The Challenges of National Statistics Office in the ICT Revolution

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Ministry of Internal Affairs and Communications

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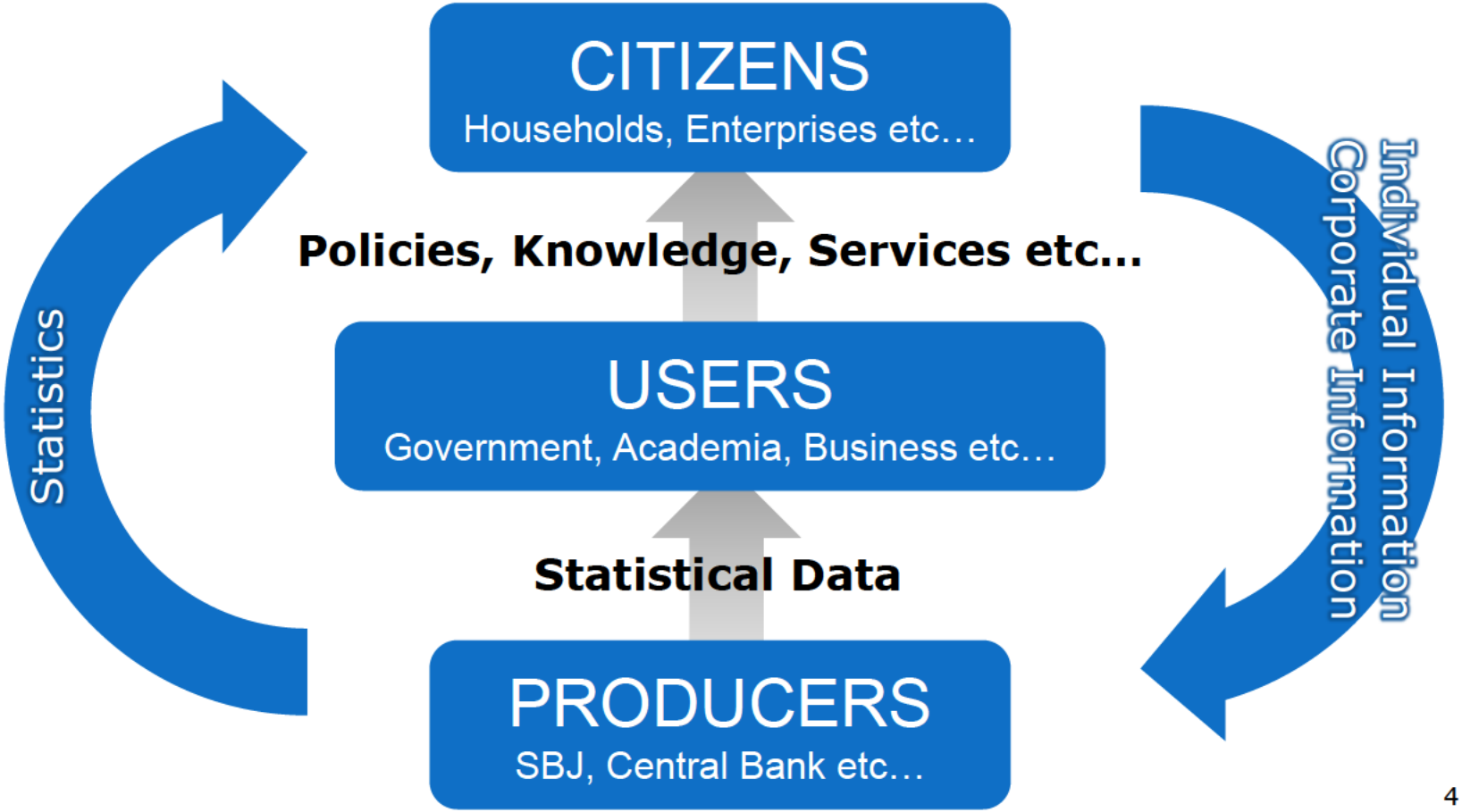
1. Our Mission

Statistics: Information Infrastructure for Society



Our Mission and Guiding Principles

Statistics Bureau,
Ministry of Internal Affairs
and Communications

To produce relevant, objective and accurate statistics for society

To provide readily accessible and valuable statistical information

To cooperate closely with local statistical offices

To build up a high level of expertise, and
to contribute to the development of statistics in Japan and abroad

To pay due attention to response burdens, and
to protect statistical confidentiality

2. Background

~Changing Environment Around Official Statistics~

Growing Demand for Open Data

G8 Open Data Charter published in June 2013

"missed opportunity"

Data are not always shared in ways that are accessible to the public.
Open data have huge potential to build better societies.

Open Data Strategies in Japan

Jul.	2012	Open Government Data Strategy
Jun.	2013	Declaration to be the World's Most Advanced IT Nation

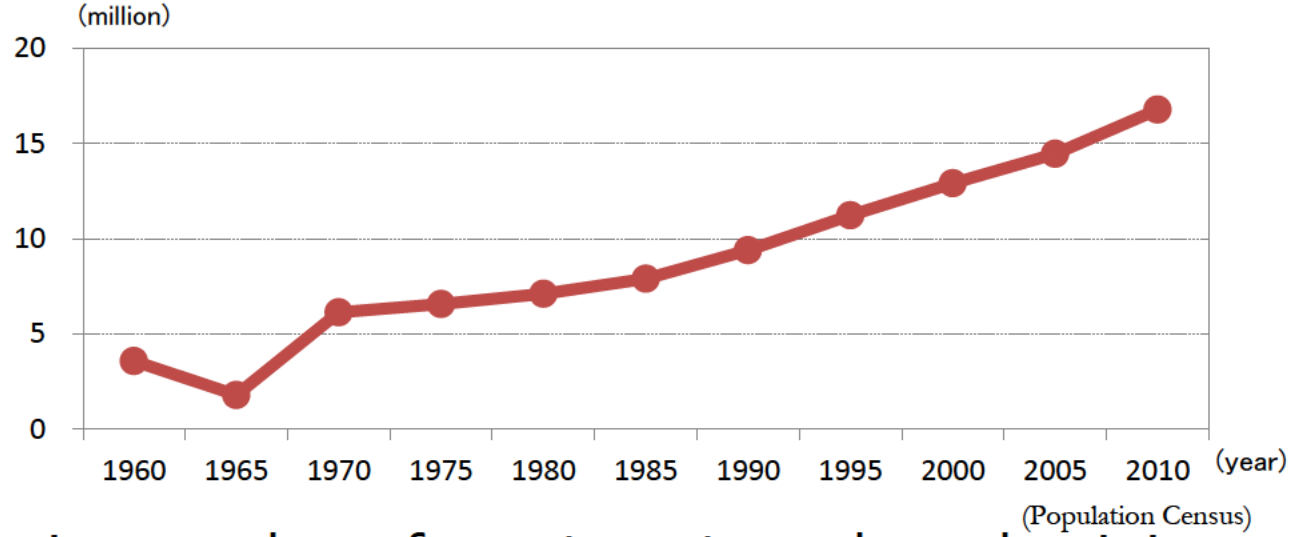
Fundamental Principles of Official Statistics (1994~)

Official statistics are to be made available on an impartial basis.

- We will encourage advanced uses of open official statistics.

Changes in Lifestyle and Attitude

- Increasing number of one-person households

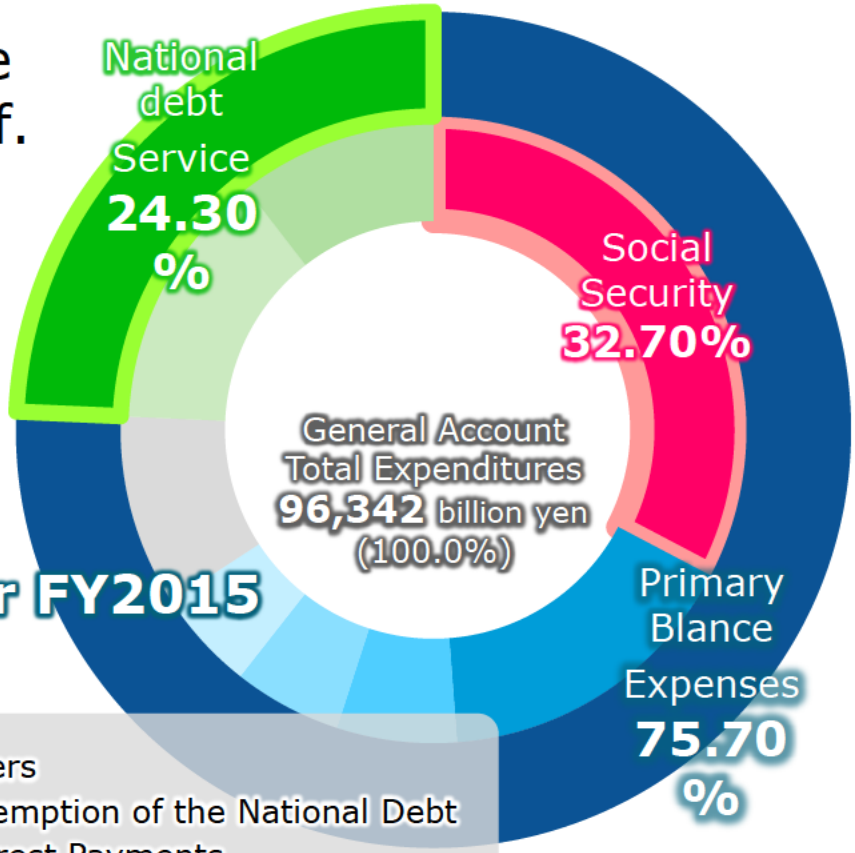


- Increasing number of apartments and condominiums with self-locking doors for main entrances
- Growing concerns around privacy

  Act on the Protection of Personal Information was enforced in April 2005.

Constraints in Financial and Human Resources

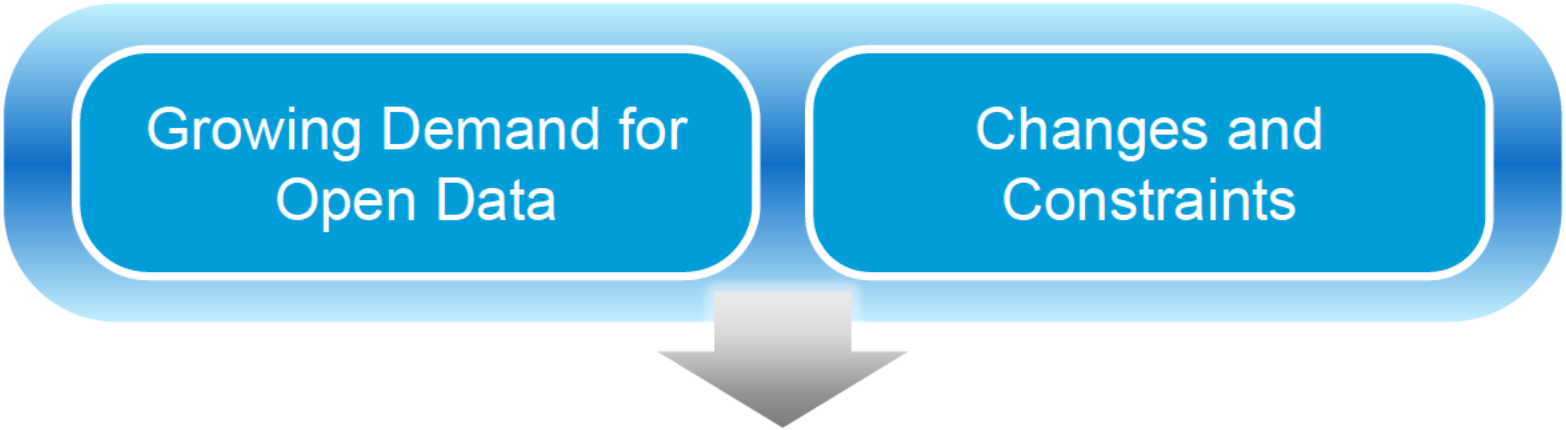
- Increasing pressures to reduce budget and streamline the staff.
  - Severe fiscal condition
  - Decreasing number of staff



General Account Budget for FY2015 in Japan

- Local Allocation Tax Grants, etc.
- Public Works
- Education & Science
- National Defense
- Others
- Redemption of the National Debt
- Interest Payments

What we should consider is…

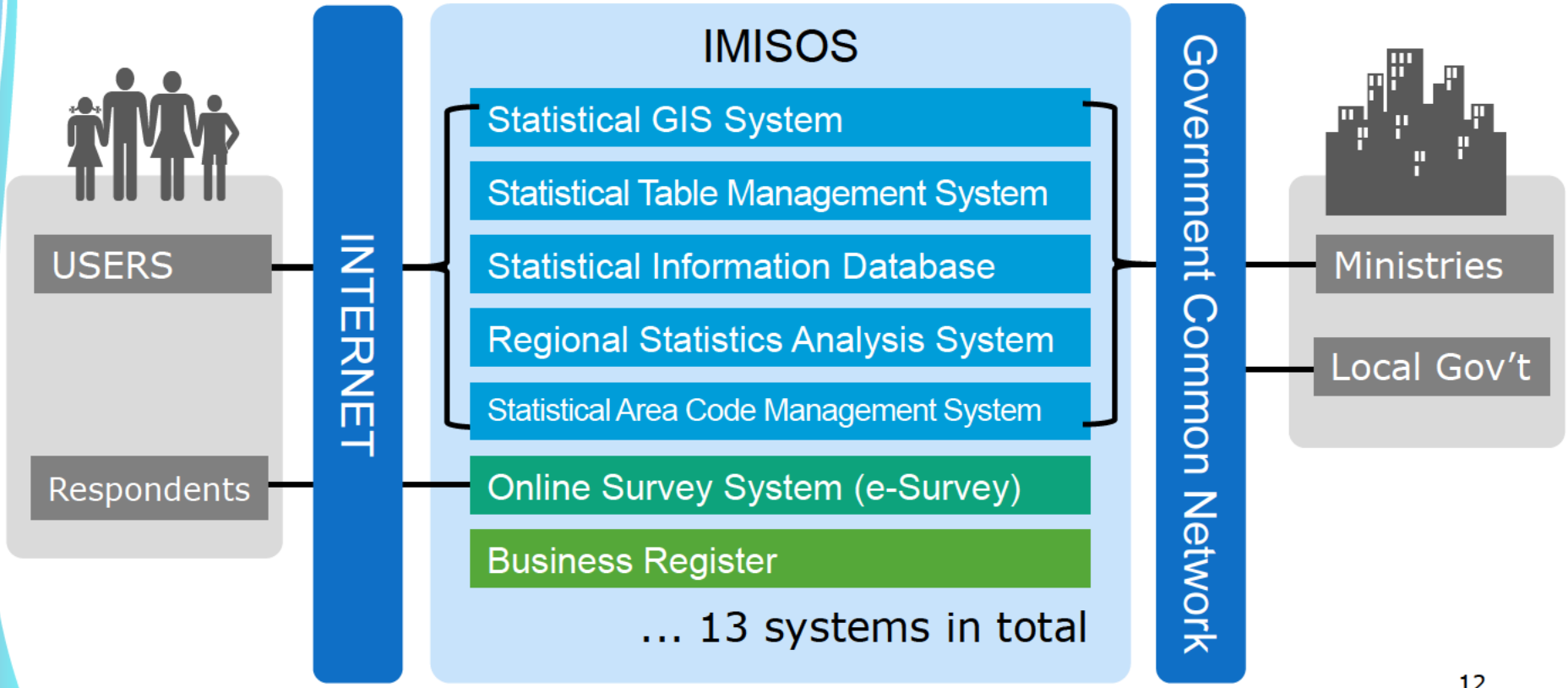


- Making use of advanced ICT
- Developing new data sources,
  e.g. administrative records, big data
- Achieving higher efficiency in production of official statistics (without compromising quality requirements)
- Developing human resources for advanced uses of data (inside and outside NSO)

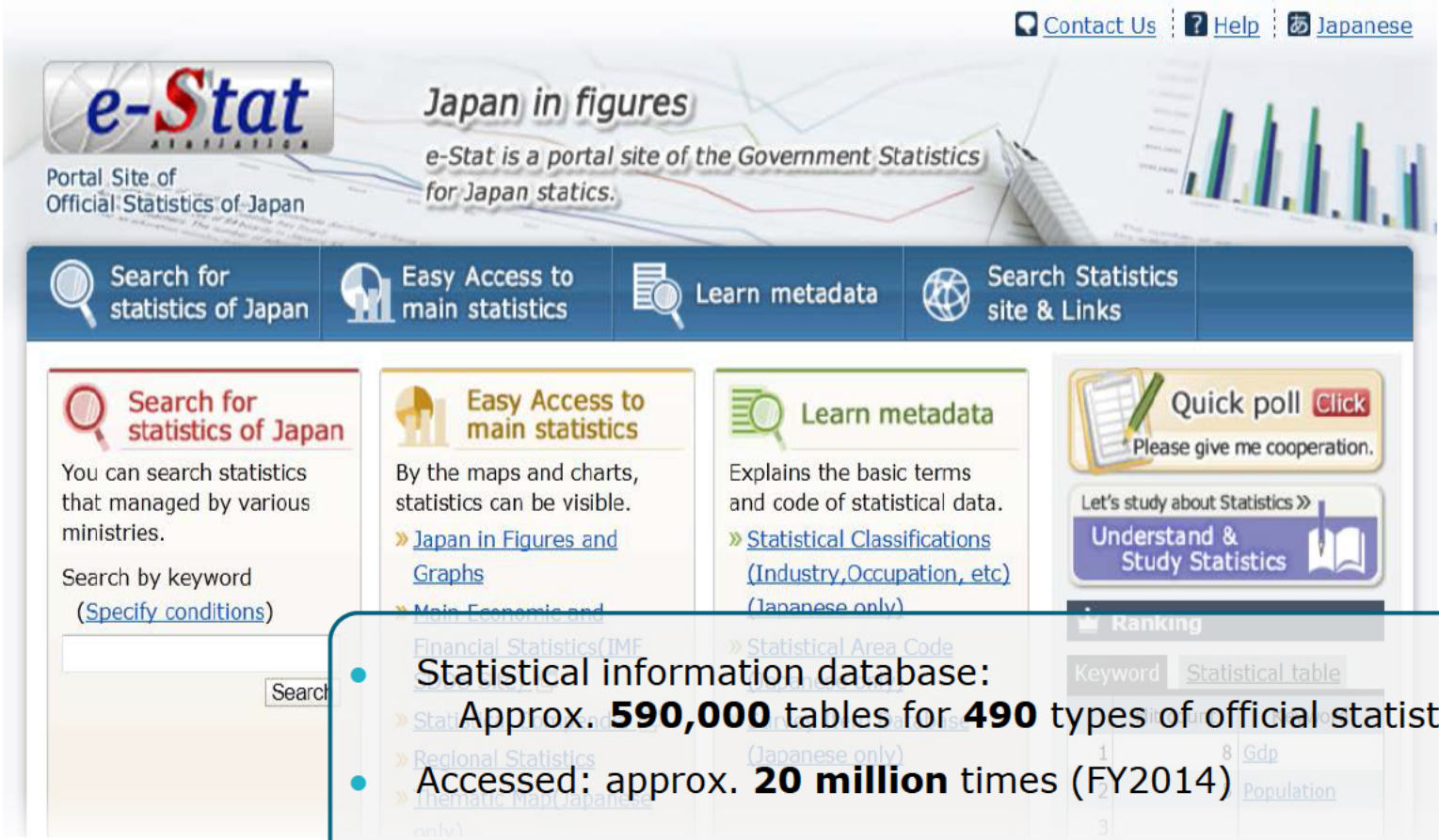
3. Statistical Open Data in Japan

~ Advanced Use of Statistics ~

The Inter-Ministry Information System for Official Statistics (IMISOS)



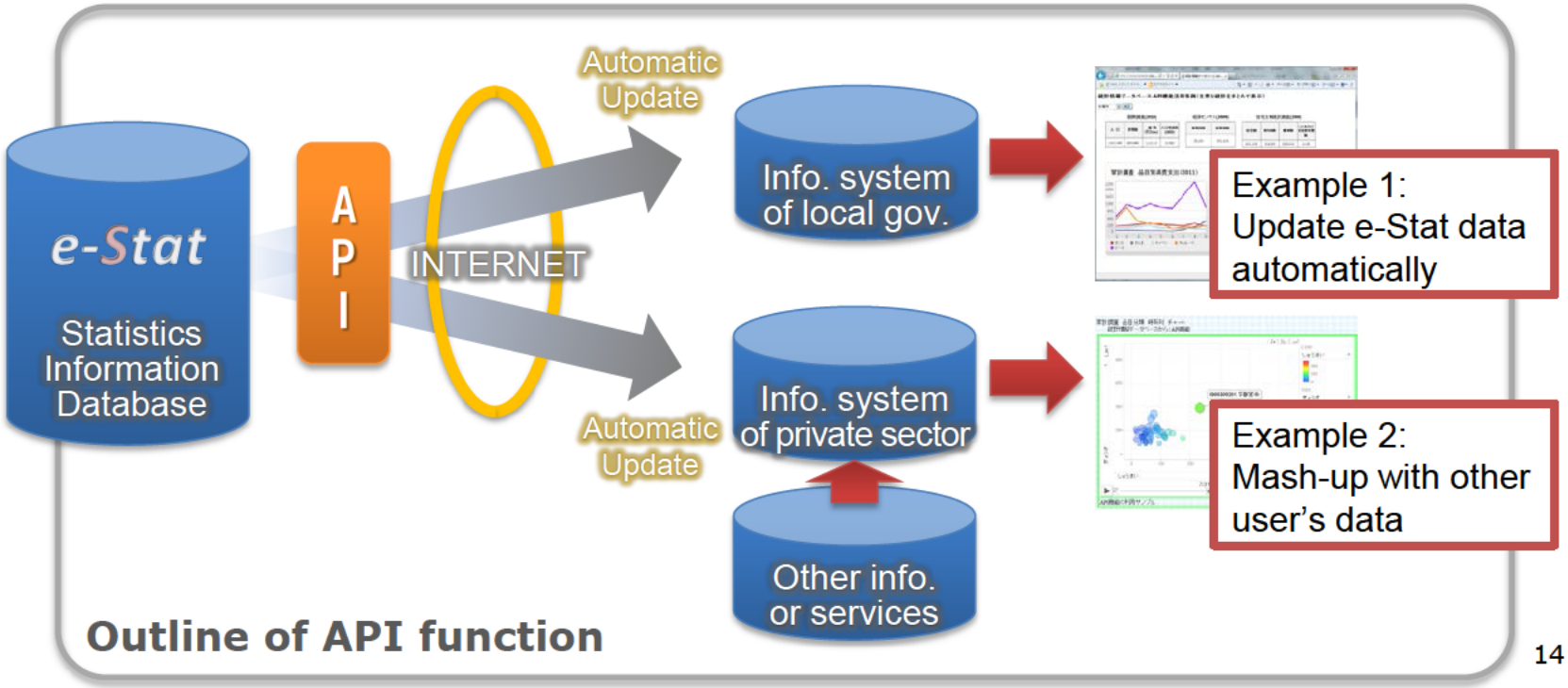
e-Stat: Portal site for official statistics



- Statistical information database:
  Approx. **590,000** tables for **490** types of official statistics
- Accessed: approx. **20 million** times (FY2014)

API function for advanced use of statistics

- The API function installed into e-Stat offers several benefits.
  - The most recent data of e-Stat is automatically updated to the user's system.
  - Advanced analysis of statistical data by mash-up with other data of users is available.



Example of using API functions

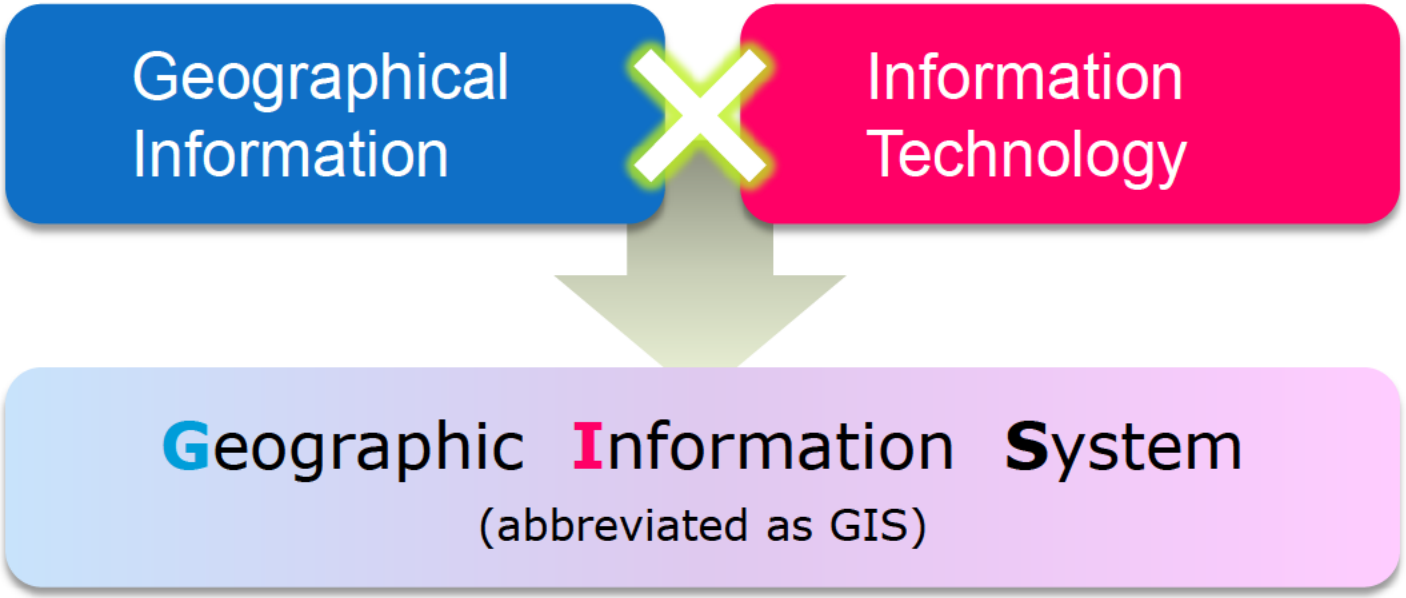
- Data provided by SBJ help the private sector to develop new services.

The system automatically downloads up-to-date data from the population census and calculates the estimated price of real estate.

Example of using API functions

- "Smartphone App on Statistics" was released on 15 April 2014.
- The aim of this app is to promote the use of official statistics, especially among the young generation.
- The app offers several unique contents.
  For example, combined with GPS, the app provides you statistical data about the city around you.

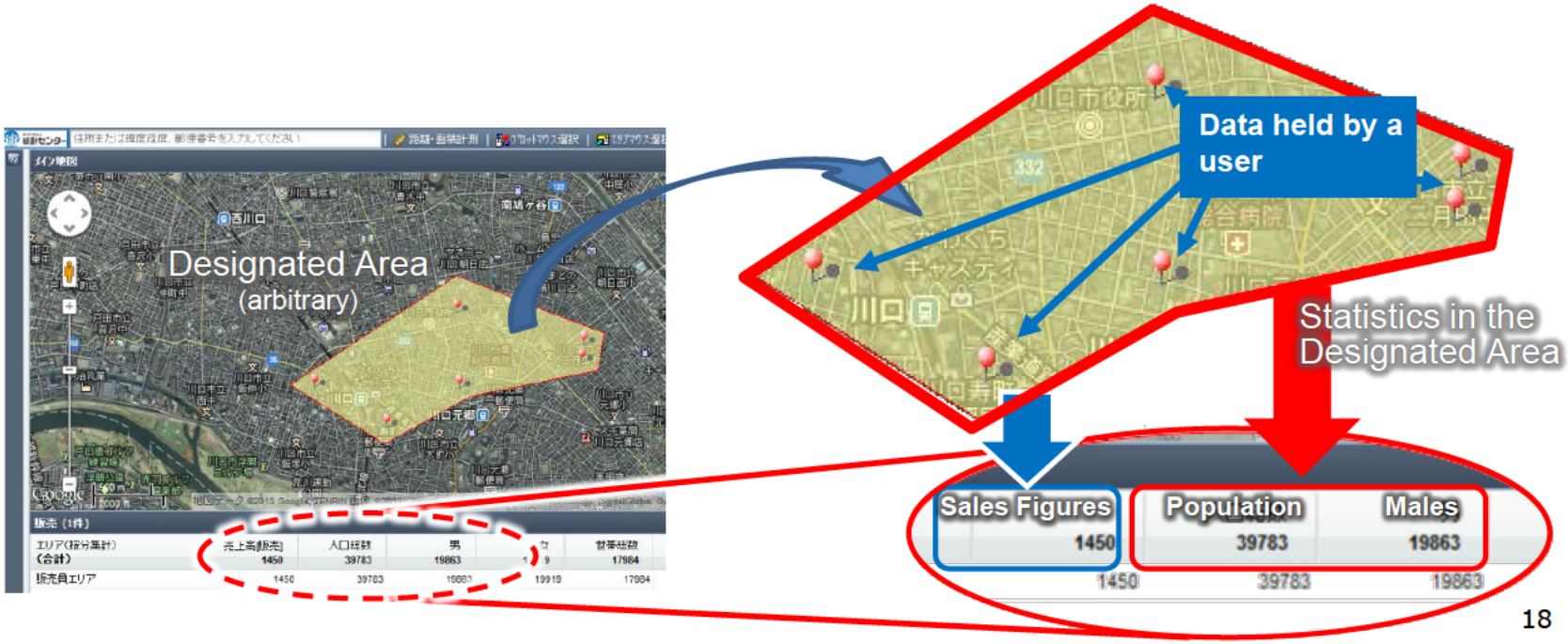
Statistical GIS for Advanced Use of Statistics



- Statistical GIS is a system integrating statistical data into geographical information.
- Statistical GIS allows for further analysis of data and advanced use of official statistics.

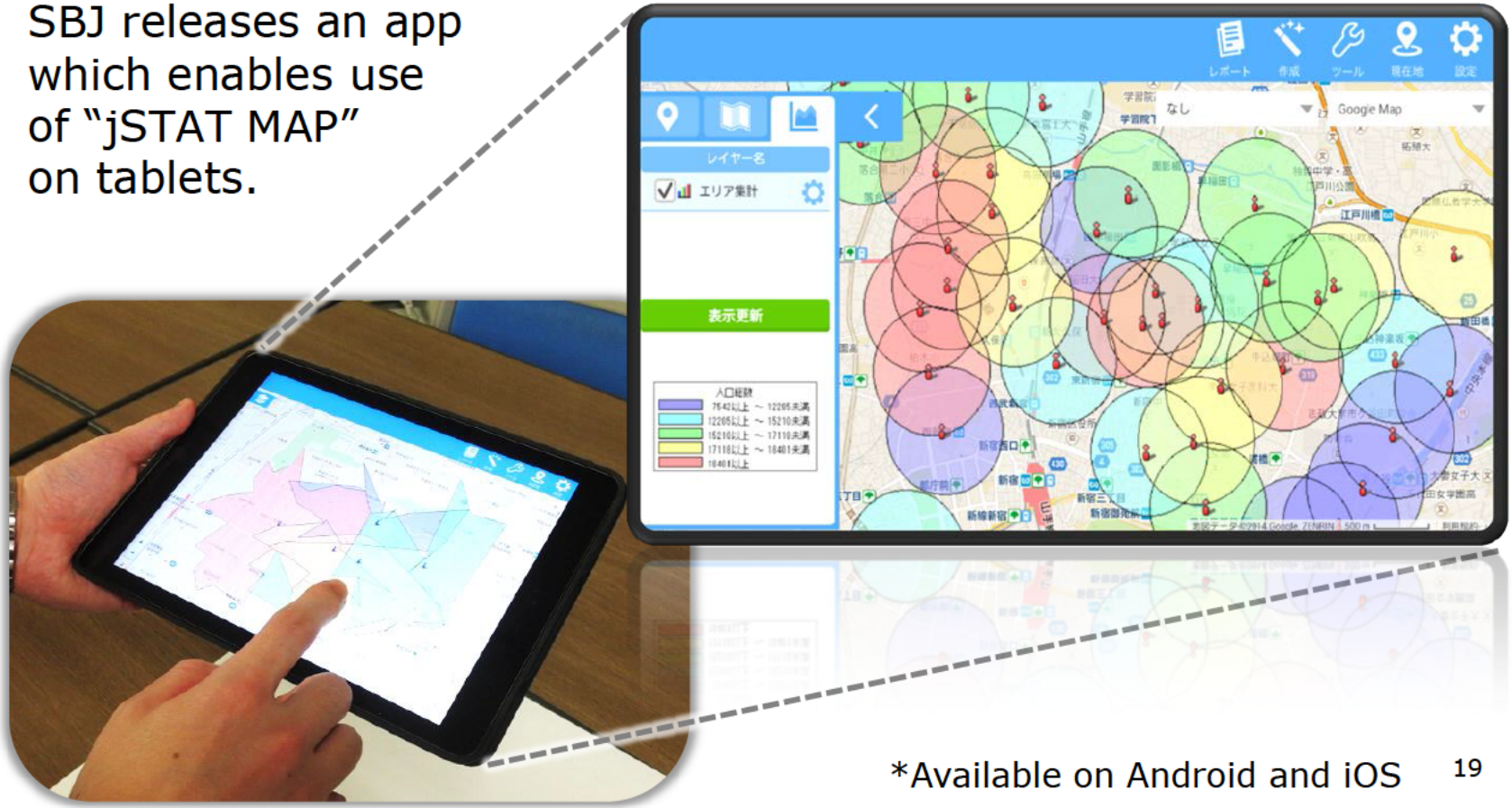
Example of using Statistical GIS

- "jSTAT MAP", statistical GIS installed into e-Stat, enabling
  - retrieval of data held by a user
  - compilation of statistics data in an arbitrarily designated area



Example of using Statistical GIS

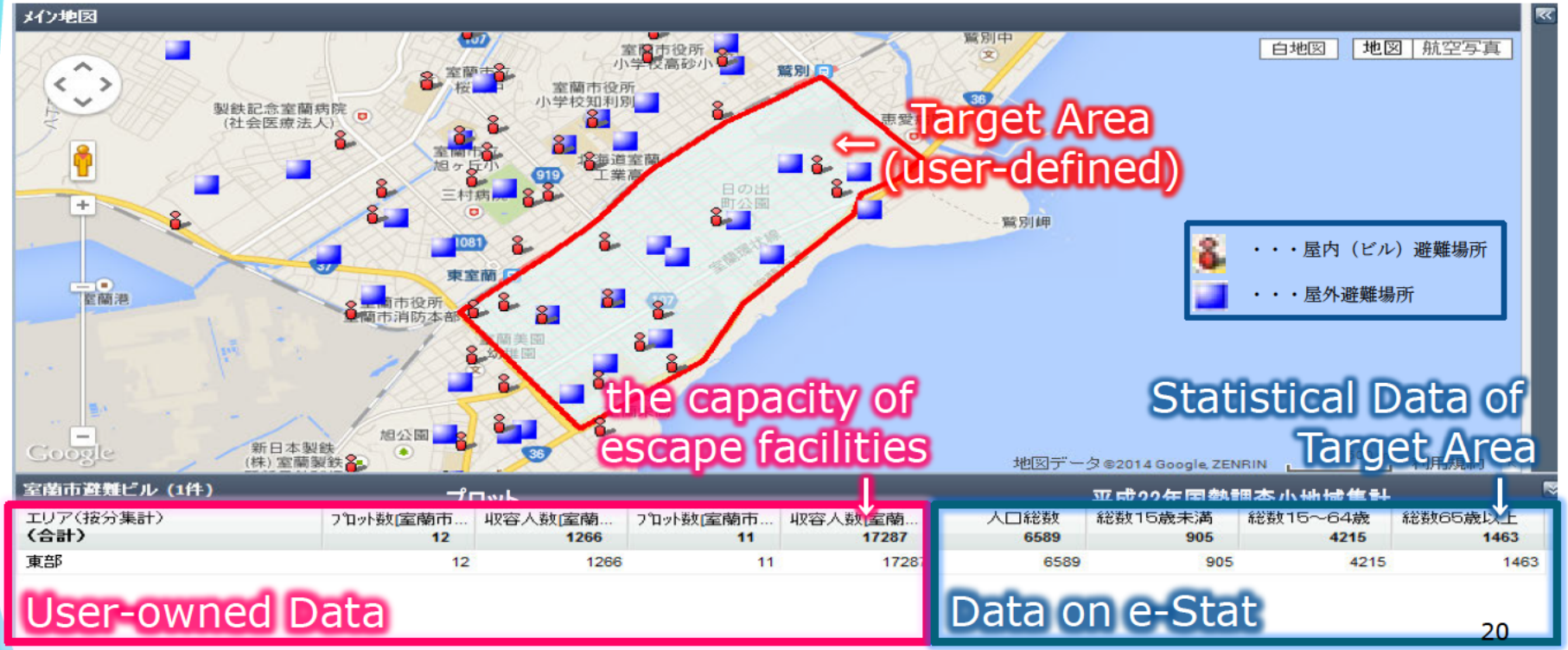
- SBJ releases an app which enables use of "jSTAT MAP" on tablets.



*Available on Android and iOS

Example of using Statistical GIS

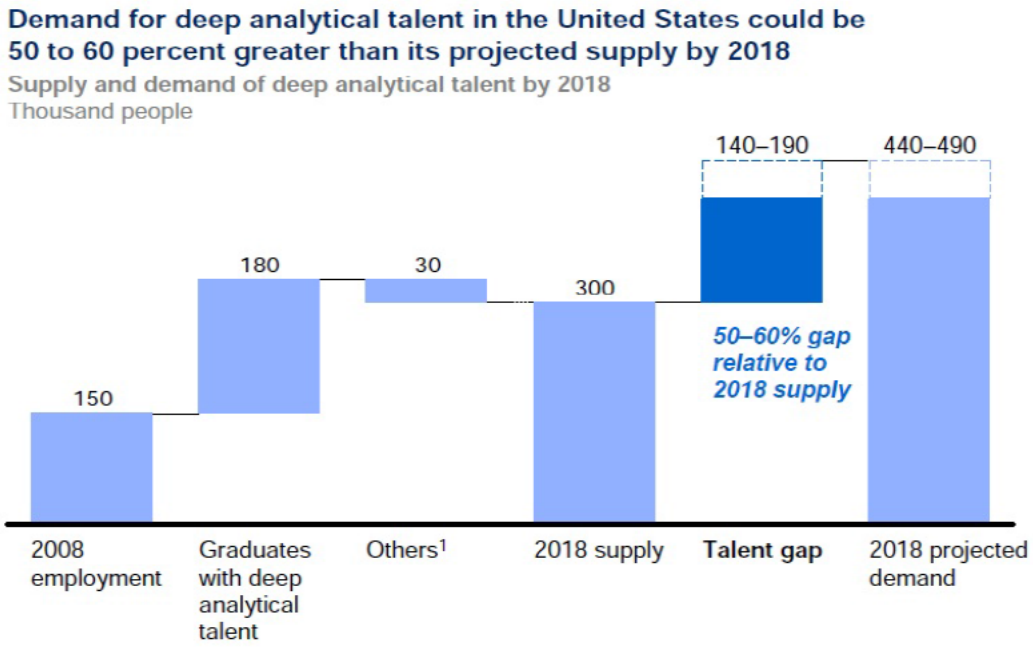
- Preparation against earthquakes is a critical issue in Japan.
- Statistical GIS serves as a powerful tool to determine areas to evacuate.



Shortage of Highly Skilled Analytical Talent

- In spite of growing demand for advanced data analyses, human resources with high analytical skills are in short supply

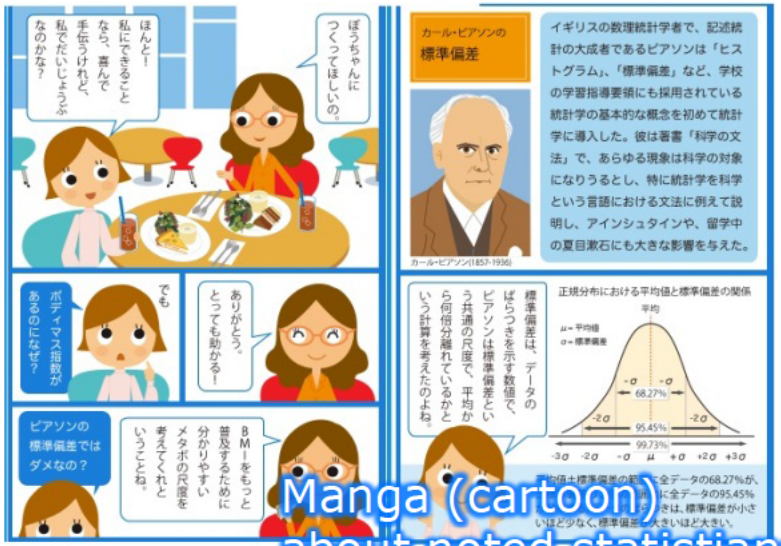
  ➡ Human resource development needed for highly skilled analytical talent.



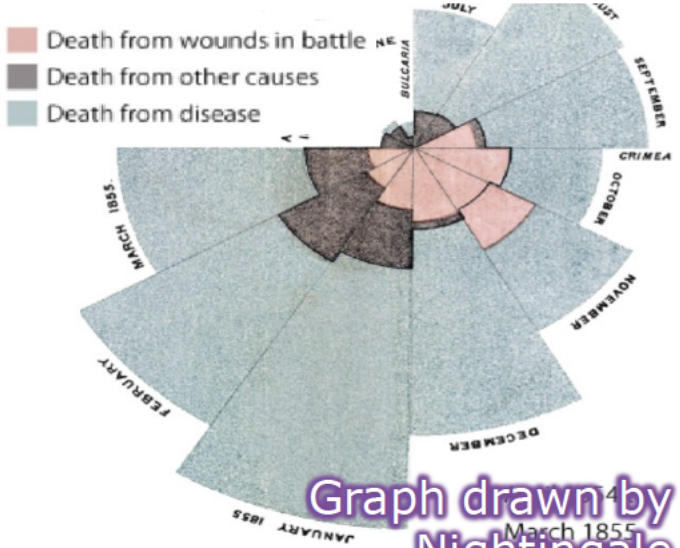
Mckinsey Global Institute,
"Big data : The next frontier for innovation, competition, and productivity"

Data Science School: Introduction to Data Analysis

- "Data Science School" provides basic information about how to utilize statistics on computers and/or smartphones.
- This site includes contents which show basic knowledge of statistics for business through manga (cartoons), graphs, and interviews.



Manga (cartoon) about noted statistians



Graph drawn by Nightingale

4 March 1855

Data Science Online Course:
Advanced Steps of Data Analysis by MOOC

- SBJ launched a massive open online course (MOOC*),

  "Data Science Online Courses", which are open to anyone who is interested in learning about statistics.

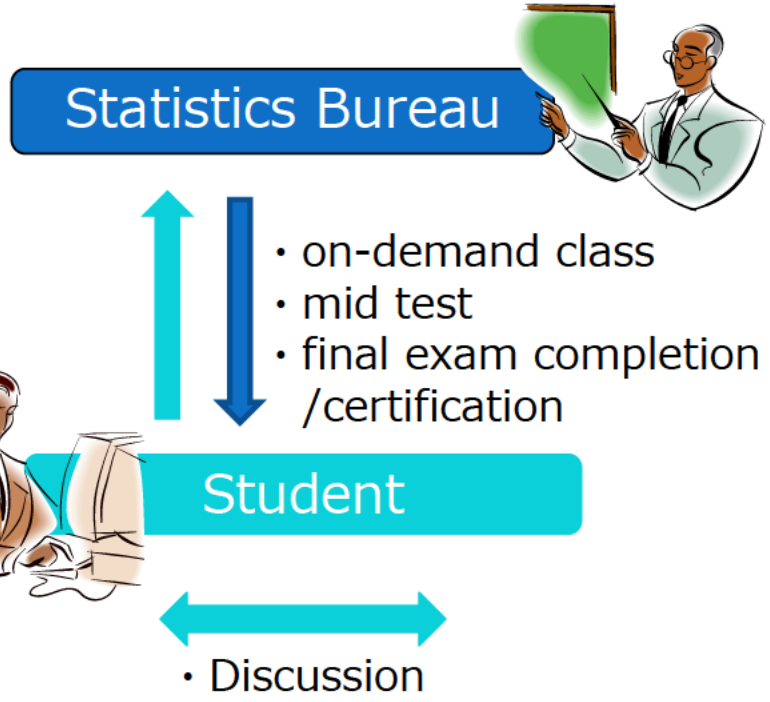
- Example:

  a four hour course:

  10 minutes each lesson,

  6 lessons per week,

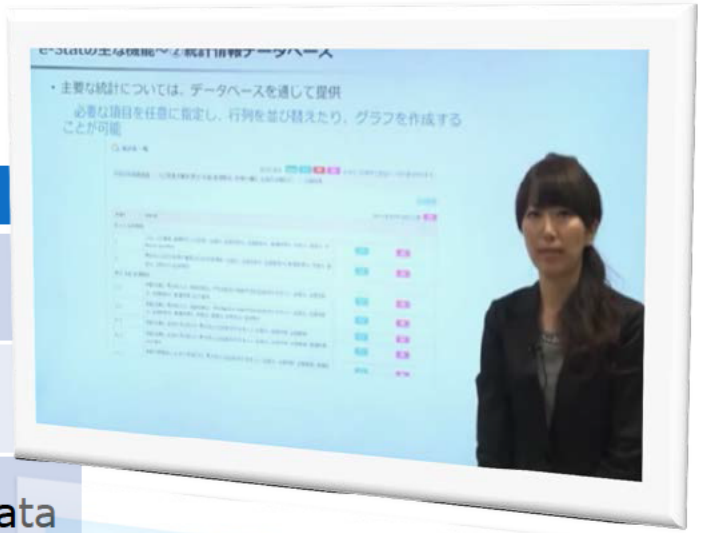
  for 4 weeks



*MOOC: Model for delivering learning content online to any person, with no limit on attendance, free of charge.

The first course, “Introduction to Data Science”

- The first course, “Introduction to Data Science” ,was given from March to May 2015.
- The course provided basic knowledge on statistics and the way to utilize official statistics.
- More than 15,000 people registered.



Week	What to learn
1st	How to Utilize Data Statistical techniques of the new age
2nd	How to Characterize Data Distribution, Representative Value, Proportion
3rd	How to Reveal Relationships between Data
4th	How to Use e-Stat & Summary

What is MOOC?

First Launched in 2006
by educator Salman Khan

Free of Charge

Unlimited Participation

Open Access via the Web

Online Submission of Reports

Online Exams

Online Discussion Board

Global MOOC

- KHAN ACADEMY
- UDACITY
- coursera
- edX

Local MOOC

- FutureLearn (United Kingdom)
- France Université Numérique (France)
- XuetangX (China)
- **JMOOC** (Japan, since Oct. 2013)

4. Topics of Population Census 2015

Population Census: Guiding Japan's Future

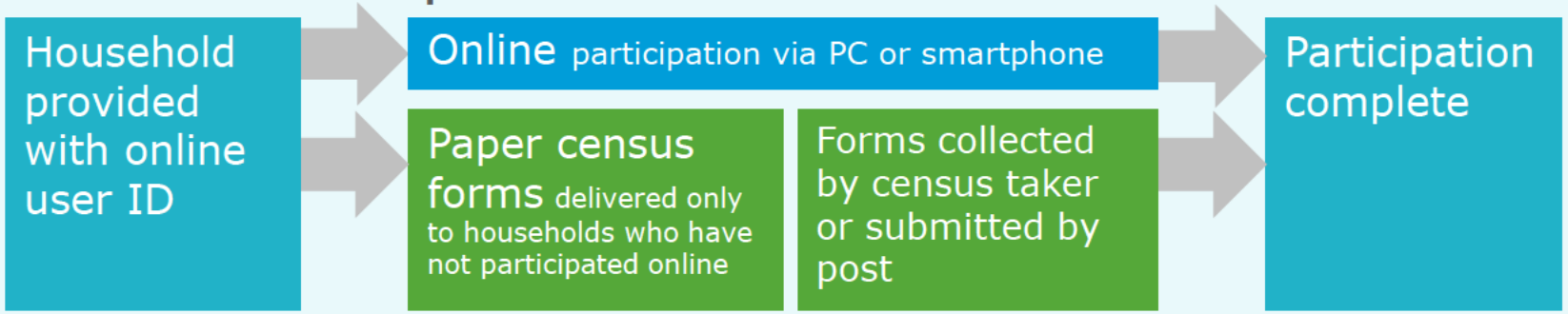
Civil Life	To obtain basic data for academic research, estimates of future population, etc.
Policy	To obtain basic data for employment policies, social welfare plans, disaster prevention measures, etc.
National Governance	To enumerate the legal population to allocate local tax, to provide the sampling frame for surveys, etc.
Democracy	To determine the electoral boundary delimitation, the number of parliament seats, etc.

About Population Census 2015

Census "Big Challenges"

- Representing on online survey of 51 million households in Japan.
- More than 19 million answers via the Internet.
- Enabling participants to answer census questions on a smartphone.
- Revealing the consequences of the East Japan Earthquake (2011).

Flowchart of Population Census 2015



The Largest Online Surveys in the World

- 19.6 million households took part in the census.
- This number makes Population Census 2015 in Japan **the largest online survey** in the world.

	Total Number of Households [million]	Number of Online Responses [million]
Japan (2015)	**51**	**19.6**
Italy (2011)	22	8.4
Korea (2010)	18	8.4
Canada (2011)	13	7.2
Spain (2011)	14	5.5
Germany (2011)	41	4.0
United Kingdom (2011)	23	3.7
Poland (2011)	13	0.25
Brazil (2010)	57	0.03

Online Survey with Smartphone

- Online Population Census System
  supports smartphones,
  and detects incorrect entries and blank entries.

Top Menu

Log In Form

Questionnaire

Extensive and Various PR Campaign

- Mass media
  - TV, radio, newspaper, etc.

YAHOO! JAPAN

YouTube

- Internet
  - Search engine, YouTube, etc.

- Campaign character
- Event

Release of the Results

- Census results are released in a suitable manner.
  - Publication of printed tables
  - Dissemination on computer media
  - Online dissemination
    - ~ using API functions
    - ~ using Statistical GIS

< Release Schedule >

Feb. 2016	Preliminary Counts of the Population and Households
Jun. 2016	Preliminary Sample Tabulation
Oct. 2016	Basic Complete Tabulation on the Population and Households

⋮

5. Conclusion

Conclusion

Under the changing environment,

SBJ will take on new challenges.

SBJ will:

- make full use of advanced ICT
- encourage advanced use of official statistics
- make efforts to obtain cooperation and assistance of the general public
- promote collaboration with academia and the private sector

SBJ aims at "Statistics for All, with All"

Thank you for your attention

I wish to acknowledge the contribution of
IYAMA Ryo and NAKAMURA Kotaro.