Data Collection and Use in Japan
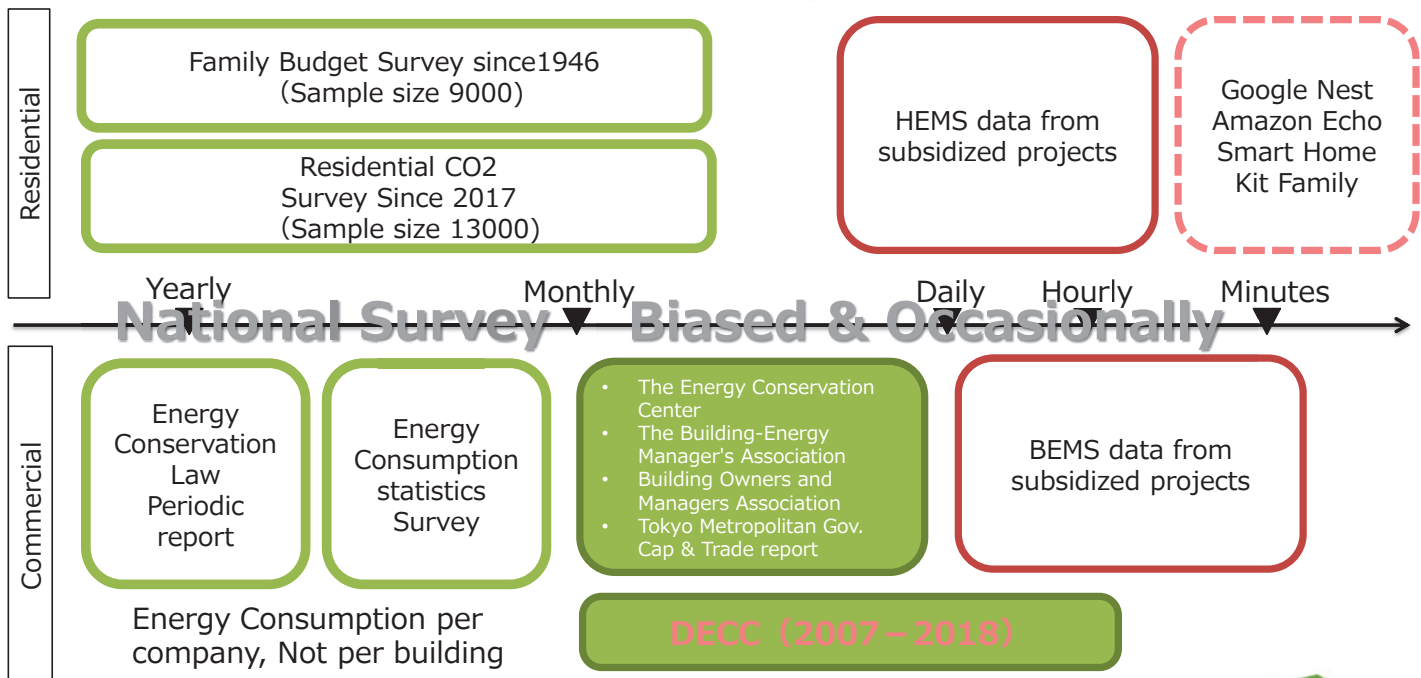# EBC Annex70

Professor, Dr. Hiroto TAKAGUCHI
Waseda University

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Real Recorded Database in Japan

Residential

Family Budget Survey since1946
（Sample size 9000）

Residential CO2
Survey Since 2017
（Sample size 13000）

HEMS data from
subsidized projects

Google Nest
Amazon Echo
Smart Home
Kit Family

Yearly　　　　　　　　　　Monthly　　　　　　　Daily　　Hourly　　　Minutes

National Survey ▼ Biased & Occasionally

Commercial

Energy
Conservation
Law
Periodic
report

Energy
Consumption
statistics
Survey

- The Energy Conservation Center
- The Building-Energy Manager's Association
- Building Owners and Managers Association
- Tokyo Metropolitan Gov. Cap & Trade report

BEMS data from
subsidized projects

Energy Consumption per
company, Not per building

DECC （2007－2018）

WASEDA University
Department of Architecture, TAKAGUCHI Laboratory : Environmental Media Study

Overview of DECC

DECC is "Data-base for Energy Consumption of Commercial buildings"

- In Japan, there was no database with statistical significance on the environmental data for non-residential building.
- DECC project was started to investigate them in Japan and build a database as a collaborative work with more than 30 universities.

◆DECC Committee
- 2007－2018

◆Data collection method
- Questionnaire by mail (Total 44000 data)

◆Goal of the Project
- Maintain annual, monthly, and hourly data as a database
- The database should be published not only statistically processed data but also anonymized raw data so that users can freely process it according to their purpose → Open data, big data
- Data such as building information, equipment information, and usage status should be also collected at the same time to contribute the analysis of energy consumption structure.
- Ensuring statistical usefulness for the average value of the basic unit
- Not only the average value but also the basic statistical values such as variance and so on should be published.
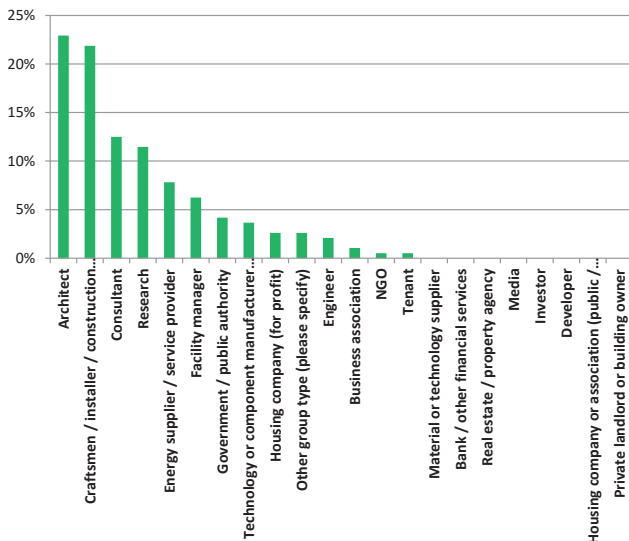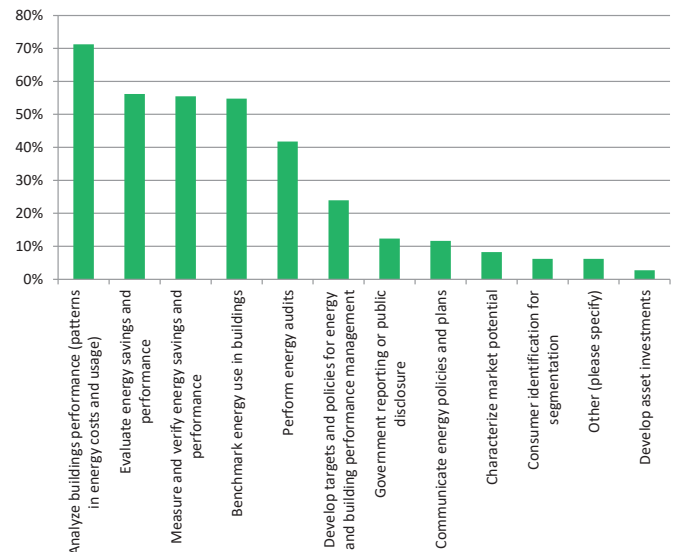
https://www.jsbc.or.jp/decc/

Who uses these data in Japan (Survey on 2018)
Part of Subtask A, Annex70

User's organization

Purpose of data collection

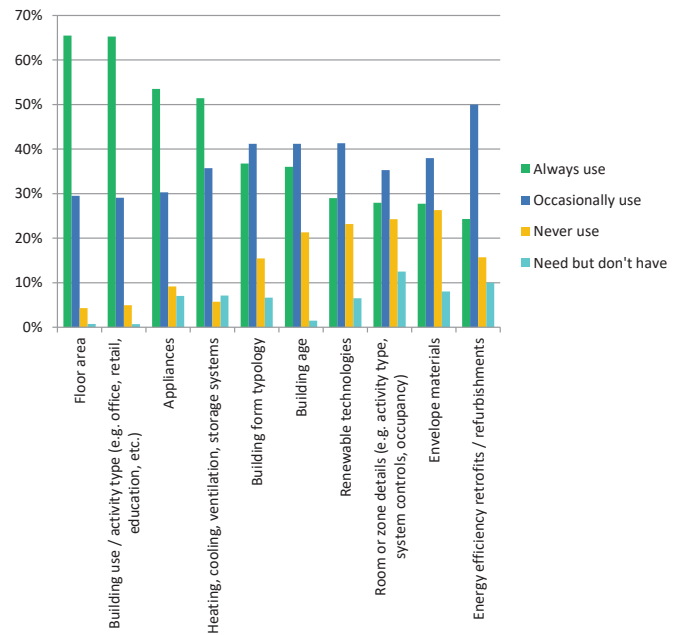## Data types used or needed

Legend: Always use, Occasionally use, Never use, Need but don't have

Categories (x-axis):
- Spatial (geographic) data
- Administrative registries (e.g. national, state/province)
- Laboratory testing
- Customer / consumer data
- Occupant demographic data
- Field trials (e.g. in-use testing)
- Representative surveys (e.g. cross-sectional)
- Demonstration projects
- Cohort surveys (e.g. specific groups)

Physical system data used or

Legend: Always use, Occasionally use, Never use, Need but don't have

Categories (x-axis):
- Floor area
- Building use / activity type (e.g. office, retail, education, etc.)
- Appliances
- Heating, cooling, ventilation, storage systems
- Building form typology
- Building age
- Renewable technologies
- Room or zone details (e.g. activity type, system controls, occupancy)
- Envelope materials
- Energy efficiency retrofits / refurbishments

Occupant data used or needed

Legend: Always use, Occasionally use, Never use, Need but don't have

Categories (x-axis):
- Occupant socio-demographics (e.g. age, income, education, employment)
- Occupant comfort (e.g. thermal, auditory)
- Ownership (e.g. tenant, owner, visitor)
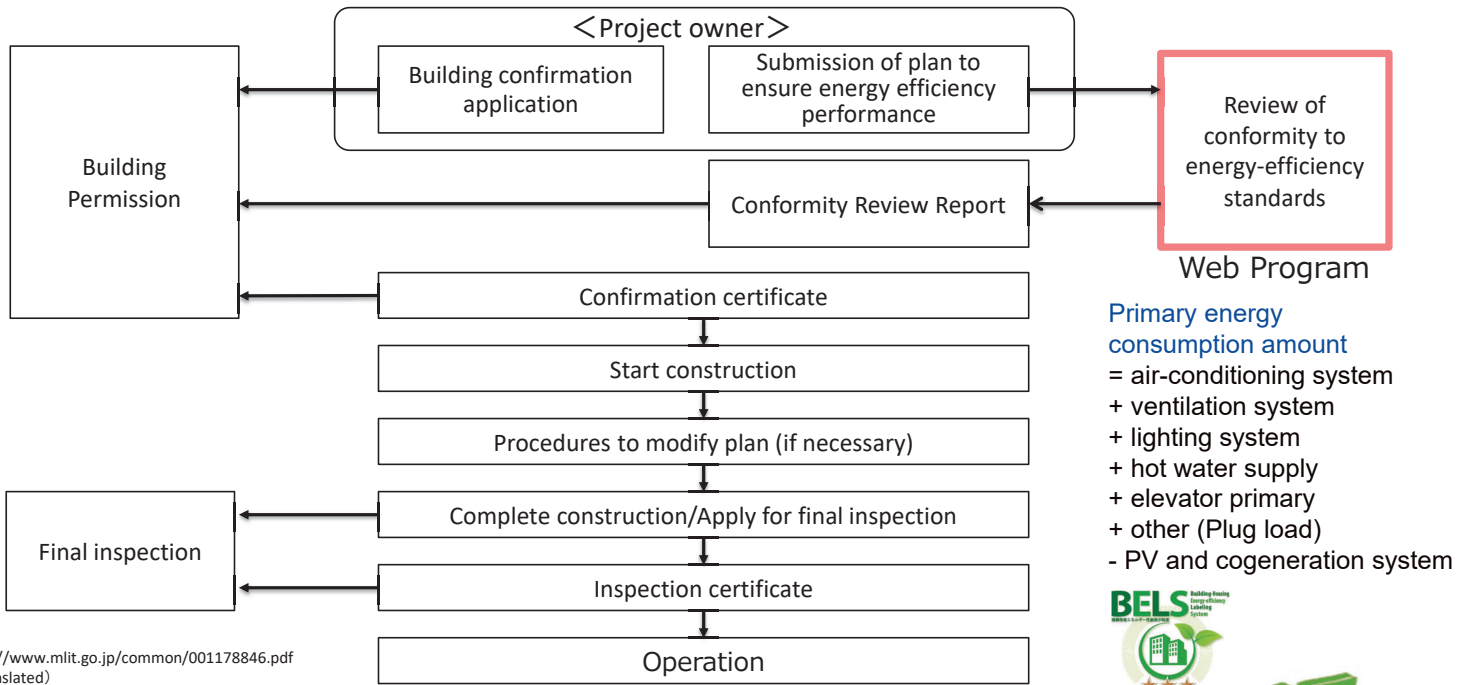- Occupancy (e.g. numbers, circulation frequency)
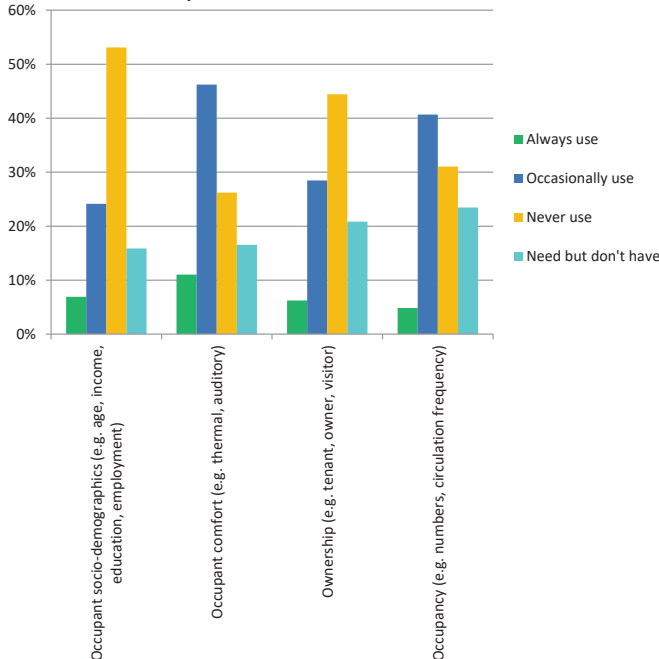
Who are the actors or organizations that could help address your organization's unmet data needs and through what mechanisms?

- Disclosure of data collected by the government
- Census by the Ministry of Land, Infrastructure and Transport
- Volunteer organization's collection
- Collection of BEMS data
- Data disclosure by energy company, like Green button
- Legislation design to limit confidentiality

Building Energy Efficiency Act in Japan, 2016

＜Project owner＞

| Building confirmation application | Submission of plan to ensure energy efficiency performance |

Building Permission

Review of conformity to energy-efficiency standards

Conformity Review Report

Web Program

Confirmation certificate

Start construction

Procedures to modify plan (if necessary)

Complete construction/Apply for final inspection

Final inspection

Inspection certificate

Operation

Primary energy consumption amount
= air-conditioning system
+ ventilation system
+ lighting system
+ hot water supply
+ elevator primary
+ other (Plug load)
- PV and cogeneration system

http://www.mlit.go.jp/common/001178846.pdf
（Translated）

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Building Energy Efficiency Act in Japan, 2016

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Discussion

- For housing, monthly actual energy consumption data is being accumulated.
- At this moment, there is no comprehensive database for commercial buildings (DECC is dormant)
- BEMS and HEMS data are being accumulated as an obligation of subsidized projects.
- There is no common protocol of measurement data for BEMS and HEMS, so individual analysis work is necessary to use.
- The spread of smart meters has begun to progress.
- Efficient data collection method using smart meter is expected.

Thank you very much