMENT
SMART TRANSPORT (SH
DATA-DRIVEN URBAN PLANNING
CONNECTIVITY
GRID/ENERGY
WASTE MANAGEMENT
WATER SOFTWARE & ANALYTICS
MERCHANT SERVICES
IoT, IDENTITY & CONTENT MANAGEMENT
DEVICE CONTROLLERS
HEALTH & WELLNESS
GENERAL SMART HOME SOLUTIONS
HOME ROBOTS
GARDENING
STORAGE, SECURITY & REGULATORY
CAPITAL MARKETS & FINANCIAL SERVICES
ENTERPRISE SERVICES & CURRENCIES
SOCIAL & BROWSERS
Created By
CB INSIGHTS
Infant Monitoring
Sleep Monitoring
Fitness Wearables
Brain Sensors / Neurotechnology
Engine Efficiency
Sensor Hardware
Battery Storage
Driver Safety
Navigation/Mapping
Tires
Vehicle Cybersecurity
www.cbinsights.com

SOLUTIONS

DILEMMAS

SMART CITY DILEMMAS

1. Flexibility, precision, productivity – for whom?
2. We don’t see the same city
3. Resilient or vulnerable?
4. Democratic immediacy or noise?
5. No-one left behind?
6. Overview or surveillance?
7. New public spaces without public authorities
8. Is planning possible?
9. Public institutions and their competences
10. Public service 2.0

Source: Danish government think tank ”Future digital cities – for and with people”

OASC and **SynchroniCity** support the Declaration of IoT for Sustainable Development

1. **Promoting the development and adoption of IoT technologies for the benefit of humanity, the environment and sustainable development.** This includes promoting the research and the use of IoT technologies to address the 17 Sustainable Development Goals adopted by the United Nations and the international community. Governments and policy-makers from developed and developing countries should be encouraged to examine the future challenges and benefits to their economies and accelerate global competitiveness of their economy, region, continent and people by establishing plans and strategies to leverage IoT for SDGs.

2. **Supporting the implementation of the IoT in urban and rural context to foster the application of ICTs in providing services to build smarter and more sustainable cities and communities.** This will allow urban and community stakeholders to take advantage of technological advances and offer new opportunities for quality of life for different strata of society, by promoting accessibility to amenities, technologies and services (including social infrastructure, energy, water and healthcare), and by supporting IoT systems and data interoperability.

3. **Promoting a broad, vibrant and secure ecosystem for IoT, including support for start-ups and incubators.** This includes promoting policies to facilitate research, innovation and development of new solutions and eliminating policies that restrict job creation, hinder economic growth or prevent innovation. It may also include appropriate incentives, and policies to promote IoT deployment, privacy protection and secure data management. This will gradually assist in fostering an IoT data market, which contributes to the consolidation of sustainable business models and cooperation among stakeholders.

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4. **Encouraging the development and implementation of standards that facilitate interoperability among IoT technologies and solutions in order to pave the way to an open and interoperable IoT ecosystem,** with cost-effective solutions in line with the vision for an open economy.

5. **Adopting new and innovative IoT applications to deal with challenges associated with hunger, water supply, and food security** through resource monitoring to cope with the increasing consumption needs of a global population. By leveraging IoT, sensors can detect and monitor water leaks, potential contamination, soil moisture, pollutions, weather conditions, livestock movements, while remotely managing and controlling harvesters and irrigation equipment to improve the quality, quantities, yield rates, cost-effectiveness, energy efficiency and sustainability of agricultural production, including the packaging and transportation of food supplies. IoT can also be used for research and analysis into water-borne diseases and potentially new types of diseases.

6. **Galvanizing interest in the use of IoT for risk reduction and climate change mitigation,** taking into consideration the diversity and complexity of the Earth's geography and vulnerable populations. The IoT framework has the ability to gather and analyze real-time information for proactive prevention and faster response to deal with toxic wastes and pollutants, disasters and other natural calamities.

7. **Identifying and supporting the growing trend of using IoT technologies for education** and improving the access of disadvantaged and excluded groups to ICT infrastructure by promoting basic ICT literacy, virtual classrooms and interactive vocational training programmes for vulnerable segments of society.

8. **Embracing the application and use of IoT for biodiversity conservation and ecological monitoring** to protect the natural life and its diversity on land, air and below waters. IoT can help monitor natural ecosystems, as well as sanctuaries, detect threats linked to poaching, overfishing (or illegal fishing) and deforestation and can send alerts in real-time to authorities for immediate response.

9. **Contributing to global research and discussions on IoT for smart and sustainable cities through global initiatives** such as United for Smart Sustainable Cities (U4SSC). ICT-based transformative action for sustainable urban development can help highlight efficient, transparent, and equitable regulatory frameworks, inclusive planning systems, effective financial management with increased transparency and accountability to all inhabitants and urban stakeholders alike, which should help accelerate the transition to smart sustainable cities and communities.

10. **Promoting international dialogue and cooperation on the IoT for sustainable development** by bringing the various stakeholders together, including inter alia the academic and research community, the specialized international organizations and fora, the industry, SMEs and start-ups, the governments and public authorities (including smart cities), and other relevant stakeholders such as specialized NGOs and indigenous people.

ITU · IoT Forum · SYNCHRONICITY · OASC OPEN & AGILE SMART CITIES

The role of cities and communites in FG-DPM

- Demand-side NGOs in FG-DPM
- Use cases
- Workshops
- Literature
- Existing standards

FG-DPM Working Group 1

- Foundation for other WGs
- Deliverables
  - Use case analysis and requirements (D1.1)
  - Vocabulary (D0.1)
  - Concept development methodology (D0.2)

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Use case analysis and requirements (D1.1)

- Comprehensive use case template
  - Focus on cross-domain use cases
- 17 use cases (global, variety of domains)
- Prominent concerns (cross-cutting)
- Requirements (common and use case-specific)

Vocabulary (D0.1)

- Monitoring the use of core terms in FG-DPM
- Mapping existing terms from ITU-T as well as other Standards Developing Organisations (SDOs)
- Developing new terms from FG-DPM
- Result: 38 core terms
  - 26 existing terms
  - 12 new terms (including revised labels)

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Concept development methodology (D0.2)

- Methodology of DPM concept building
  - Methods for DPM concept building
  - Principles of DPM concept building
  - Process of DPM concept building
  - Rules for DPM concept building
  - Evaluation criteria for assessment of the DPM concepts
- 38 basic DPM concepts to support IoT and SC&C (D0.1)

Next steps

- ITU-T SG20
- Convergence efforts
  - Global SDOs – esp. ISO/IEC/ITU-T
  - Global initiatives – e.g. U4SSC, G20/World Economic Forum, OASC
  - Regional initiatives – e.g. EU, China, US, Japan, S.Korea

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Thank you!

Reach out to us:

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