

Smart Cities: Where are we?; Where are we going?

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Panel Session:

Regions and industries creating a sustainable and liveable future

(安寧で持続的な未来を創る地域と産業)

Kyoto Smart City Expo 2016

Kyoto International Conference Center

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わが国のエネルギー・環境政策の展開

Recent Development of Energy and Environmental Policy in Japan

長期エネルギー需給見通し(2015年7月、経済産業省)

Long-term Energy Supply and Demand Outlook (July 2015, METI)



COP21に向けた約束草案決定(2030年の温暖化対策目標)

Submission of INDC for COP21 (GHG reduction target in 2030)

COP21でパリ協定合意

Paris Agreement (Dec. 2015)

第5期科学技術基本計画(2016年1月)

5th Science and Technology Basic Plan (Jan. 2016)



エネルギー・環境イノベーション戦略(2016年4月)

NESTI 2050 (National Energy and Environment Strategy for Technological Innovation towards 2050 (April 2016))



Society 5.0 (Super Smart Society)

Highlighting Energy Systems Integration

地球温暖化対策計画

Climate Change Response Plan (May 2016)



民生部門の省エネへの挑戦

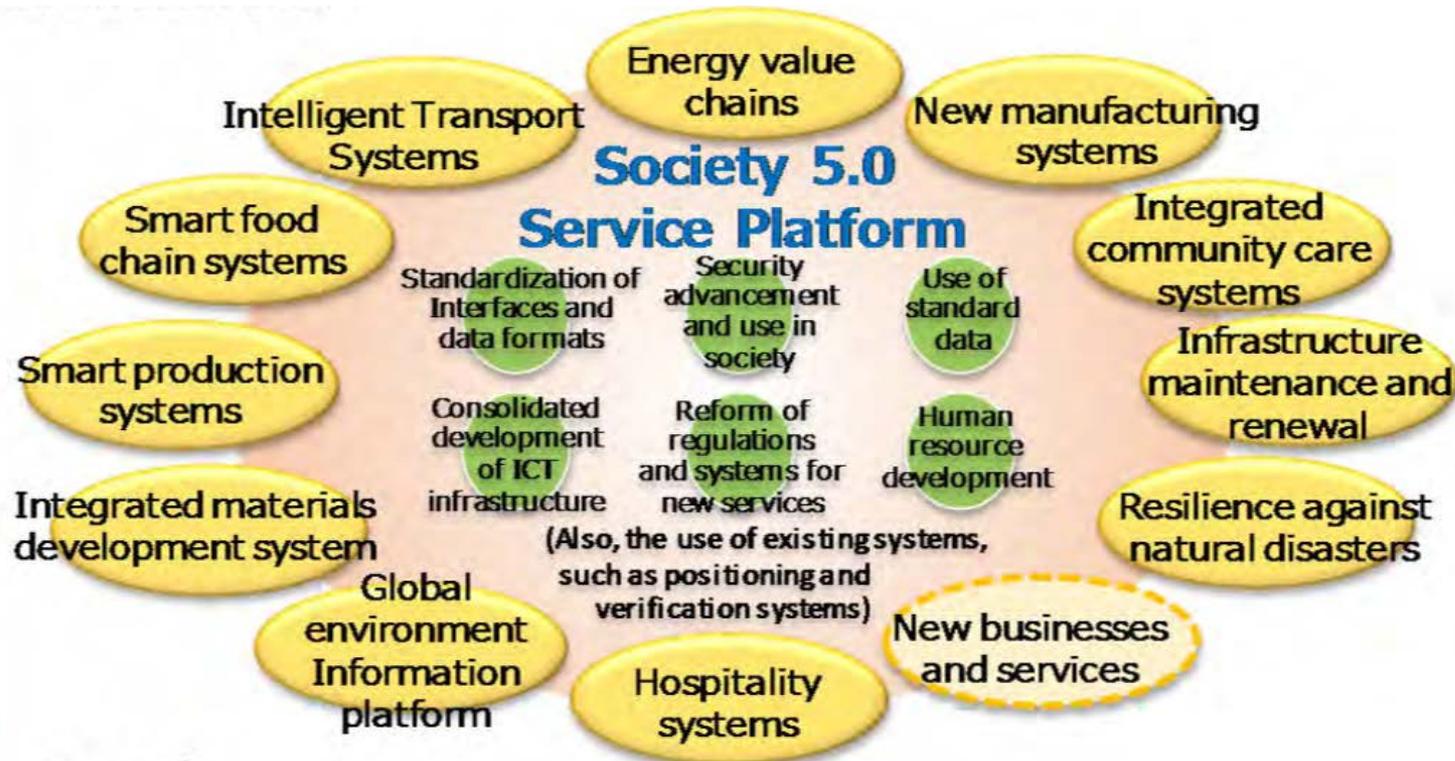
Challenge for Energy Saving in Society



What is Society5.0?

It is a society that can be expected to facilitate human prosperity. Such a society is capable of **providing the necessary goods and services to the people who need them at the required time and in just the right amount**; a society that is able to respond precisely to a wide variety of social needs; a society in which all kinds of people can readily obtain high-quality services, overcome differences of age, gender, region, and language, and live vigorous and comfortable lives.

How to realize Society 5.0?



Low Carbon Society
(renewable energies . . .)



Stability of Power System
(smart grid, smart meter,
smart energy network . . .)



Integrating Supply Side with Demand Side
(power grid and automobile integration . . .)



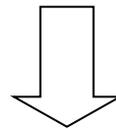
Reform of Energy Systems



Resilient Energy System



Energy Saving by
behavioral change



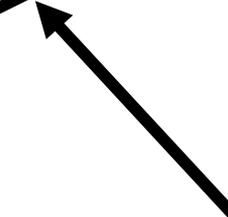
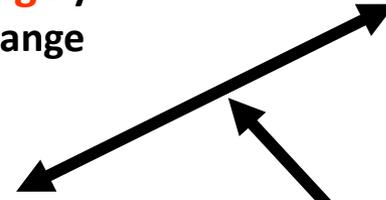
New Economic Growth (global standards, systems competitiveness . . .)

Smart Community

(ICT, internet, sensor network . . .)



Smart House, Smart City
(HEMS, BEMS . . .)



ICT Security

(cyber-terrorism, privacy protection . . .)

Energy-Information Integration + Smart Community

Source: Y. Kaya, K. Yamaji and K. Akimoto: Climate Change and Energy, Imperial College Press (2015)

JAPAN SMART CITY PORTAL

Smart cities are a new style of city providing sustainable growth and designed to encourage healthy economic activities that reduce the burden on the environment while improving QoL (Quality of Life). The Japan Smart City Portal will provide up-to-date information on the four cities of Japan that are forging ahead with a variety of operational experiments in order to create smart cities.

Operational Experiments in Four Locations



City of Yokohama

The Yokohama Smart City Project (YSCP) being conducted in City of Yokohama, Kanagawa Prefecture



Toyota City

The Toyota City Low-carbon Society Verification Project (Smart Melit) being conducted in Toyota City, Aichi Prefecture



Keihanna (Kyoto)

The Keihanna Eco City Next-generation Energy and Social Systems Demonstration Project being conducted in Kansai Science City



City of Kitakyushu

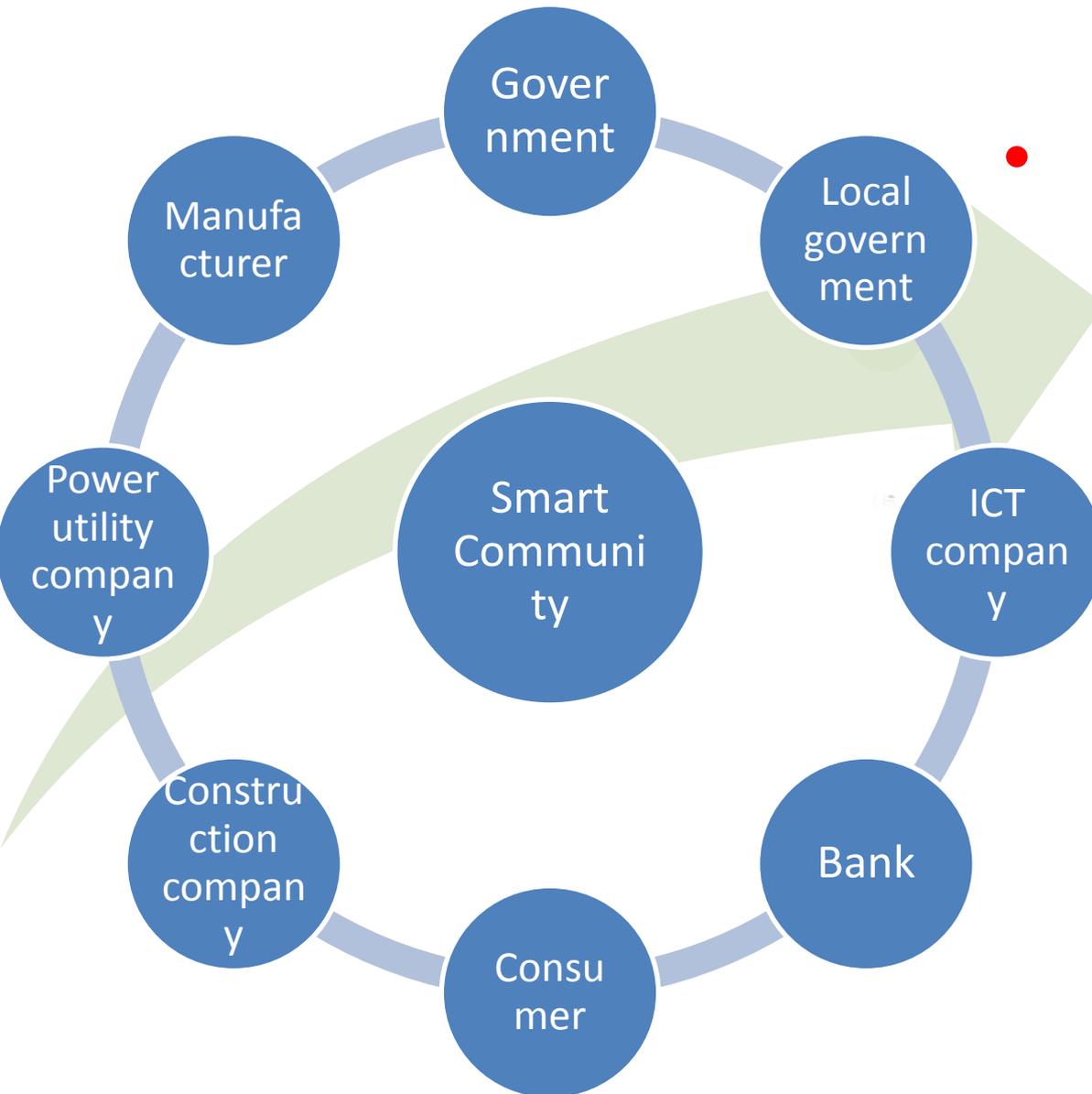
The Kitakyushu Smart Community Project being conducted in City of Kitakyushu, Fukuoka Prefecture

Regional Demonstration Program for Next-Generation Energy and Social Systems (for 2010-2015)



We will need xEMS + α for successful business in Smart City

Who handles Smart Community?



- **Many technologies and stakeholders are in the Smart Community**

Energy management involves both supplier and consumer

We will need **xEMS + α for successful business**

Source: K. Yamaji, ICEF2014