

Connected Industries and Data Science

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Overview of Yokohama

- The **2nd** largest city after Tokyo
- **3.73** million people
- **30** min from Tokyo





Students: 4,910
Professors and Instructors: 708

Main Campus



Liberal Arts,
Economics,
Business, etc.

Medical Campus



School of
Medicine &
Graduate
School of
Medicine

Life Science Campus



Graduate School
of Medical Life
Science



Kihara Institute
for Biological
Research



YCU Hospital



Clinical Research
Center

Y-NEXT



YCU Medical
Center



Advanced
Medical Research
Center



Rank	University	Country	Total students	World Rankings
1	California Institute of Technology (Caltech)	US	2,243	1
2	École Normale Supérieure	France	2,400	54
3	École Polytechnique	France	2,429	101
4	Pohang University of Science and Technology	South Korea	3,055	116
5	École Normale Supérieure de Lyon	France	2,218	201-250
12	Tokyo Medical and Dental University	Japan	2,872	401-500
16	Yokohama City University	Japan	4,122	601-800



The world's best small universities 2016

(TIMES HIGHER EDUCATION)

Unfortunately, not ranked in the 2018 survey.

School of Data Science

Est. in
2018

1st in Metropolitan Area (2nd in Japan)

Advanced informatization

Accumulation of
IT&IoT companies

Data Scientist

Human Capital Development

- Emphasis on on-site learning
 - ◆ Industry-Academia-Government Partnership
 - ◆ PBL = Practice Based Learning
- Get international-level English skills

YOKOHAMA



Lack of/Demand for Data Scientists in Japan

The government of Japan estimates:

- Shortage of max. 250,000 with a background of data science in the near future.
- In particular, 10,000 – 100,000 skilled data scientists needed for the next 10 to 20 years.

For the last 3 to 5 years, companies recruit talented personnel in

- Medical research, heavy industries, manufacturing industry, marketing research, finance/insurance, etc.
- Parallel to the worldwide trend.

Scale of Major Academic Societies in DS

The Japan Statistical Society

- Academia based, established in 1931
- Individual Members ca. 1,500
- Cf. Over 19,000 members in ASA

The Biometric Society of Japan

- Academia-Industry mixed, established in 1980
- Individual Members ca. 700 (Japanese 400, other 300)

The Japan Data Scientist Society

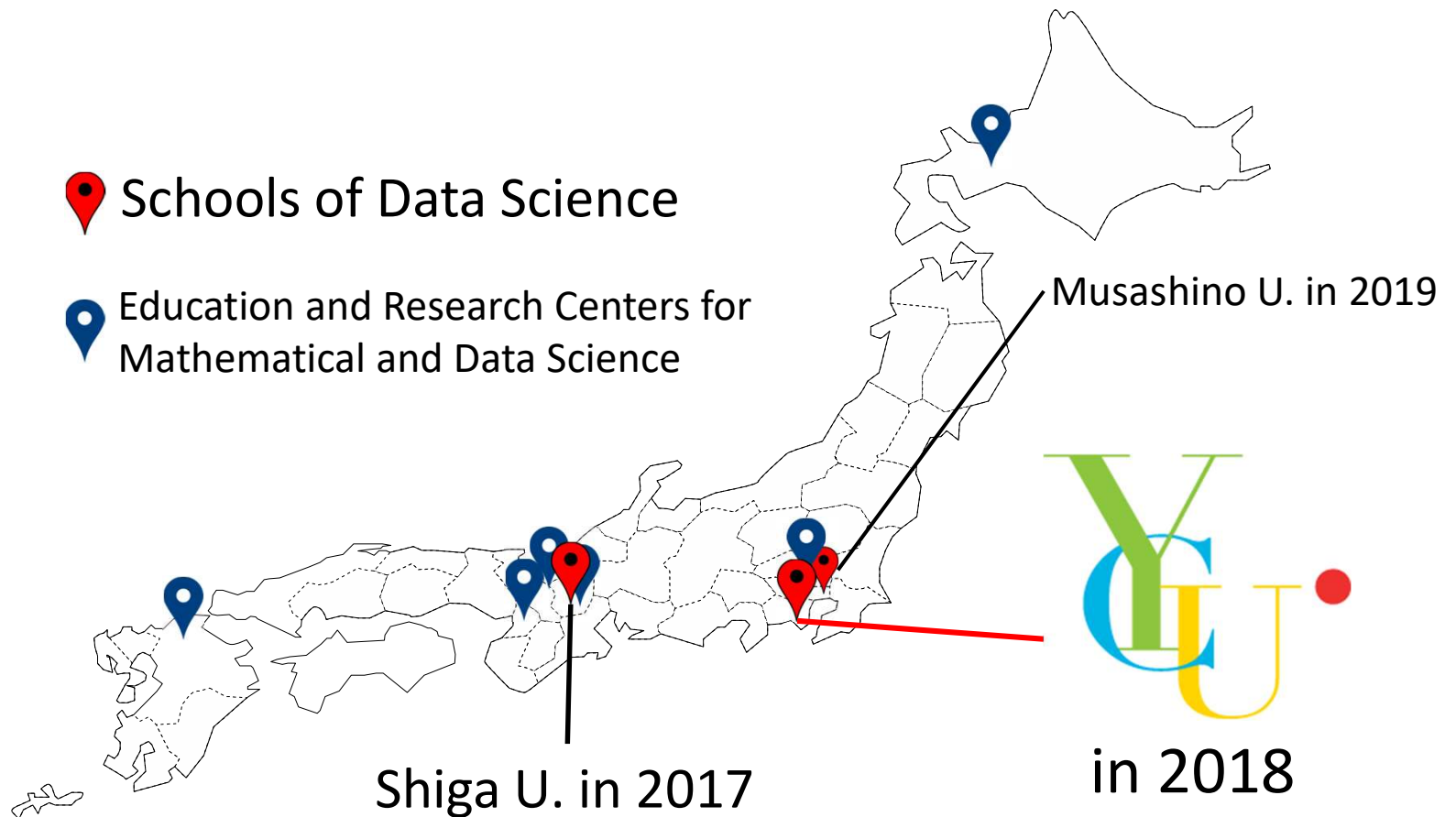
- Industry based, established in 2013
- Individual Members ca. 3,300 (2016) → ??? (2018)
- Corporate Members 52 (2016) → 85 (2018)

Recommendations from Science Council of Japan

- To improve vulnerability in statistics education,
 1. Placement of statisticians/data scientists on scientific researches in
 - medical/life science, material science, social science, etc.
 2. Quality assurance of bachelor education in statistics
 - developing a standard curriculum
 3. Talent development for specialists in statistics/data scientists
 - backed up with certification system

Necessity for establishing schools of statistics or data science.

Educational Institutions for DS in Japan





Faculty Profiles

16 Faculty Members

- 7 Full Professors
- 6 Associate Professors
- 3 being Recruited.

Areas of Specialization

- Statistics, Mathematics, Informatics
- Econometrics, Applied Economics, Marketing Science
- Medical Statistics, Health Science



Student Profiles

- 65 Students
 - ✓ 24 female, 41 male
 - ✓ 2 international students (China and Korea)
 - ✓ International students are welcome.
- Tough Entrance Exam
 - ✓ Ratio of success was approx. $0.14 = 65/450+$.
- 1st Year Students Only
- Graduate School
 - ✓ Scheduled to open in a couple of years.

Partnership with Enterprises & Local Government

- Joint research, seminars, internships, etc.
- Basic Partnership Agreements
 - Mynavi Corporation, INTAGE Inc., Suntory MONOZUKURI Expert Ltd., Macromill Inc., Teikoku Databank Ltd., All Nippon Airways Trading Co., Ltd.
 - Many others currently under negotiation
- Cooperation with the City of Yokohama
 - Agreements between the City of Yokohama and YCU on the use of data
 - Seminars on statistics for city employees
 - Outlook on various types of collaboration





横浜市立大学
YOKOHAMA CITY UNIVERSITY



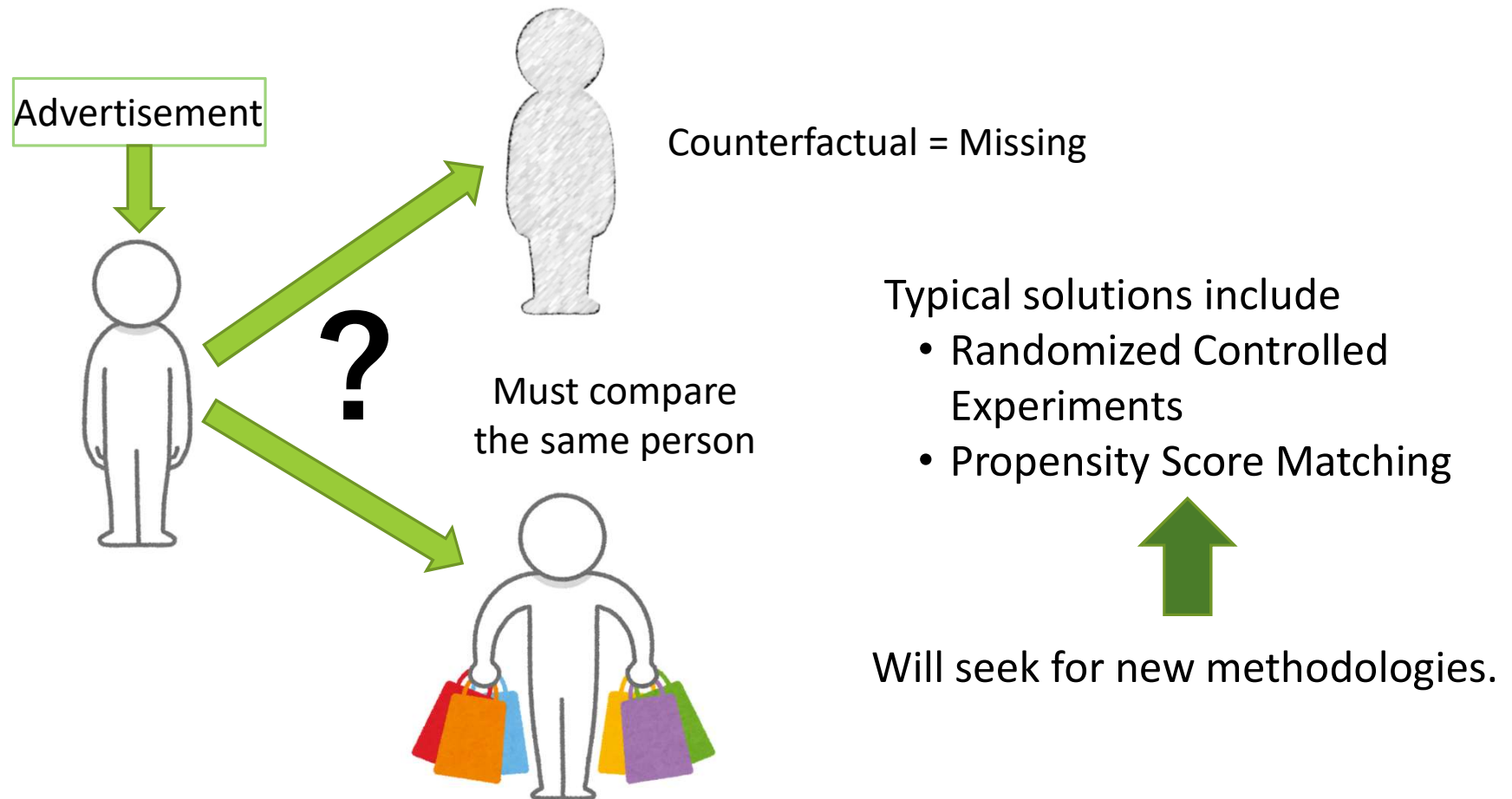
MACROMILL
a Macromill Group company



YCU/Macromill Joint Data Science Lab

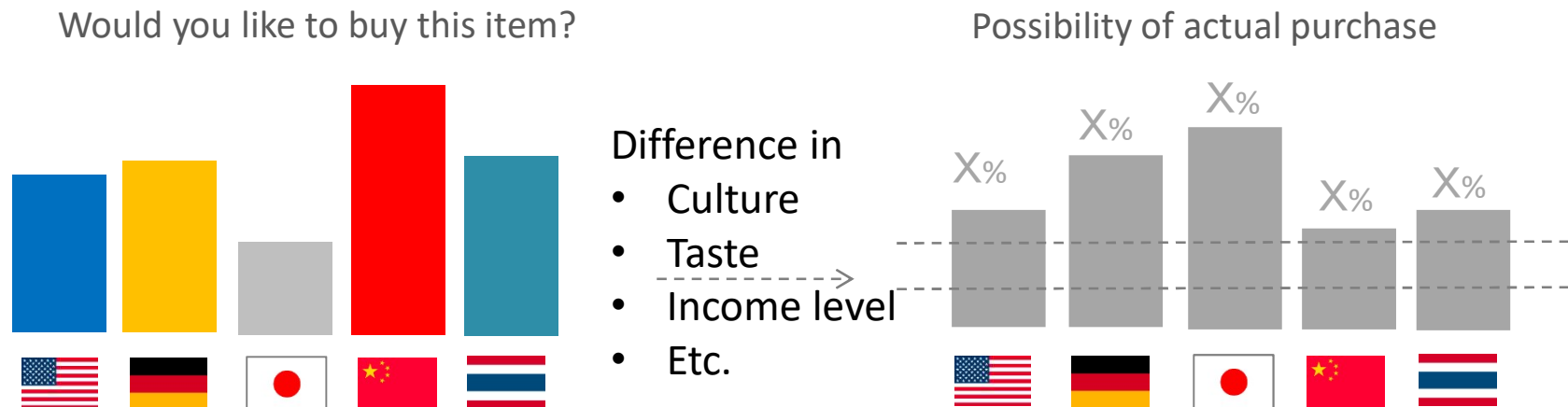
-  YCU / Macromill Data Science Joint Lab. **will open in April, 2019.**
- Macromill, Inc. is a world leading marketing research company.
- One of the largest academia-industry joint projects in data science in Japan
 - 2 Post-doc researchers
 - 2-3 faculty members from YCU
 - some data scientists from Macromill
- Two main research themes
 - Statistical methodologies for missing data
 - Technical developments in data equivalence

Statistical methodologies for missing data



Technical developments in data equivalence

- Using the same questionnaire across countries, but not able to compare the outcomes directly.



- Try to develop methodologies for standardization.