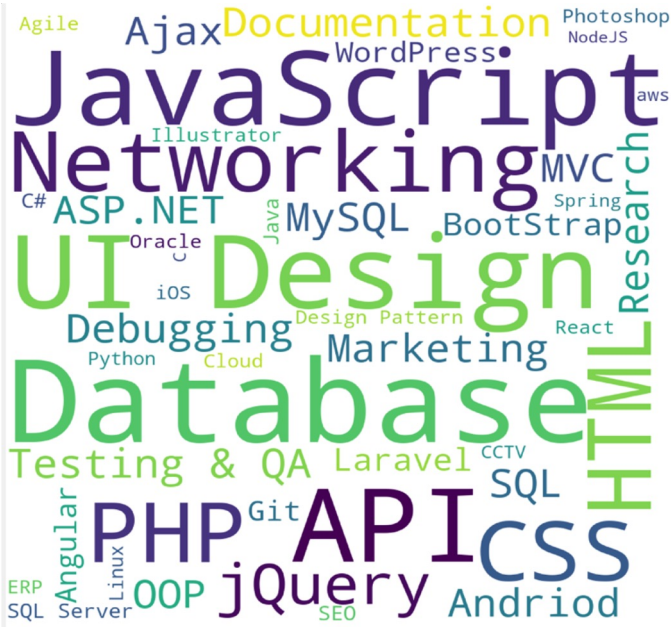


Regional Revitalization in Japan Brought About by Bangladeshi IT Professionals

Tsuyoshi Kano

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@GRIPS
August 31, 2023



Outline of the Presentation

1. Self introduction
2. Digital Human Resource Development in Bangladesh
3. ICT Bridge between Bangladesh and Japan
4. Policy Implications

Introduction (Tsuyoshi Kano 狩野 剛)

Title:

Associate Professor at Kanazawa Institute of Technology
CEO of ICT for Development Japan (NPO)

Job History:

- 2004-2007 ICT Engineer, Nomura Research Institute
- 2008-2019 ICT Sector Specialist, JICA
 - **2012-2015 JICA Bangladesh Office**
- 2021-2022 ICT Consultant, World Bank & ADB
- 2019-now CEO, ICT for Development Japan
- 2022-now Associate Professor, Kanazawa Institute of Technology

Education:

- B.Eng & M.Sc at Yokohama National University
- Ph.D in Information at University of Michigan



Research Area

- ICT for Economic Development (ICT4D)
- Digital Human Resource Development
- Edutainment / Gamification

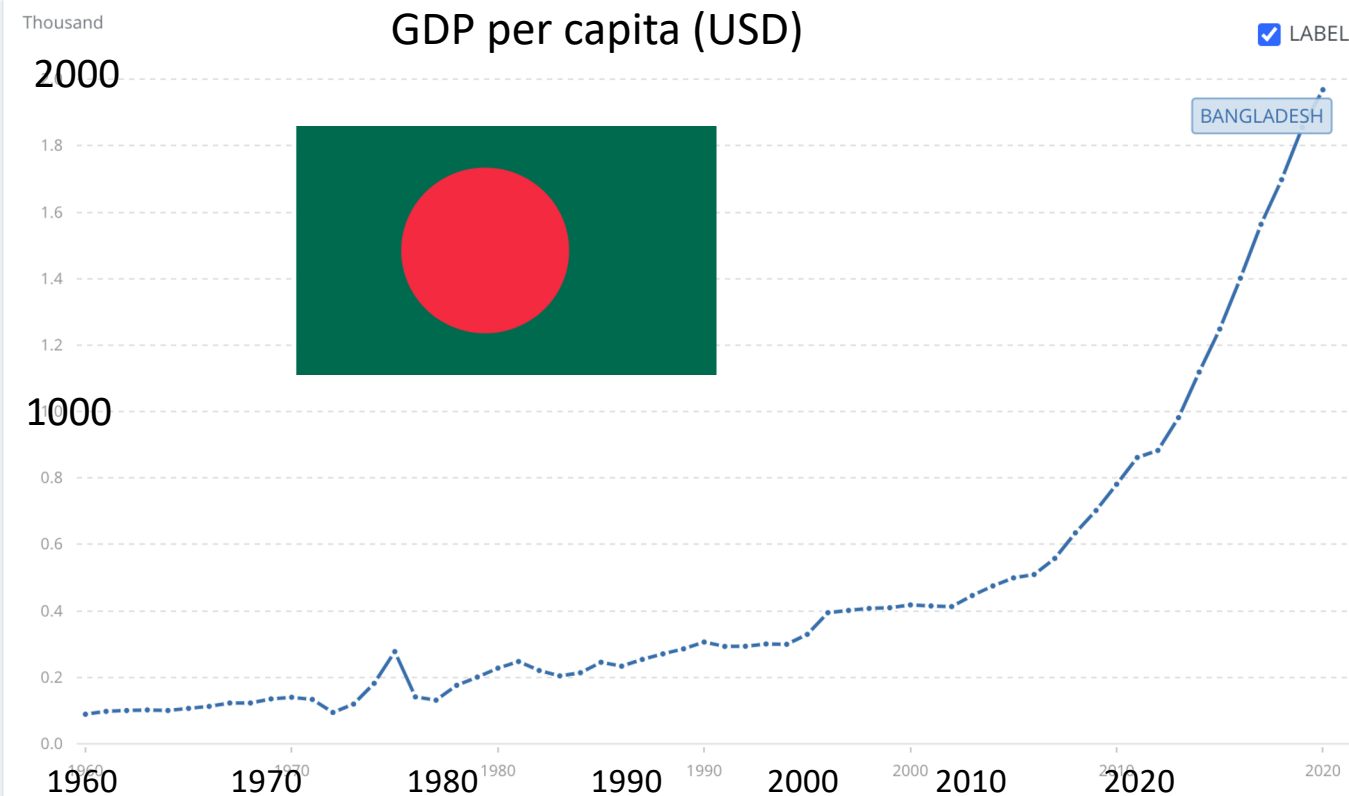


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Bangladesh

- Area : 40% of Japan's area
- Population : 160 Million
- Language : Bengali
- Religion : Muslim (91%), Hindu (8%)



Data source: World Bank Data

From Digital Bangladesh to Smart Bangladesh

Smart Bangladesh ICT 2041 Vision

Four Pillars of Change

Programs

Smart Citizen

Universal Digital ID

Citizen Upskilling

- Digital curriculum
- Digital skilling at all levels of the society
- Smart device access

Digital Collaboration Platform

Smart Bangla Campaign
Nation-wide campaign to promote digital-first mindset

Smart Government

Smart Healthcare

Blended Learning

Smart Land Management

Smart Postal Service

Smart Agriculture Stack

Smart Judiciary

Smart Borders

Smart Tax

ICT Policies
Data privacy and cyber security, emerging technologies and other policies

National Procurement e-Marketplace

Digital Job Platform

Smart Social Safety Net

Smart Public Services & Paperless Administration

Police Modernization

Digital Leadership Academy

Digital upskilling at all levels of the Govt. & unlocking digital transformation capabilities in private sector C-suites

Smart Society

Inclusive Financial Ecosystem
Interoperable Payments and Fintech Accelerator

Green Sustainable Bangla

- Smart Cities
- Smart Grid
- Digital Climate Resilience

Digital Tolerance & Culture Movement

Embedding digital hygiene among all citizens in all aspects of daily life

Bangla Stack

Smart Economy

4IR industry accelerators

- Readymade garment
- Light engineering
- Pharma
- Logistics

ICT industry acceleration

- FDI attraction (Smart ICT IPA)
- Exports scale up
- Domestic ICT spend boost
- Emerging technologies CoE (AI/ML, Cybersecurity, Robotics etc.)

Startup Bangladesh

Start-up funding / incubation support; VC / PE participation

Tech and Infrastructure Backbone

- Universal Internet Access
- Government Cloud and Data Center

Source : JICA

The Definition of Digital Human Resource

ICT Users

- ICT Literacy
 - Social media behaviour
 - Cyber bullying
 - Personal information

ICT Developers

- Software engineers
- Data scientists
- Etc.

Required Skills for Global ICT Workers



Hard skills

(e.g., programming skill)



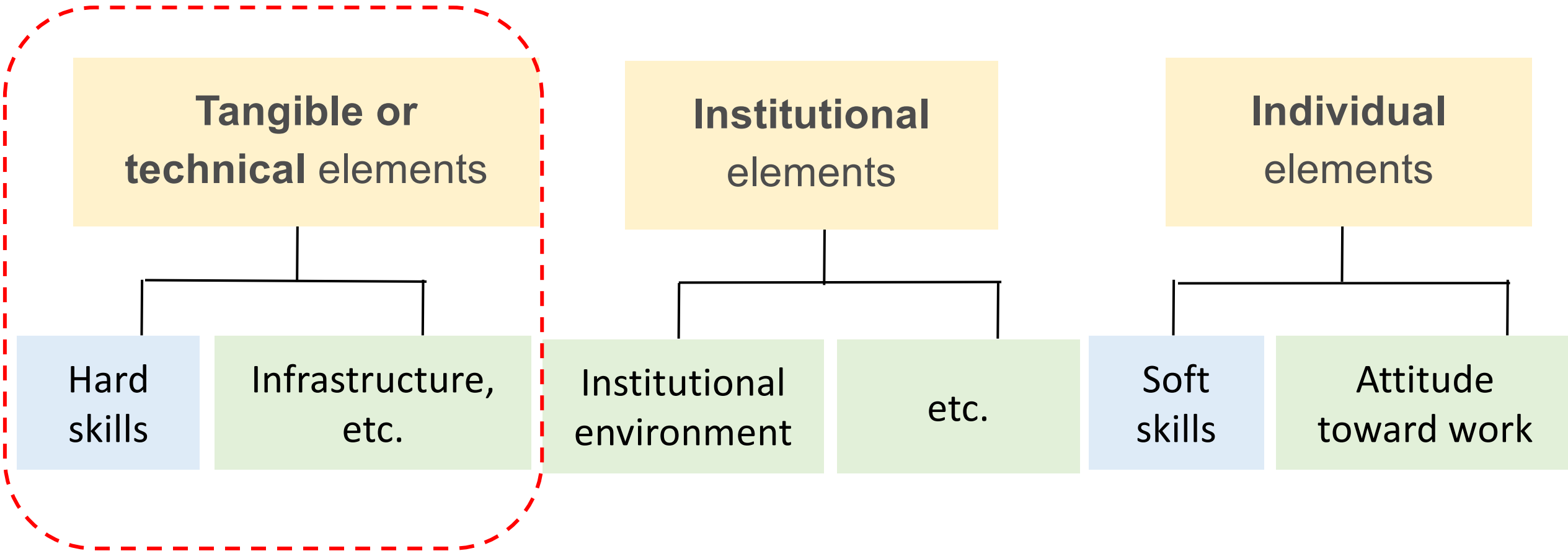
Soft skills

(e.g., communication)

- ICT industry has recognized soft skills as essential skills [1, 2].
- Soft skills are overlooked by researchers and policymakers due to:
 - difficulty in investigating [3].
 - lower priority in higher education [3].

There are also non-skill elements that affect the performance of global ICT workers.

Success Factors of ICT Workers



Programing language skills trend in the world

Dice Tech Job Report 2021
(Job market analysis in the US)



☐ 1st SQL

☐ 2nd Java

☐ 3rd Python

☐ 4th JavaScript

DevSkiller Top IT Skills 2021
(Job market analysis worldwide)

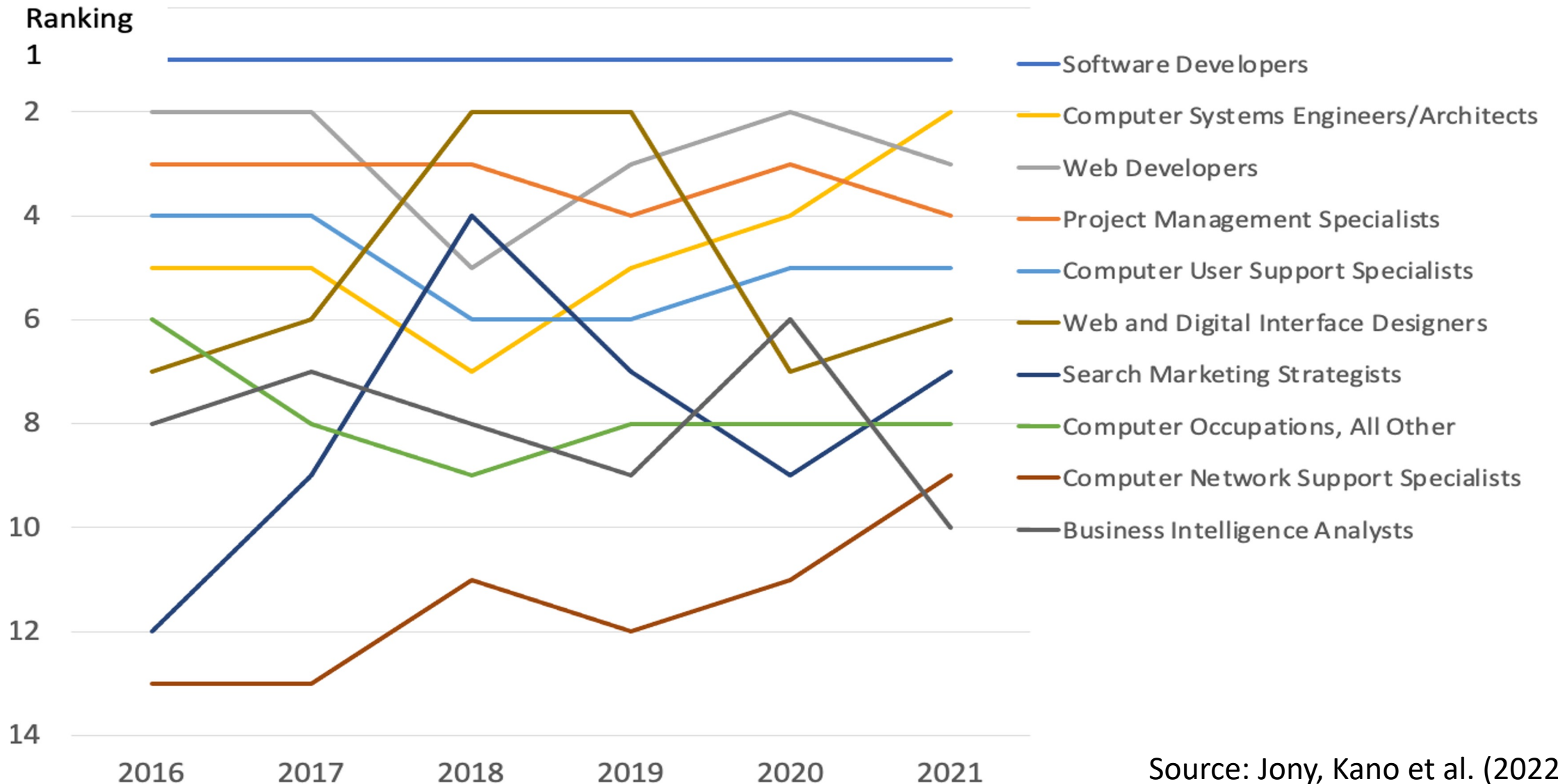


☐ 1st Java

☐ 2nd JavaScript

☐ 3rd SQL

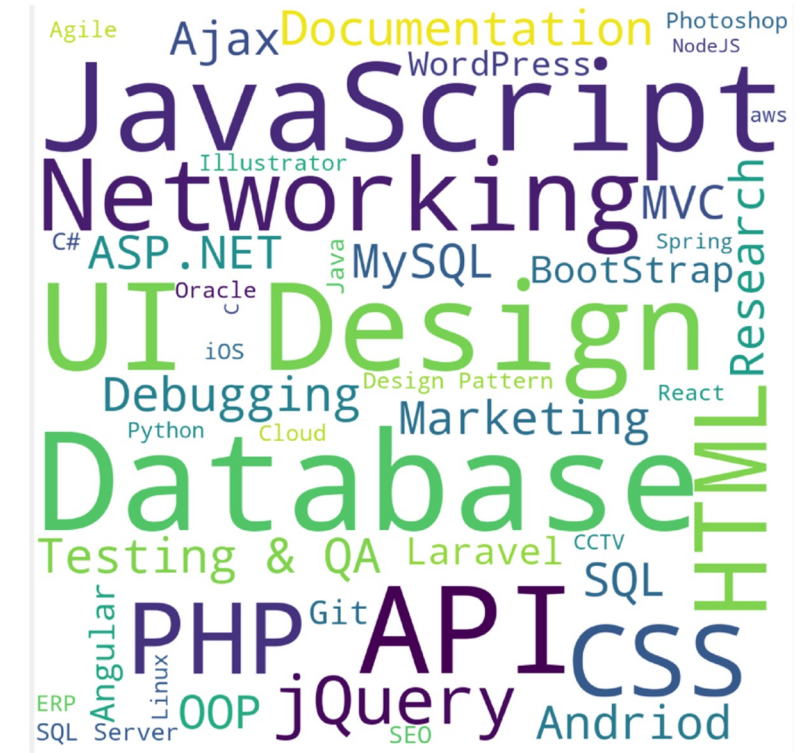
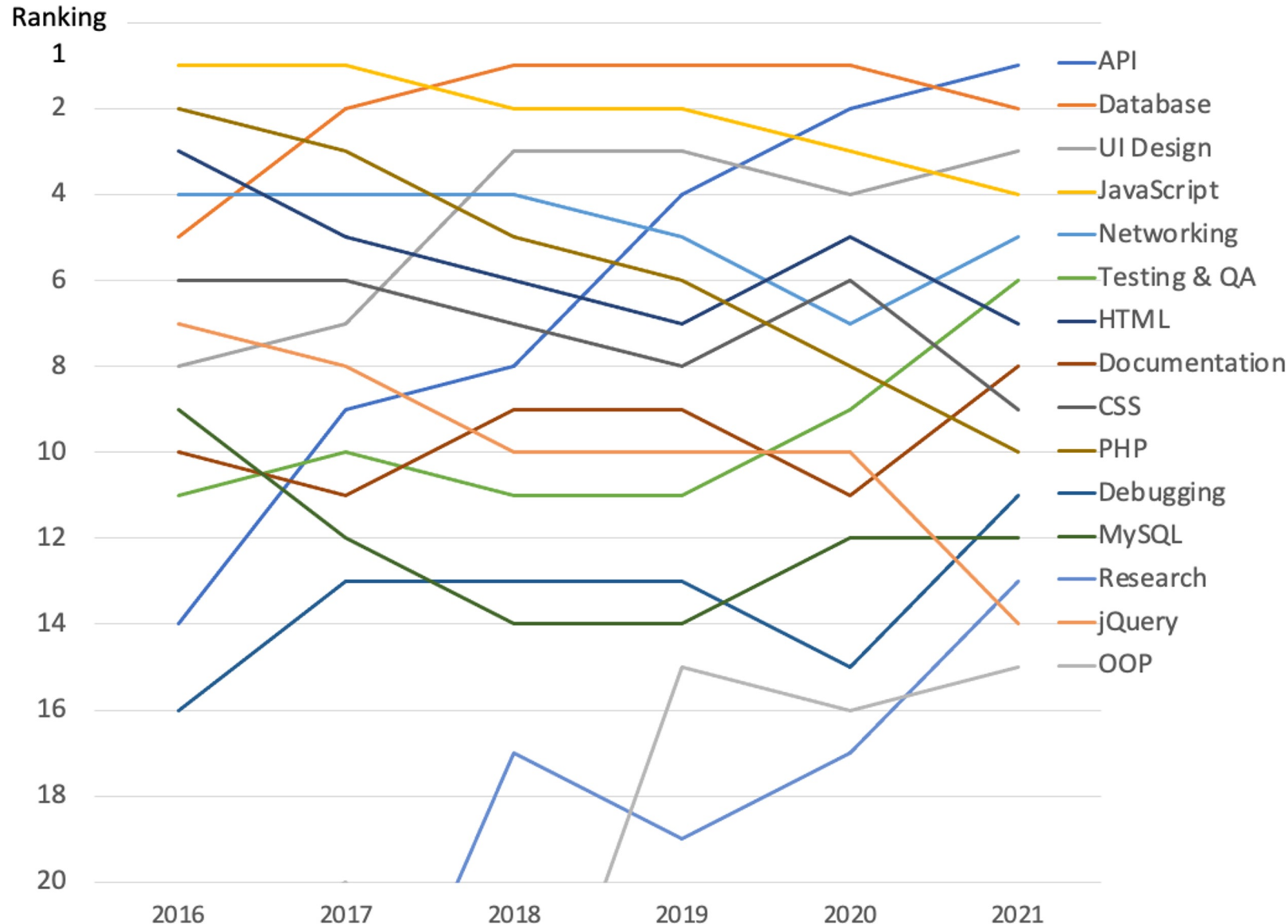
Analysis of Bdjobs.com ICT jobs' trend



Source: Jony, Kano et al. (2022)

Copyright © 2022 ICT for Development Japan.

Year-wise Ranking of Different Skills in Bdjobs.com



Source: Jony, Kano et al. (2022)

Copyright © 2022 ICT for Development Japan.

Summary of the Analysis

Train and
produce
the needed
skills

Understanding and analyzing the skill shift could be instrumental for both HEIs and industry people. The policymakers can also gain insight into the required policy shifts to build an ecosystem.

A shift
toward web
and UI/UX

There is a shift toward JavaScript and UI Design (from 2019 to 2021), which can be attributed to the pandemic's most prominent feature, the increase in remote work and digitization.

Update
curricula
and syllabi

It is recommended that leading HEIs in Bangladesh regularly monitor the fast-changing IT industry skills demand to fine-tune, revise and perhaps create new courses/programs, curricula, and syllabi.

Source: Jony, Kano et al. (2022)

Success Factors of ICT Workers

Tangible or technical elements

Hard skills

Infrastructure, etc.

Institutional elements

Institutional environment

etc.

Individual elements

Soft skills

Attitude toward work

Individual Factors Can Be Culture-Dependent

Evaluation of individual factors is highly dependent on culture.

Differences in culture are known to be a major challenge in international software development [1]. E.g...

- Definition of "on time" [2]
- Communication style (direct/indirect) [3]
- Similarity with "international standards" [4]



More research is required on business cultures based on religion, race, or geographic location in LMICs [5].

[1] Fazli & Bittner (2017)

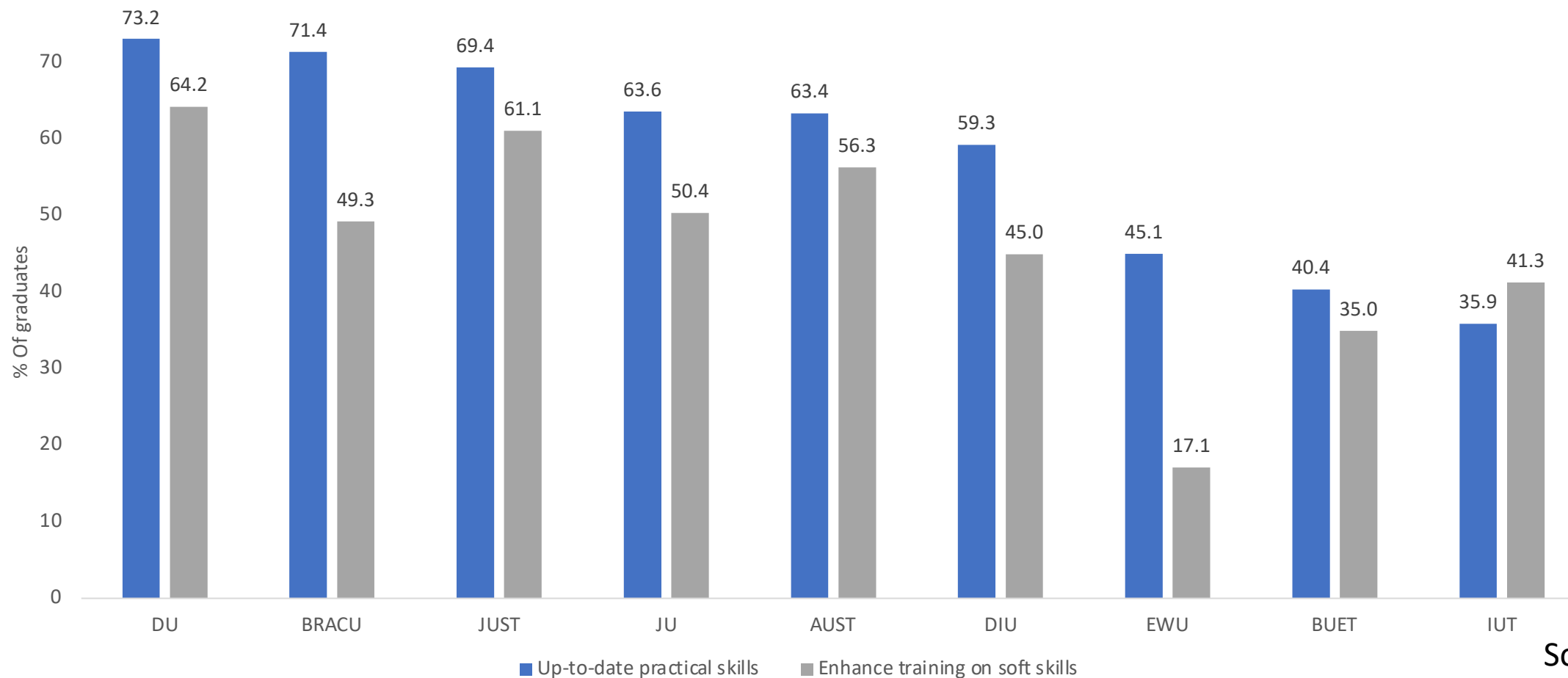
[2] White et al. (2011)

[3] Marutschke et al. (2019)

[4] Jimenez & Roberts (2019)

[5] Ratten (2014)

Practical Skills and Soft Skills can be Enhanced



Source: ADB

AUST = Ahsanullah University of Science and Technology, BRACU = BRAC University, BUET = Bangladesh University of Engineering and Technology, DIU = Daffodil International University, DU = Dhaka University, EWU = East West University, JU = Jahangirnagar University, JUST = Jashore University of Science and Technology, IUT = Islamic University of Technology.

Note: Total number of respondents for each university are as follows: AUST (n=142), BRACU (n=140), BUET (n=203), DIU (n=140), DU (n=123), EWU (n=111), JU (n=121), JUST (n=144), IUT (n=92).

Both Soft and Hard Skills can be Obtained through Global Experiences

- ICT business relationship with Japan -

“My colleagues [in Japan] are so punctual and organized. They always try to maintain a time schedule. I will work like this in the future in Bangladesh.”

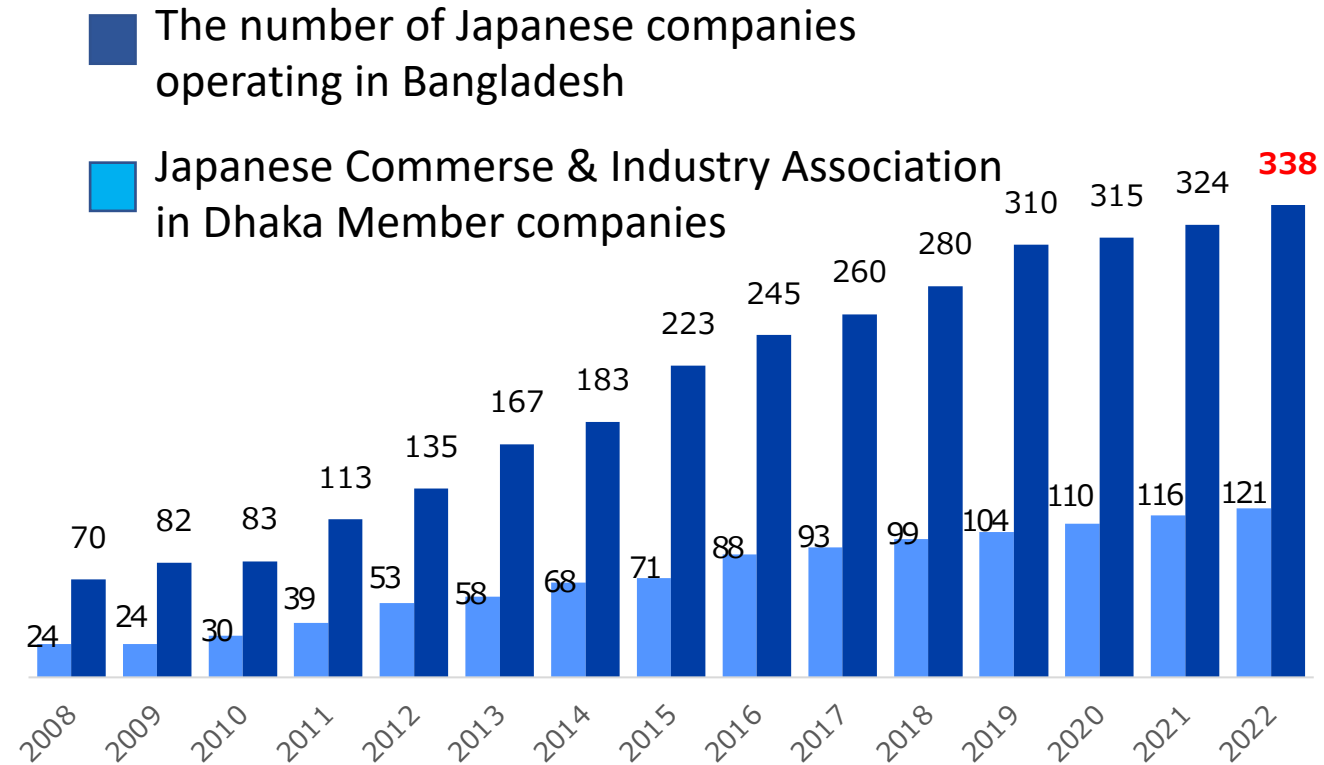
— Bangladeshi ICT worker



Source: Kano (2021)

Trends of Japanese Companies in Bangladesh

- The number of Japanese companies operating in Bangladesh has tripled in the past 10 years.
- Increased attention from ICT companies (offshoring, development center, recruitment, etc.)

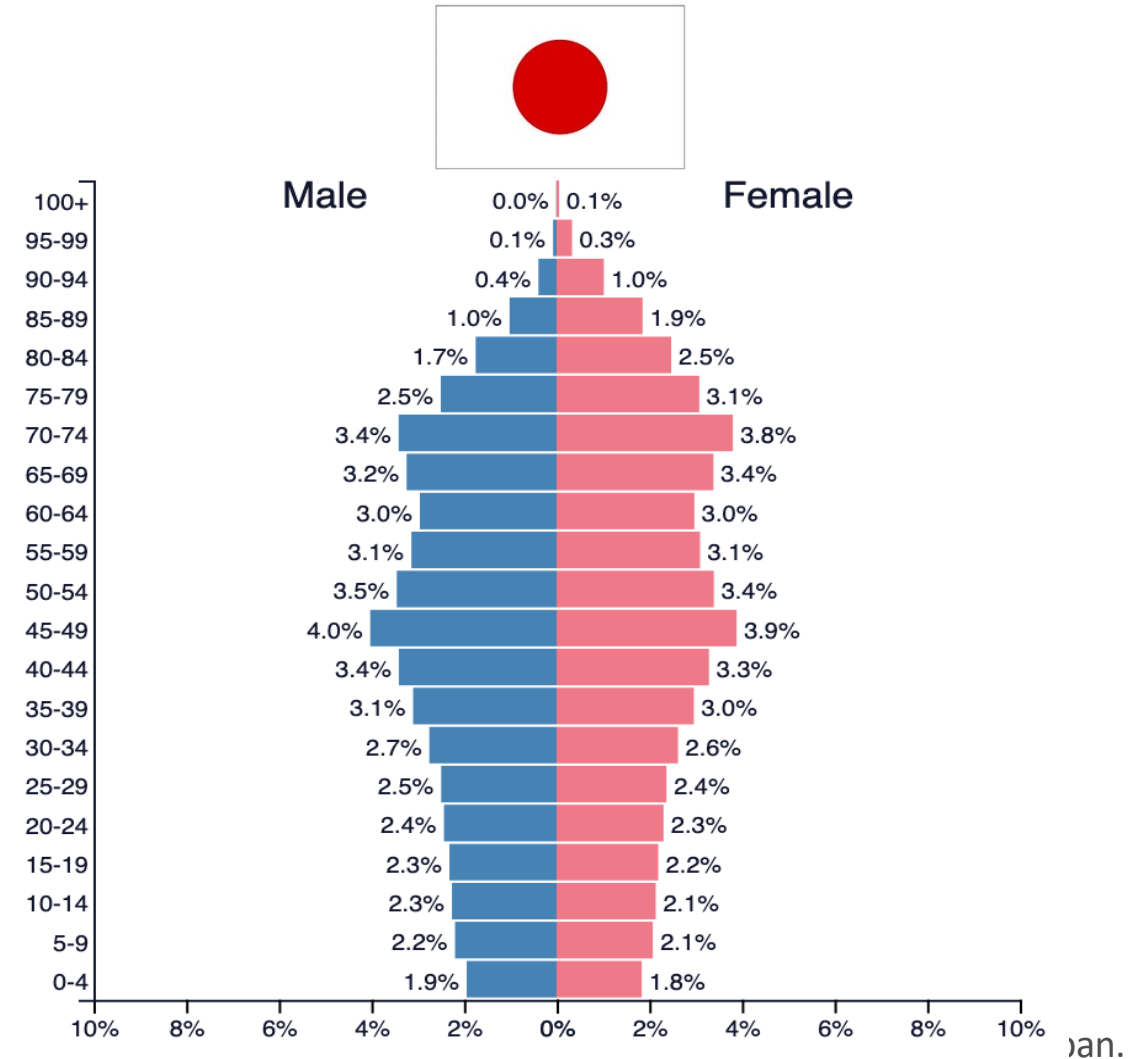
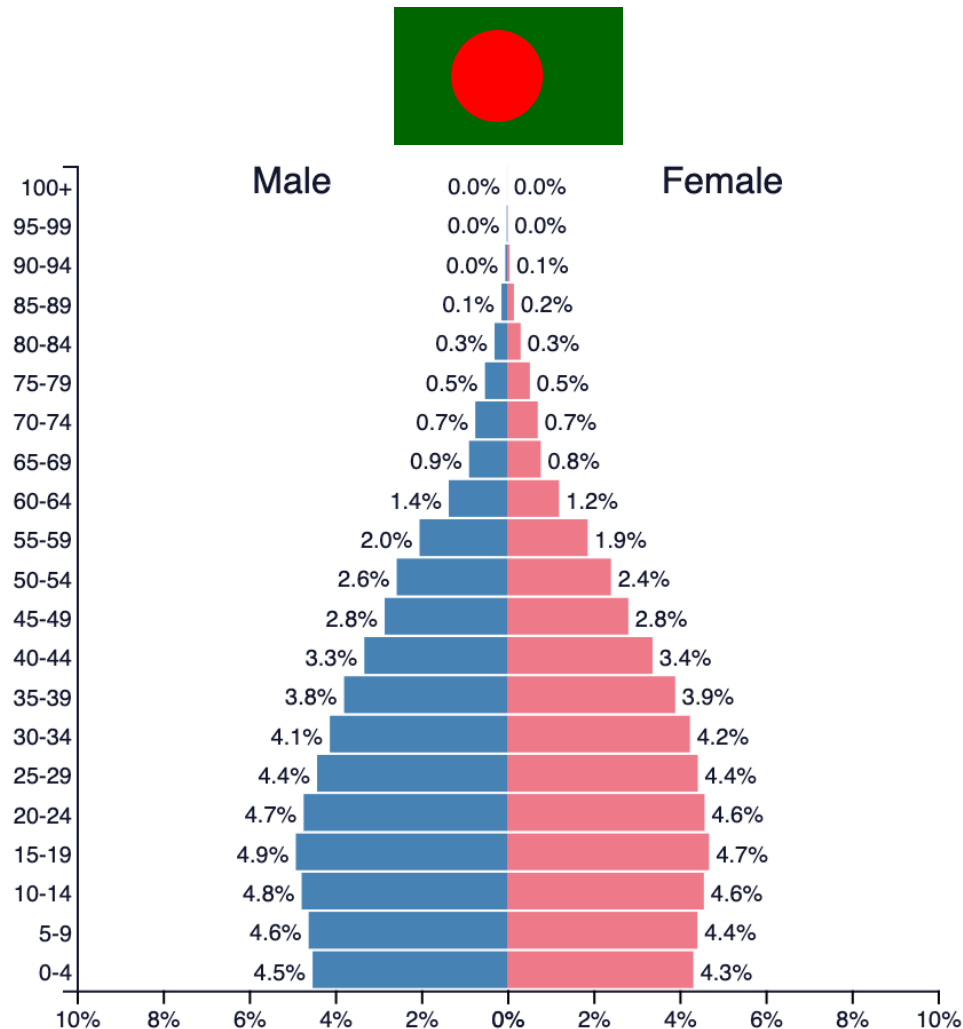


Source: JETRO

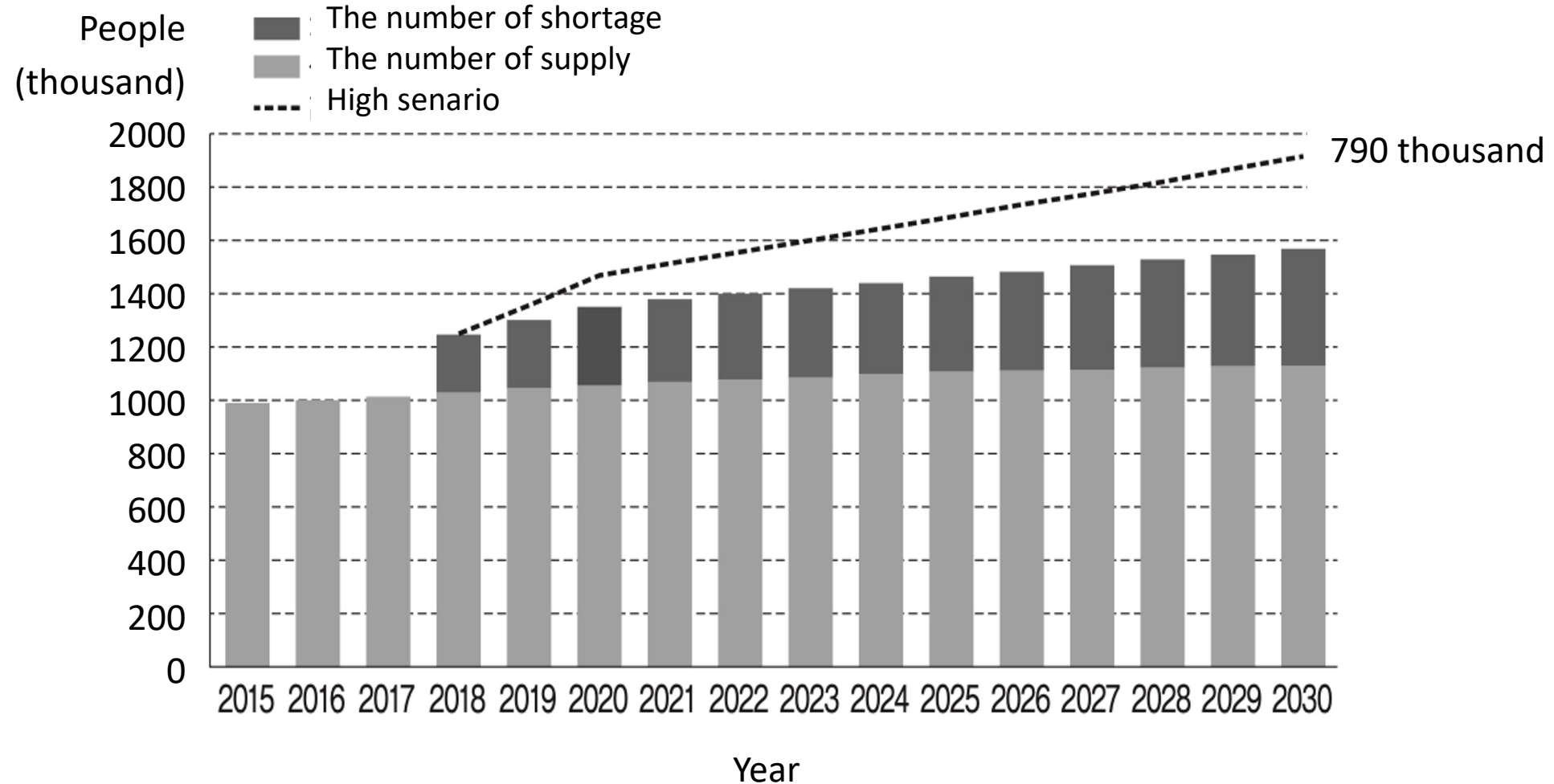
Population Pyramid Comparison

The population structures are complementary

Source: PopulationPyramid.net



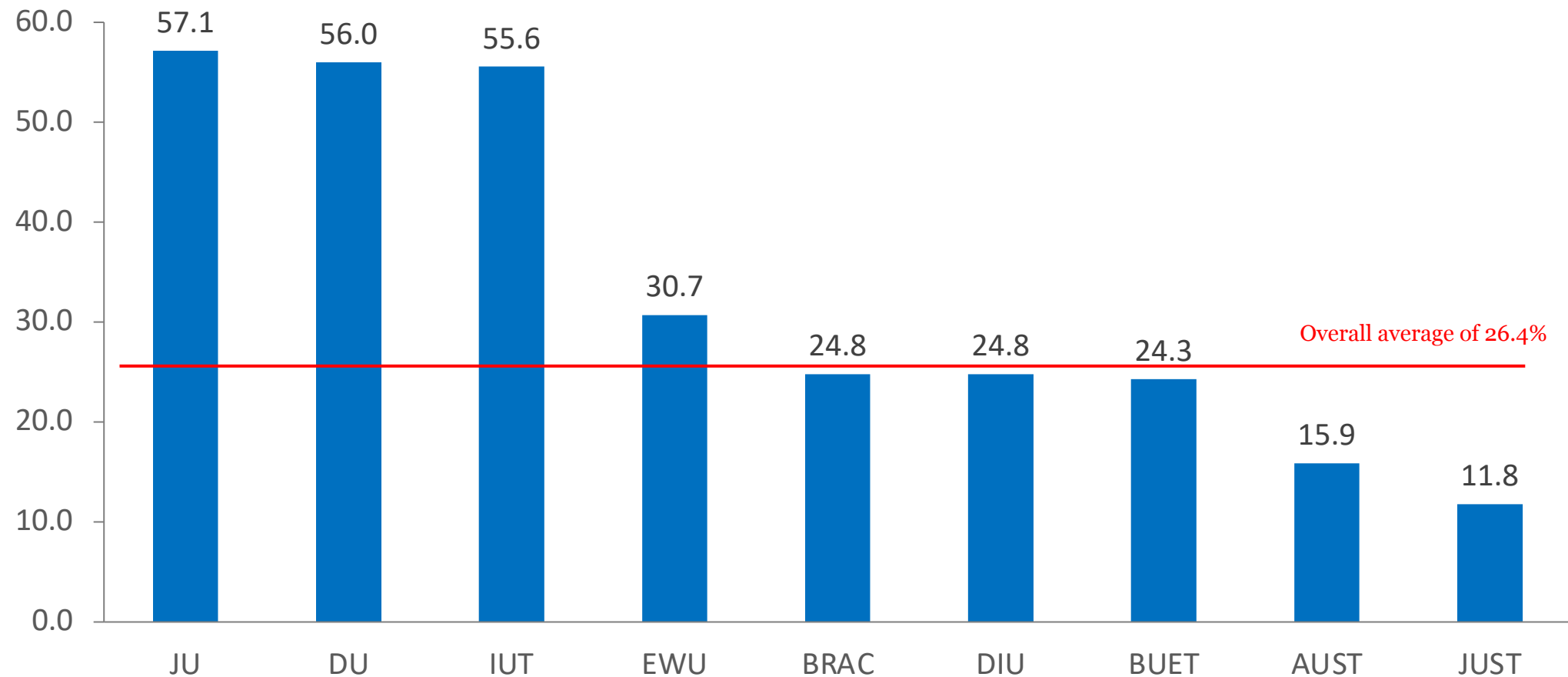
The Shortage of ICT Talent in Japan



Source: METI, Japan

Employment Rate within 6 Months in Bangladesh (%)

Only around a quarter of ICT graduates got jobs within 6 months in 2018.








Source: ADB

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History of Japan's Support on Digital HR Development

JICA Scheme	Project title	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Citizen Participation	JICA Volunteers (mostly at BCC)																
Technical Cooperation	Capacity Building on ITEE Management Project																
PPP	e-Learning for ITEE preparation																
Technical Cooperation	ITEE Ph 2 / B-JET																
Technical Cooperation	B-MEET																

JICA Volunteers' Activities (2008-2013)

Technical support for BCC (Bangladesh Computer Council)



Local people can't prove their competences.
⇒ JICA Volunteers want to give them a tool: IT certification.

Information Technology Engineers Examination (ITEE)

National Certificate in Bangladesh, mutually recognized with other Asian countries

Level 2



Fundamental Information Technology
Engineer Examination

Typical Target

Business or Public worker applying IT in
work / Student preparing for job hunting

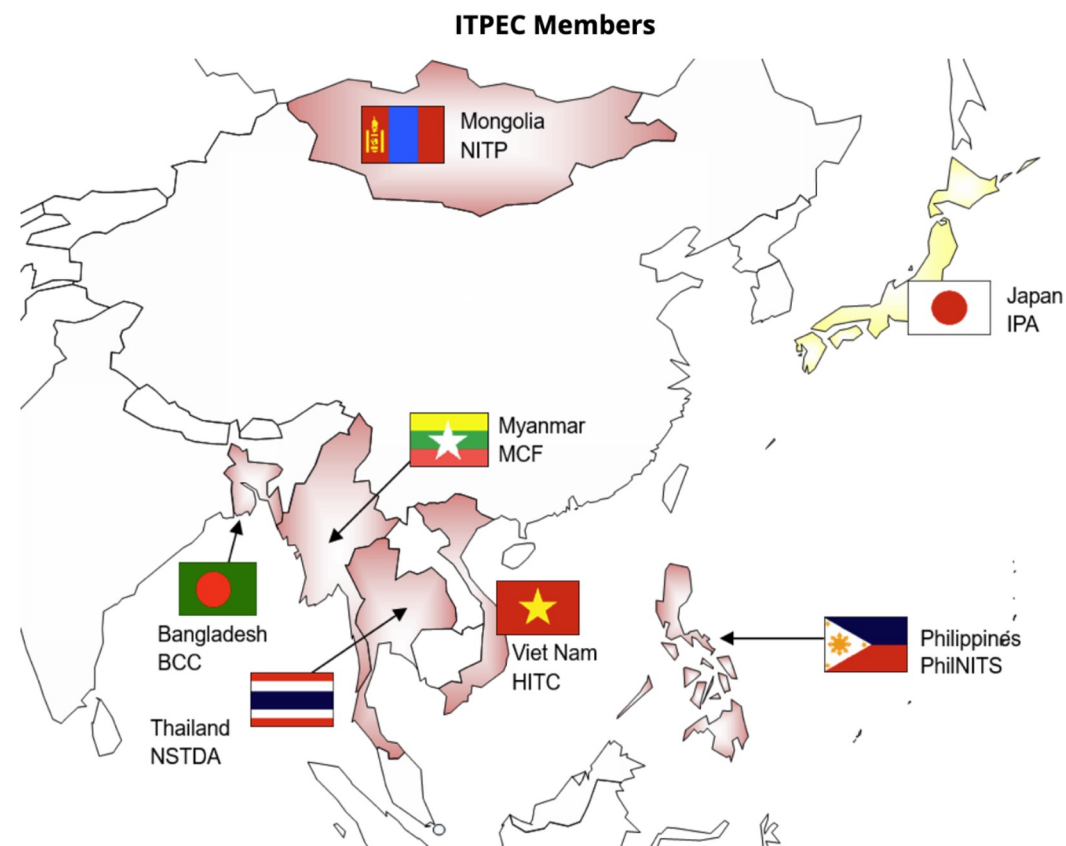
Level 1



Information Technology Passport
Examination

Typical Target

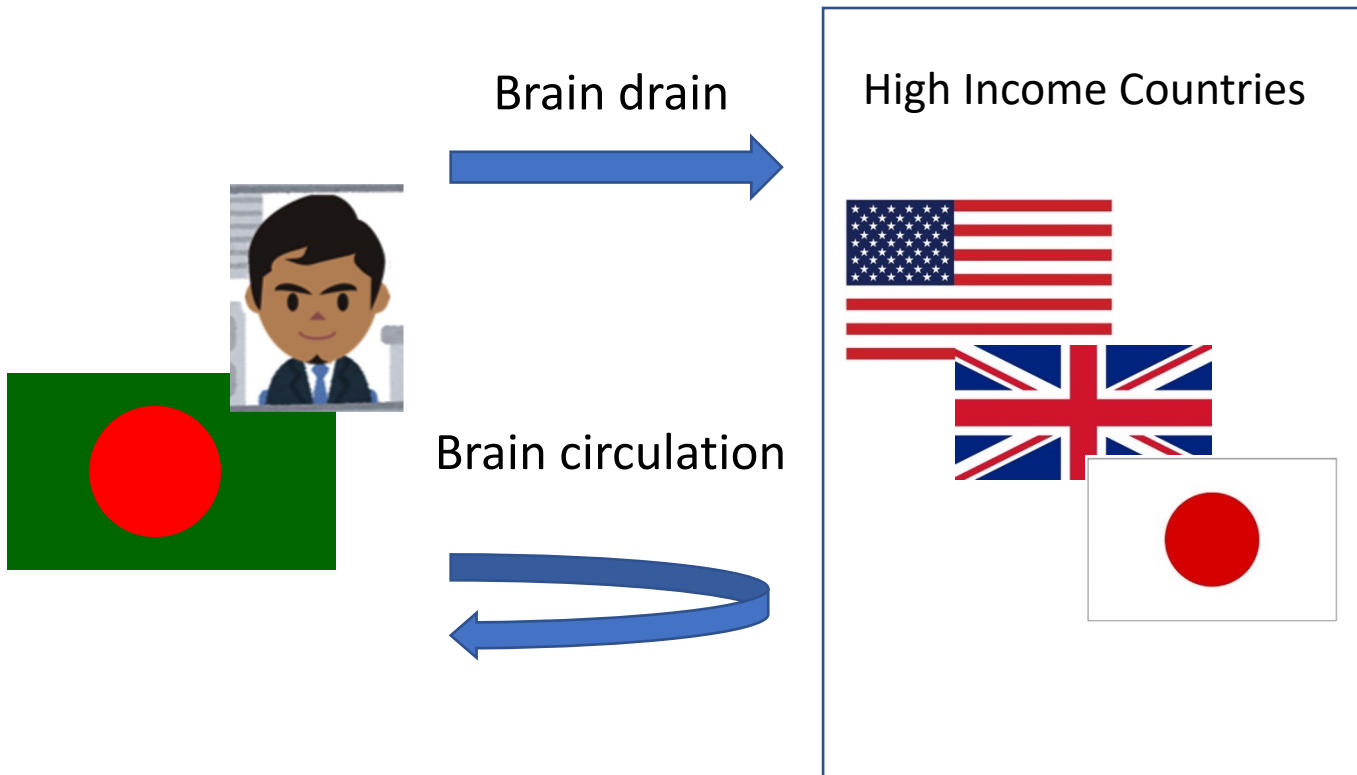
IT engineer working in a team / Student who want
be an IT engineer



JICA Supported the Establishment of ITEE Certificate



Brain Drain & Brain Circulation



Brain circulation occurs [1]:

- when the government has invested heavily in higher technical education
- when the country is stable and open politically and economically

An Example of Brain Circulation between BD and JP

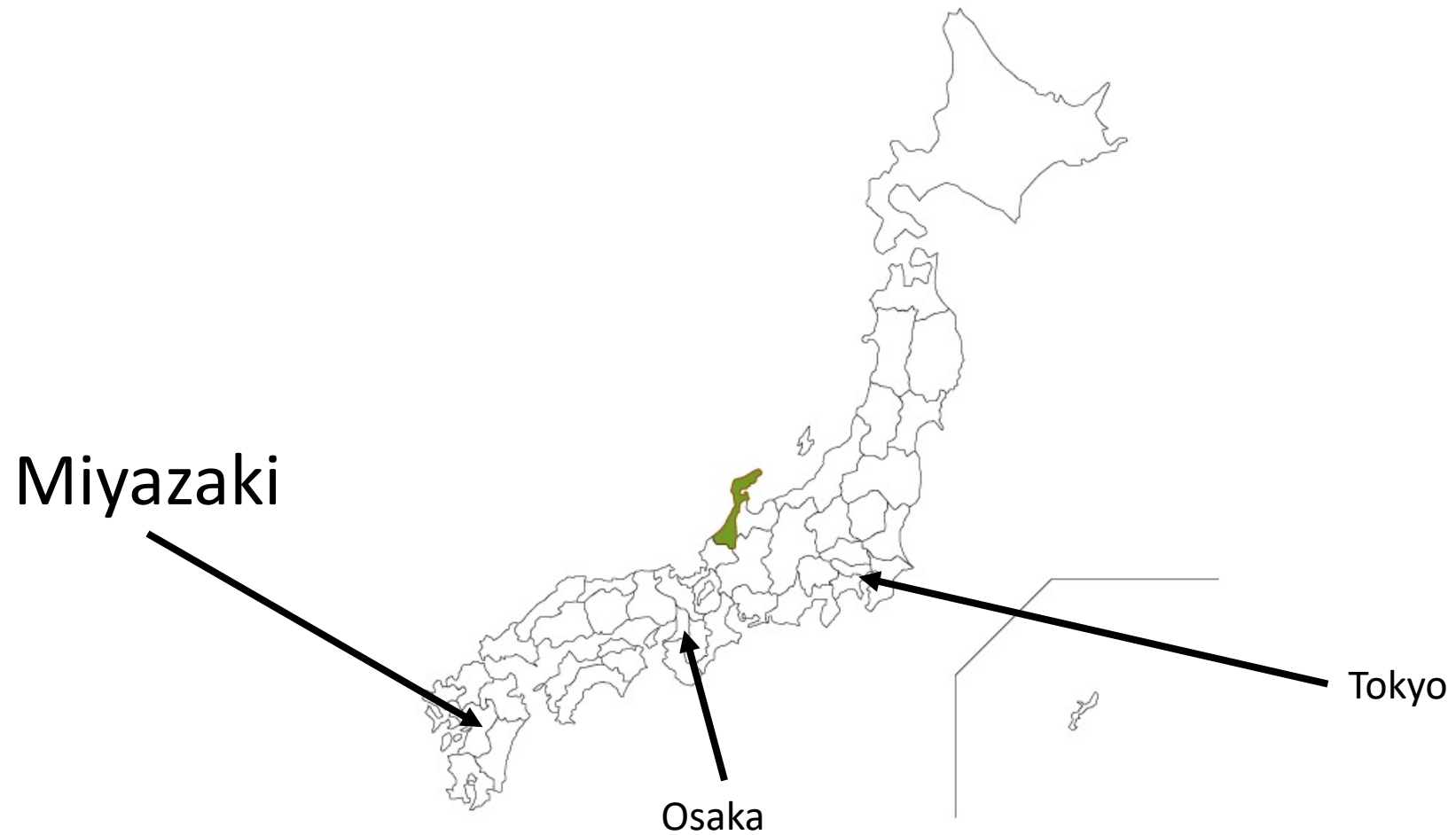
Akbar, JM: Founder of BJIT group



- 1984 (24 years old):
He left Bangladesh to study in Japan.
- 2001:
He started BJIT Ltd. as an offshoring system development company between Bangladesh and Japan.
- 2022:
BJIT employs 800 staff (mostly engineers).

I think the best route for a global ICT worker is to actually work in Japan, communicate with Japanese people, and absorb the business culture through first-hand experience.

Miyazaki-city / Miyazaki-prefecture

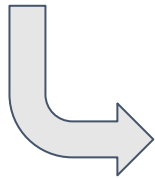


The origins of Miyazaki-Bangladesh model

Origin 1

ICT SMEs in Miyazaki

- Entry into the Bangladesh market through JICA's PPP
- Recruitment of Human Resources



Origin 2

Miyazaki City Corporation

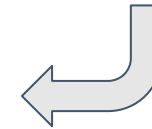
- Outflow of talented people to urban areas
- Chronic shortage of ICT professionals



Origin 3

University of Miyazaki

- Expansion of language education overseas
- Gain of experience in non-Kanji countries.



Designed a model for
industry-government-academia collaboration
in partnership with JICA

The Miyazaki-Bangladesh Model Framework



In Bangladesh



1 Dispatch of experts



B-JET (Bangladesh-Japan
ICT Engineers' Training Program)

Training in
Japanese language
and business etiquette

Graduates
of engineering colleges, etc.



Bangladeshi government

Bangladesh Computer Council

2

Dispatched as
foreign students
to Japan



In Japan

3 Support

[When employed
by a company in Miyazaki]



University
of Miyazaki
Japanese-language
training and
lifestyle support



Miyazaki
City
Subsidizing cost
of 3-month
follow-up training



Miyazaki IT companies
Job-candidate matching,
accepting interns/employees

Supported by
JICA's Technical Cooperation Project

B-JET: Japanese Language Training

◆ হাসান ইন্টারনেটের মাধ্যমে ইন্টারভিউ দিচ্ছে।

こんにちは。ハサンさんですね。
こちらの 画像が見えますか？
がぞう み



はい。音も よく 聞こえます。
おと き

わかりました。それでは、始めます。
はじ
まず、簡単に 自己紹介をしてください。
かんたん じこしょうかい

...

どんな プログラミング言語が 使えますか？
げんご つか

PHP や、LARAVEL FRAME WORK や、
JavaScript などが できます。

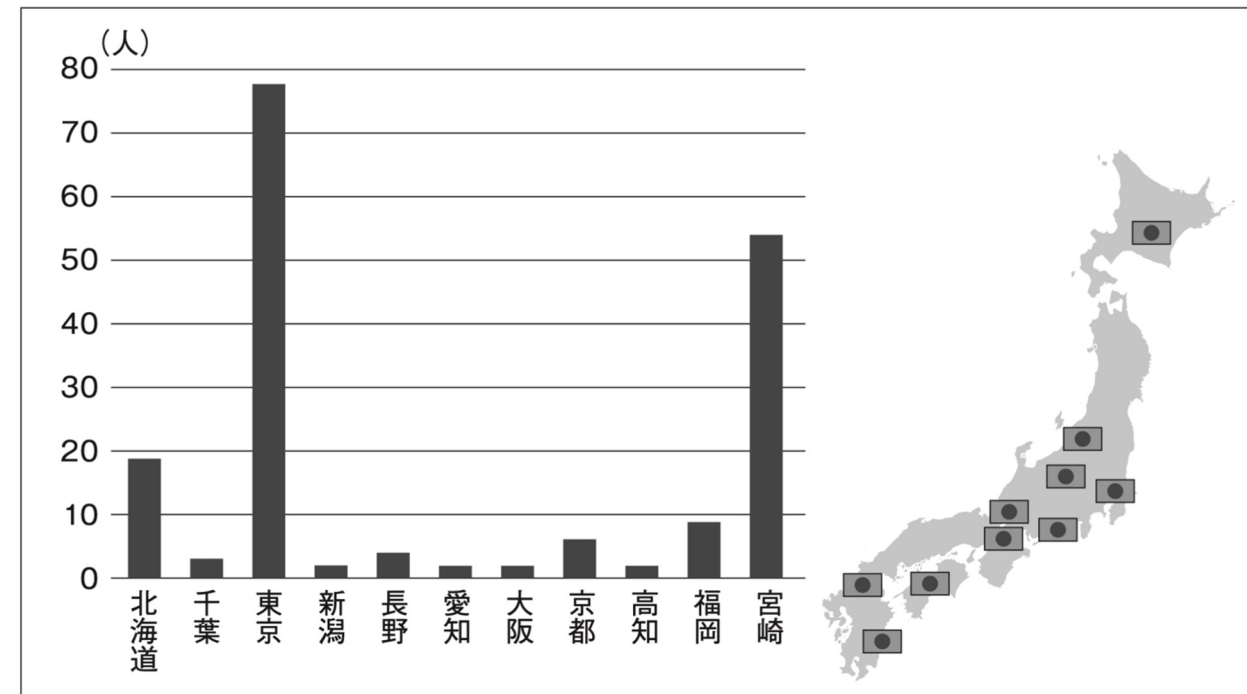
C#を使った 経験がありますか？
つか けいけん



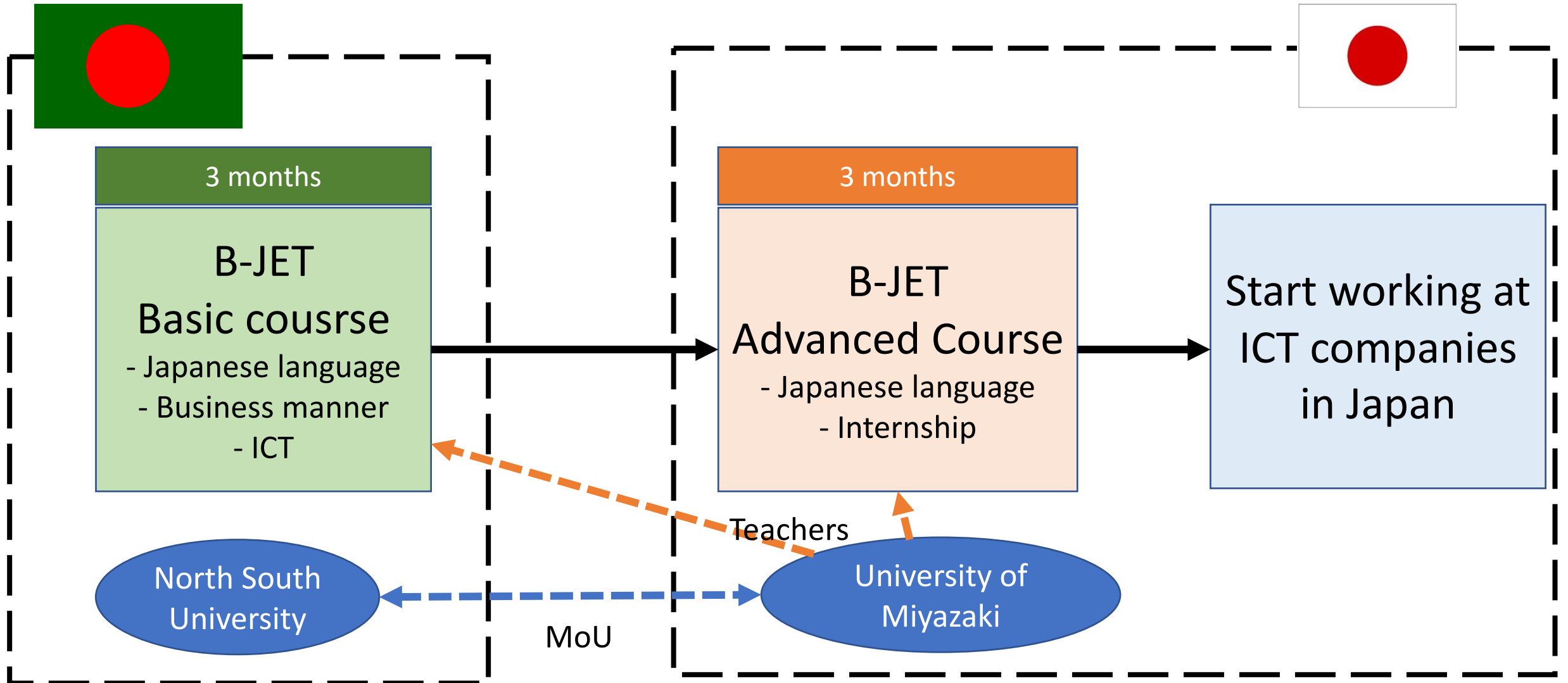
	Batch 1	Batch 2	Batch 3	Batch 4	Batch 5	Batch 6	Batch 7	Batch 8
Applicants	1,825	4,707	2,668	4,002	3,221	3,457	3,690	3,419
Selected	20	40	20	40	40	40	40	40
Competition ratio	91x	118x	133x	100x	81x	86x	92x	85x

B-JET: Achievement (2018-2021)

	Batch 1	Batch 2	Batch 3	Batch 4	Batch 5	Batch 6	Batch 7	Batch 8	Total
Trainees	20	38	19	39	38	35	39	37	265
Obtain Job	20	38	19	39	38	35	39	31	259 (98%)
Job in Japan	17	28	17	33	29	22	28	12	186 (70%)

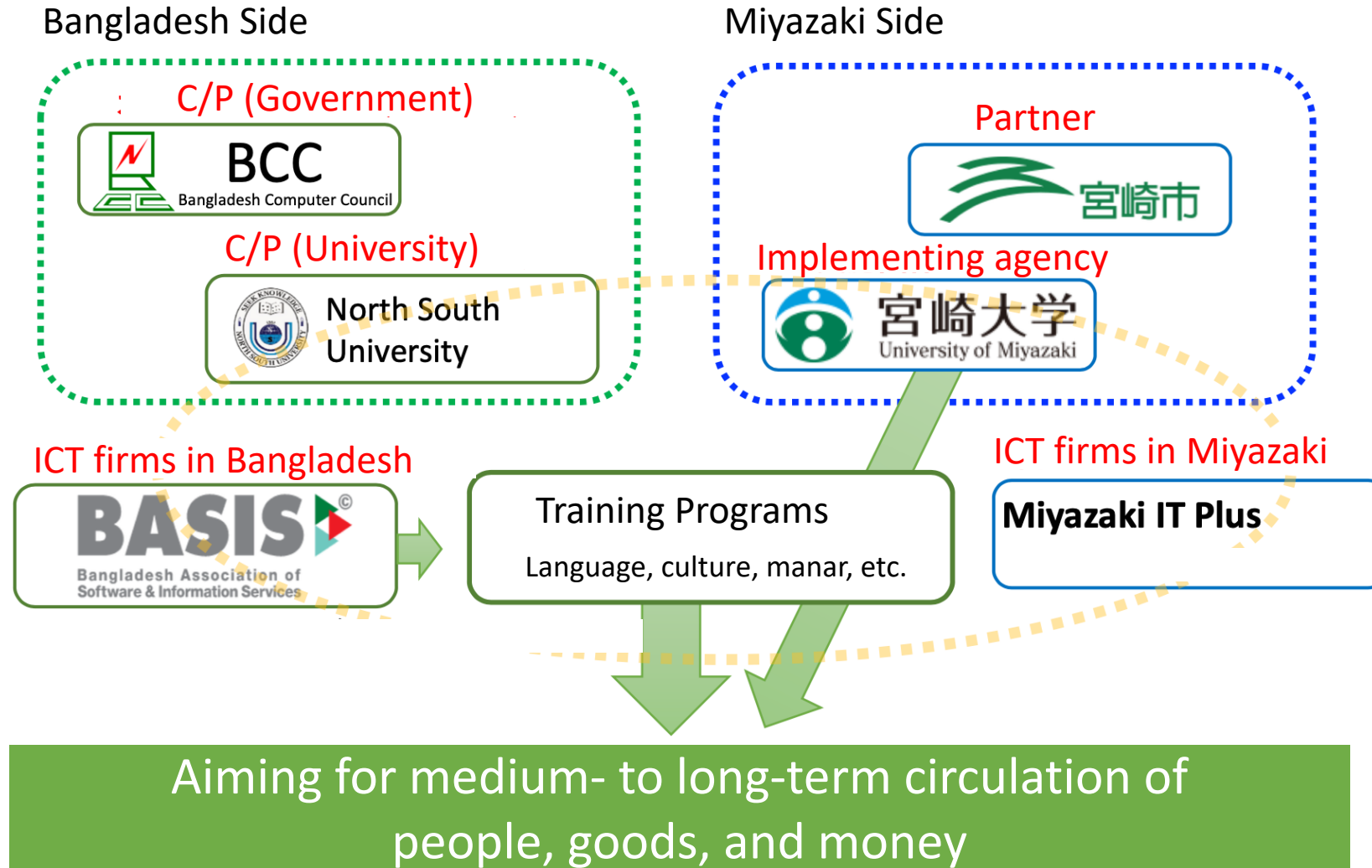


New B-JET (2022 – now)



Projects for Domestic ICT Workers (2022 – now)

B-MEET (Bangladesh-Miyazaki Engineers Education Training)



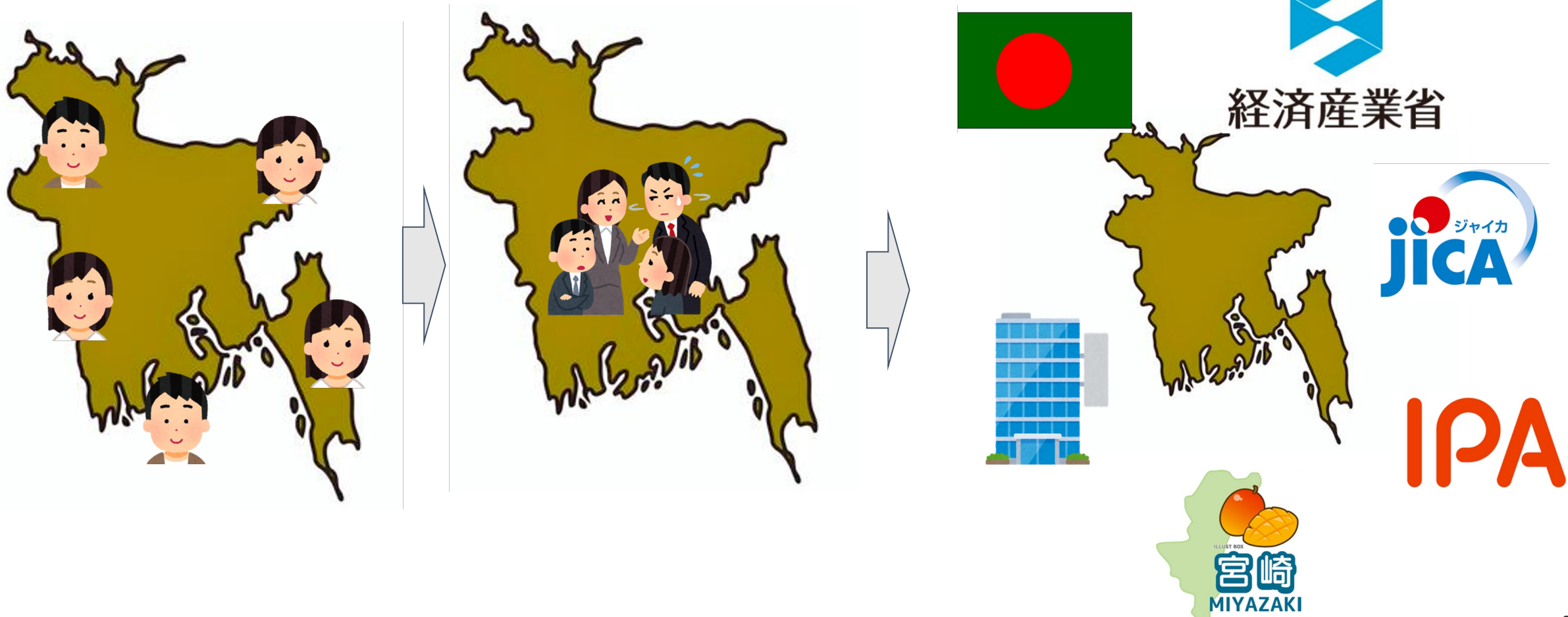
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[Lesson 1]

Moving people and the countries from the field

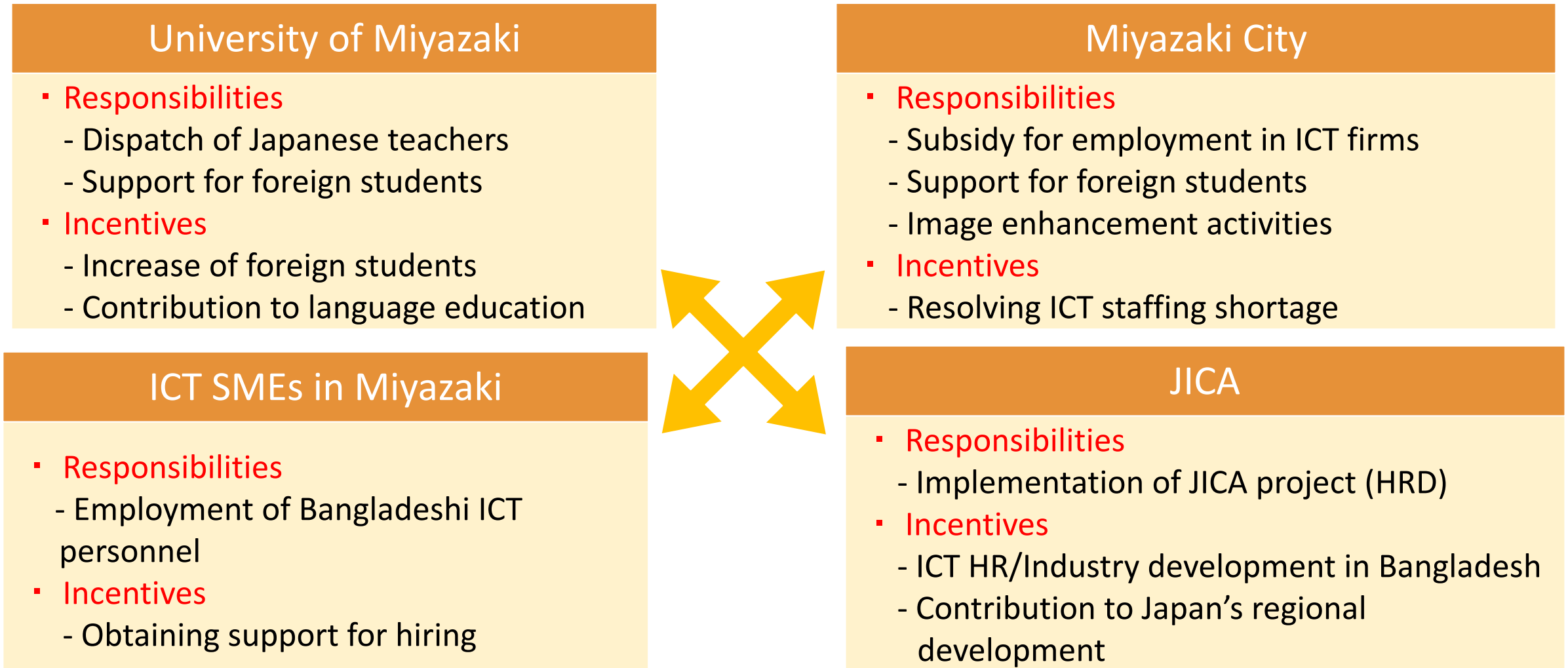
With a deep knowledge of the local area, JICA Volunteers involved counterparts in both Japan and Bangladesh and moved the projects forward



[Lesson 2]

Incentive Design for Industry-Government-Academia Collaboration

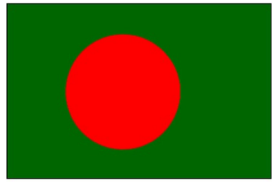
Collaborative design with responsibilities and incentives for all parties involved



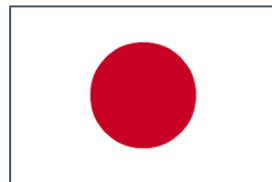
[Lesson 3] Future Model of International Collaboration?

Traditional
Model

Solution



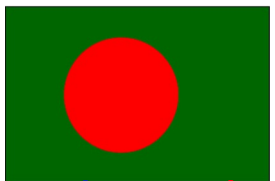
Challenges of Bangladesh



Strength of Japan

Future
Model?

Solution



Strength or challenges
of Bangladesh



Strength or challenges
of Japan

B-JET's
Model

Digital HR



Challenges of
Bangladesh

Shortage of
opportunities
to be a global
ICT worker



Challenges of
Miyazaki

Shortage of
ICT engineers

Background

- ICT job trend in Bangladesh (high demand of software engineers)
- Necessity of soft skills for international workers
- The shortage of ICT talent in Japan
- The shortage of opportunities for ICT talent in Bangladesh

JICA projects

- National certificate project
- Miyazaki-Bangladesh model
- B-JET (matching ICT workers in Bangladesh and ICT firms in Japan)

Implications

- Moving people and countries from the field
- Incentive design for industry-government-academia collaboration
- Future model of international collaboration (matching challenges)

Thank you for joining!

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