University-Industry Collaboration Policies in Japan

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(This presentation contains individual opinions that do not represent any organization.)

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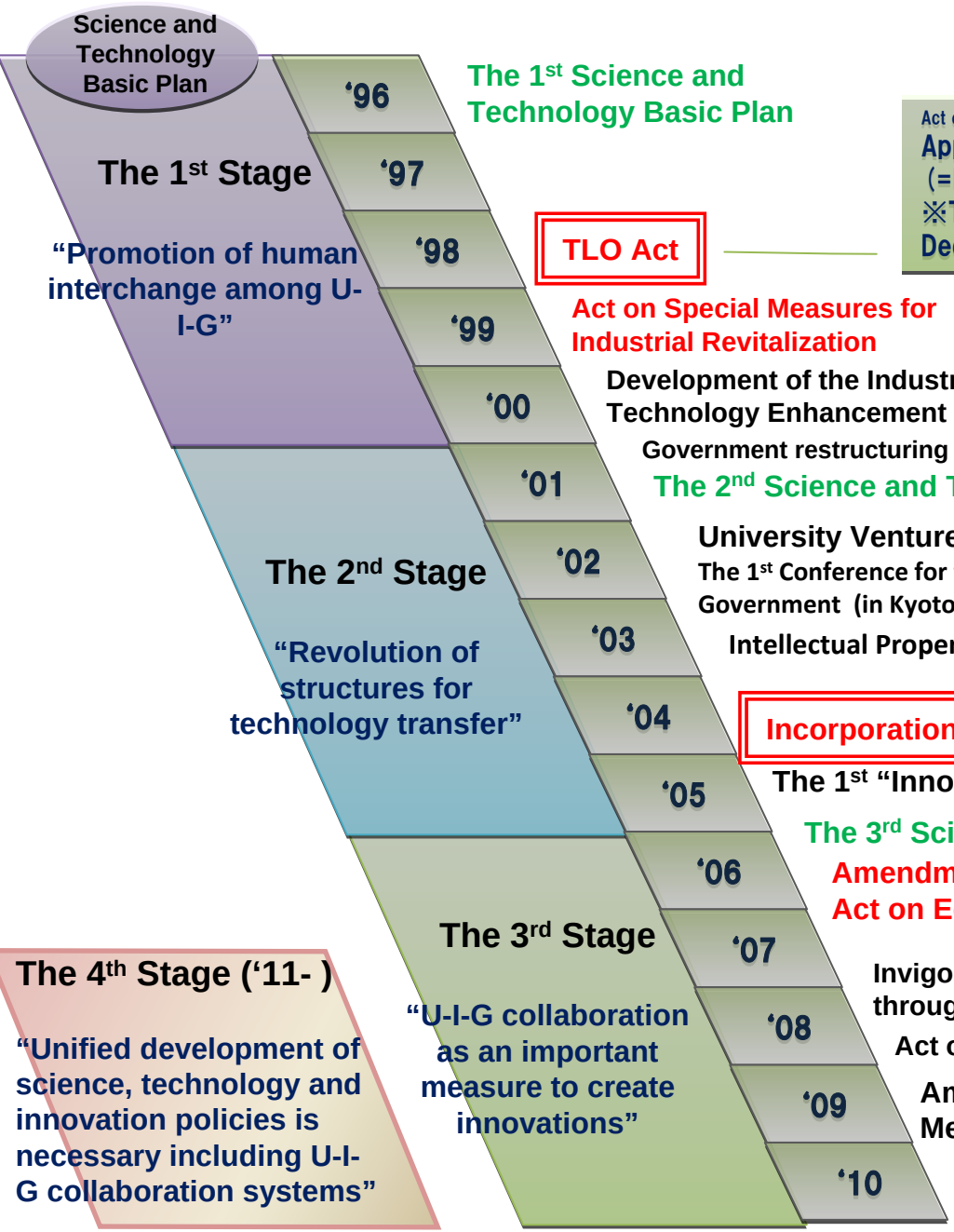
1. University-Industry Collaboration Policies in Japan

History of University-Industry Collaboration Promotion Policy

"U-I-G:University, Industry and Government"



The 1st Science and Technology Basic Plan

TLO Act

Act on the Promotion of Technology Transfer from Universities to Private Business Operators
Approvals and Supports for TLOs
(=Promotion to transfer universities' research results to industry)
※TLO : Technology Licensing Organization, 42 Organizations as of Dec. 2011

Act on Special Measures for Industrial Revitalization

Japanese Bayh-Dole Act (Results of national contract research belong to contractors)

Development of the Industrial Technology Enhancement Act

Reduction of universities' patent fees

Government restructuring

The 2nd Science and Technology Basic Plan

University Venture's plan of 1,000 ※achieved by '04 FY (about 1,800 as of '08)

The 1st Conference for the Promotion of Collaboration among Business, Academia and Government (in Kyoto)

Intellectual Property Basic Act

Nation develops "Intellectual Property Strategic Program"

Incorporation of National Universities

The 1st "Innovation Japan" Event (U-I-G Matching Fair)

The 3rd Science and Technology Basic Plan

Amendment of the Basic Act on Education

Contribution to society (including university-industry collaboration) is placed as a mission of universities

Invigorating Regional Potential through New Science and Technology

Act on Enhancement of R&D Capacity

Start of utilization of new "R&D partnership "

Amendment of Act on Special Measures for Industrial Revitalization

Establishment of High-Tech Innovation Centers (30centers)

"Under one roof" style Joint research

Several Important Policy Introductions

In 1998
Act on the Promotion of Technology Transfer from Universities to Private Business Operators

Approvals and Supports for TLOs (=Promotion to transfer universities' research results to industry)
※TLO : Technology Licensing Organization, 42 organizations as of Dec. 2011

In 1999
Act on Special Measures for Industrial Revitalization➔ Japanese Bayh-Dole Act

Results of national contract research belongs to contractors

In 2004
Incorporation of National Universities

Before 2004, national universities were part of the government and not incorporated.
Since 2004, national universities have been incorporated and have increased their degree of freedom in activities, such as investment on approved TLOs and possession of patents.

In 2006
Amendment of the Basic Act on Education

"Contribution to society (including university-industry collaboration)" is placed as one of the main missions of universities such as education and research

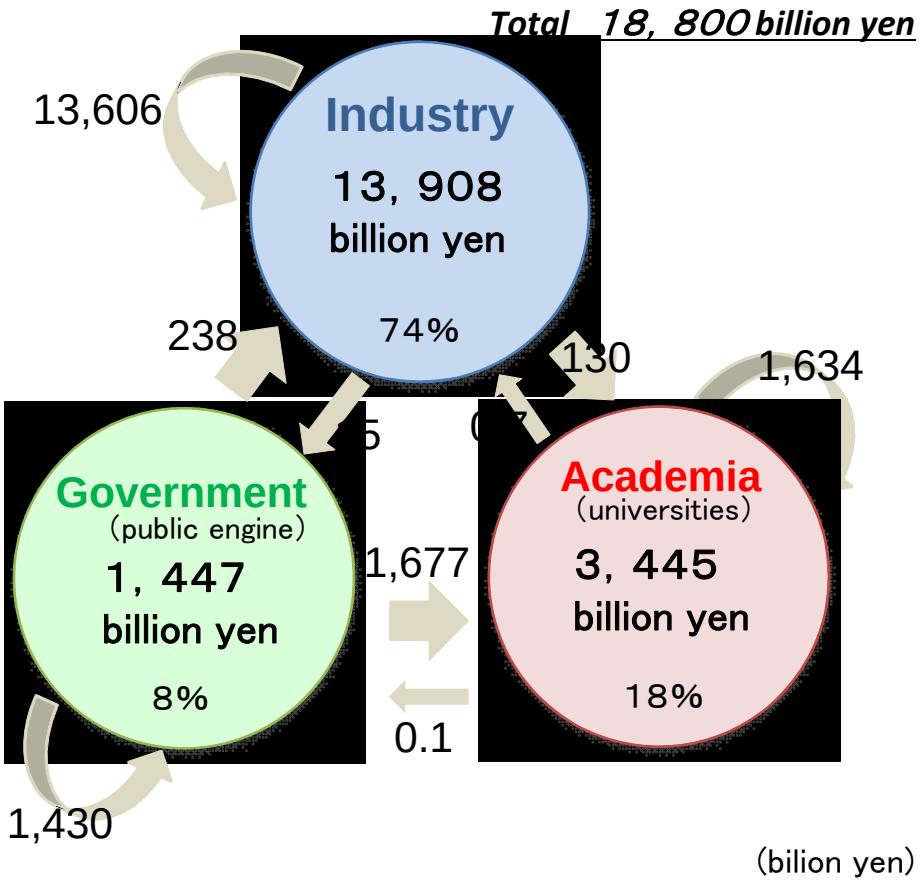
2. Current Situation of University-Industry Collaboration in Japan

Current Situation of University-Industry Collaboration (1)

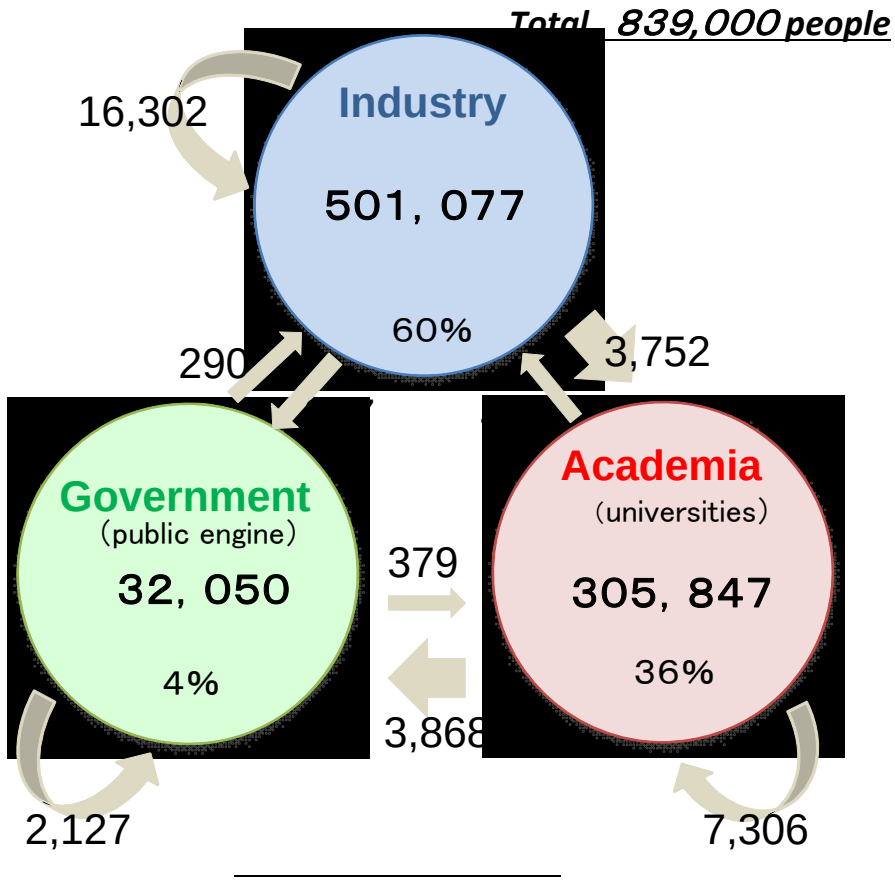
Flow of research funds/the researchers

- Most research funds are provided within industry. The amount of research funds provided by industry for academia is only less than 1 % of total industrial research funds.
- The flow of researchers between universities and industry is small.

Research funds by research entity (2008)



Number of researchers by research entity (2008)

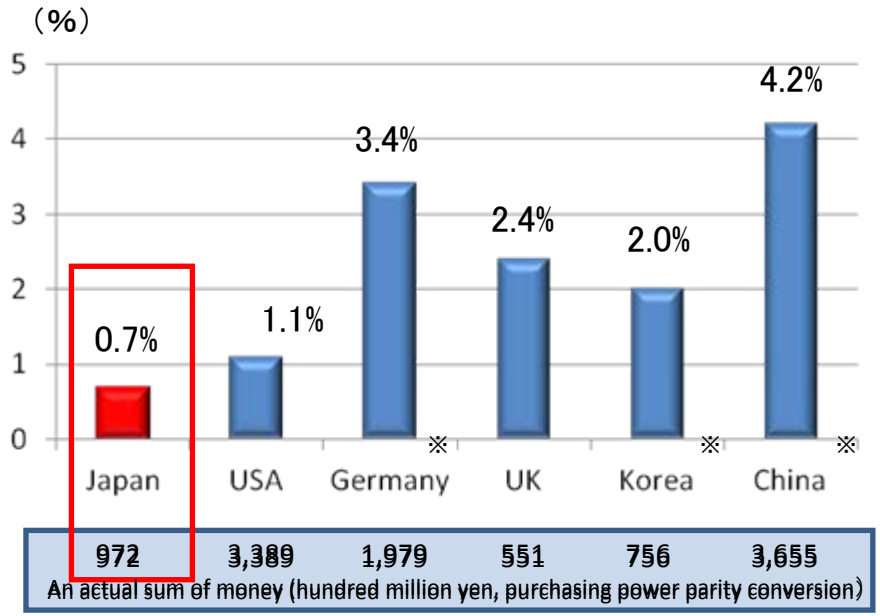


Source: Ministry of Internal Affairs and Communications Statistics Bureau “A technology study survey”

Current Situation of University-Industry Collaboration(2)

● University-Industry Collaboration activities in Japan are relatively small compared to other countries.

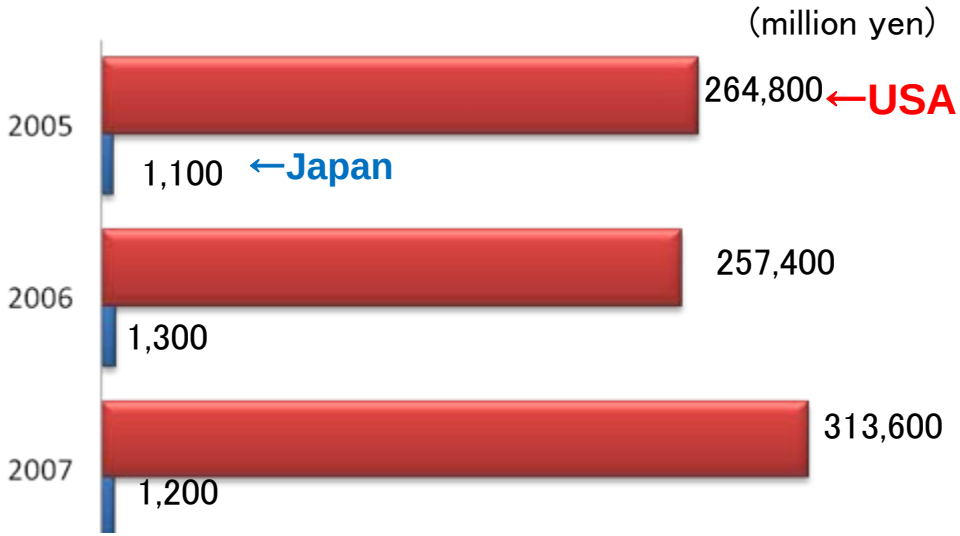
Percentage of funds for the universities from R&D expenditure by industry（2008）



（Source）Statistics Bureau (Ministry of Internal Affairs and Communications)「Survey of Research and Development」、OECD「Research and Development Statistics」

（Each ※ country is the data in 2007.）

Comparison of Licensing Income of Universities between Japan and USA (purchasing power parity conversion)

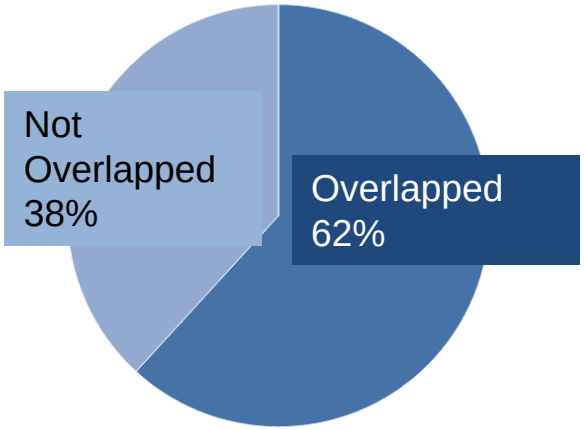


（Source）Based on AUTM U.S. Licensing Activity Survey , UNITT University Technology Transfer Survey , the data of the Ministry of Education, Culture, Sports, Science and Technology, the Ministry of Economy, Trade and Industry created.

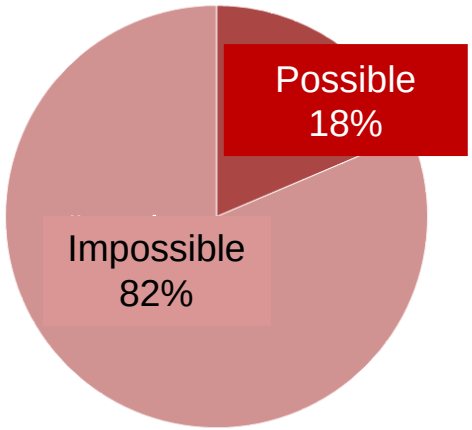
Current Situation of University-Industry Collaboration(3)

- Industry struggles with “NIH (Not Invented Here) Syndrome”: Japanese companies recognize difficulty with joint research with rival companies, while foreign companies are more aggressive to conduct such joint research.

The share of research conducted by a company which it recognizes overlaps with other companies

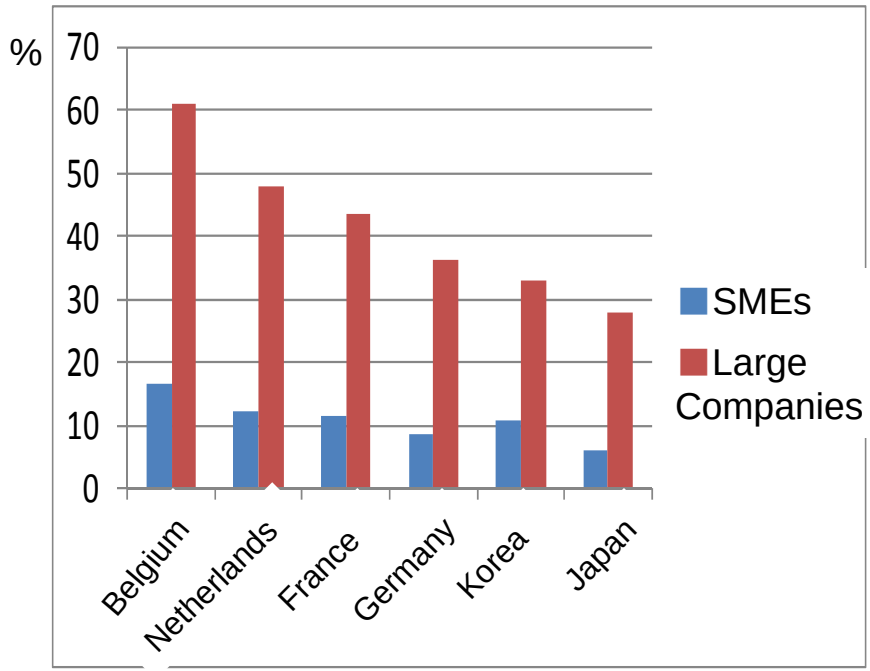


The share of research which the company considers joint research with others is possible



(Source) METI Survey on Open Innovation
(Number of Responses：824 and 807)

Ratio of companies conducting joint research with others

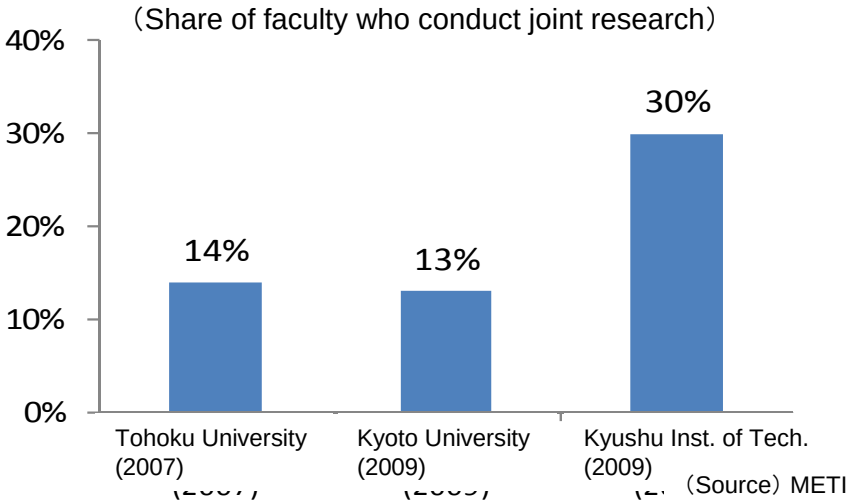


（Source）OECD”Science,Technology and industry Scoreboard 2007”
Japan: MEXT Survey on Innovation

Current Situation of University-Industry Collaboration (4)

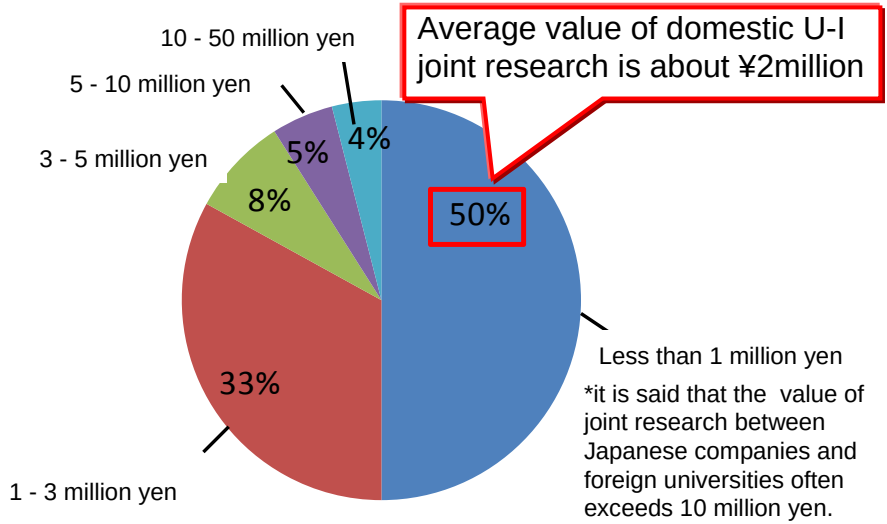
● The share of faculty who are active in University-Industry Collaboration is still relatively low because of a low evaluation value, difficult balance with educational duties, and lack of incentive systems; while industry complains about universities' rigid responses.

Share of faculty active in U-I collaboration is low



(Source) METI

A half of domestic U-I joint research is less than ¥1million



(Source) MEXT Survey 2009

Major complaints of industries against Japanese universities

1. Rigid negotiation regarding licensing contracts (26%):
"Universities stick to model contract forms." "Universities overstress the necessity of monetary compensation when partner companies use jointly possessed patents."

2. Loose operational systems (22%):
"Universities are less conscious about IP protection."

3. Complicated Institutions (21%):
"Responses of faculty and those of TLOs are not unified."

4. Slow responses (12%)

(Source) METI survey 2010

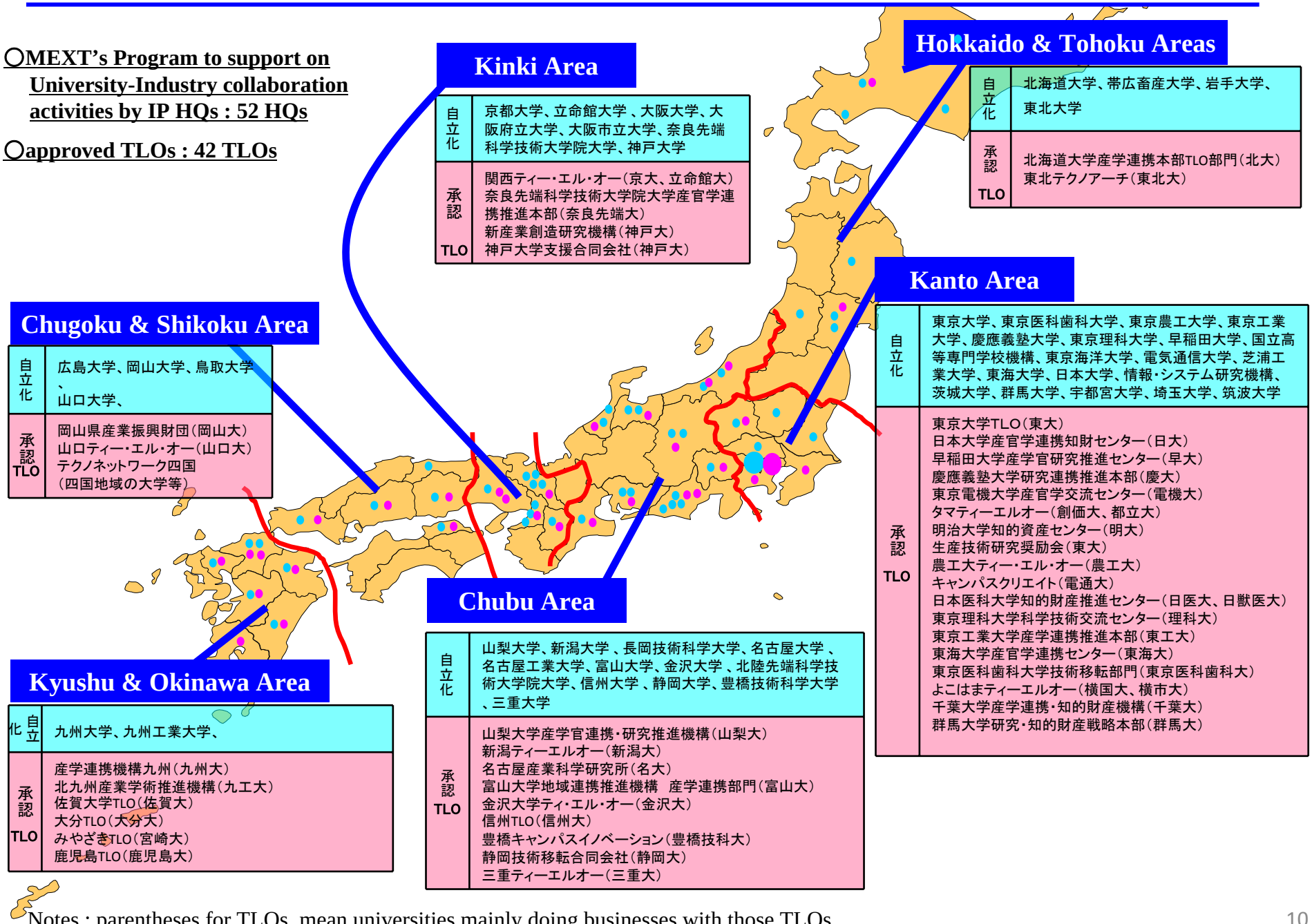
Industries' assessment on foreign universities:

✓"Foreign universities are flexible in responses during negotiation on licensing conditions."
✓"They have robust IP protection procedures."
✓"They have good internal coordination systems and negotiations are speedy."

Map of the approved TLOs and IP HQs of Universities in Japan

○**MEXT's Program to support on University-Industry collaboration activities by IP HQs : 52 HQs**

○**approved TLOs : 42 TLOs**



Hokkaido & Tohoku Areas

自立化	北海道大学、帯広畜産大学、岩手大学、東北大学
承認TLO	北海道大学産学連携本部TLO部門（北大） 東北テクノアーチ（東北大）

Kinki Area

自立化	京都大学、立命館大学 、大阪大学、大阪府立大学、大阪市立大学、奈良先端科学技術大学院大学、神戸大学
承認TLO	関西ティー・エル・オー（京大、立命館大） 奈良先端科学技術大学院大学産官学連携推進本部（奈良先端大） 新産業創造研究機構（神戸大） 神戸大学支援合同会社（神戸大）

Kanto Area

自立化	東京大学、東京医科歯科大学、東京農工大学、東京工業大学、慶應義塾大学、東京理科大学、早稲田大学、国立高等専門学校機構、東京海洋大学、電気通信大学、芝浦工業大学、東海大学、日本大学、情報・システム研究機構、茨城大学、群馬大学、宇都宮大学、埼玉大学、筑波大学
承認TLO	東京大学TLO（東大） 日本大学産官学連携知財センター（日大） 早稲田大学産学官研究推進センター（早大） 慶應義塾大学研究連携推進本部（慶大） 東京電機大学産官学交流センター（電機大） タマティーエルオー（創価大、都立大） 明治大学知的資産センター（明大） 生産技術研究奨励会（東大） 農工大ティー・エル・オー（農工大） キャンパスクリエイト（電通大） 日本医科大学知的財産推進センター（日医大、日獣医大） 東京理科大学科学技術交流センター（理科大） 東京工業大学産学連携推進本部（東工大） 東海大学産官学連携センター（東海大） 東京医科歯科大学技術移転部門（東京医科歯科大） よこはまティーエルオー（横国大、横市大） 千葉大学産学連携・知的財産機構（千葉大） 群馬大学研究・知的財産戦略本部（群馬大）

Chugoku & Shikoku Area

自立化	広島大学、岡山大学、鳥取大学、 山口大学、
承認TLO	岡山県産業振興財団（岡山大） 山口ティー・エル・オー（山口大） テクノネットワーク四国 （四国地域の大学等）

Chubu Area

自立化	山梨大学、新潟大学 、長岡技術科学大学、名古屋大学 、名古屋工業大学、富山大学、金沢大学 、北陸先端科学技術大学院大学、信州大学 、静岡大学、豊橋技術科学大学 、三重大学
承認TLO	山梨大学産学官連携・研究推進機構（山梨大） 新潟ティーエルオー（新潟大） 名古屋産業科学研究所（名大） 富山大学地域連携推進機構　産学連携部門（富山大） 金沢大学ティ・エル・オー（金沢大） 信州TLO（信州大） 豊橋キャンパスイノベーション（豊橋技科大） 静岡技術移転合同会社（静岡大） 三重ティーエルオー（三重大）

Kyushu & Okinawa Area

自立化	九州大学、九州工業大学、
承認TLO	産学連携機構九州（九州大） 北九州産業学術推進機構（九工大） 佐賀大学TLO（佐賀大） 大分TLO（大分大） みやざきTLO（宮崎大） 鹿児島TLO（鹿児島大）

Notes : parentheses for TLOs mean universities mainly doing businesses with those TLOs.

3. Survey on holistic evaluation methods on University-Industry collaboration using diversified indices

Background and Purpose of the Survey on Holistic Evaluation Methods on University-Industry collaboration using diversified indices

Background

- University-Industry collaboration has been promoted for about 15 years in Japan, and the number of licensing deals as well as the number of joint research projects have significantly increased. However, the average value of joint research and licensing income of universities is still small.
  → We may need to evaluate the quality of University-Industry collaboration as well as the quantity.

- There are arguments that current TLOs are struggling to achieve sustainable management
  → However, the effect of University-Industry collaboration should not be evaluated just by profits of individual institutions but by more fundamental goals.

Purpose

METI, in cooperation with MEXT, is now conducting a survey in order to develop holistic evaluation methods on University-Industry collaboration using diversified indices, especially for universities' activities, which could promote dissemination and utilization of university research achievements.

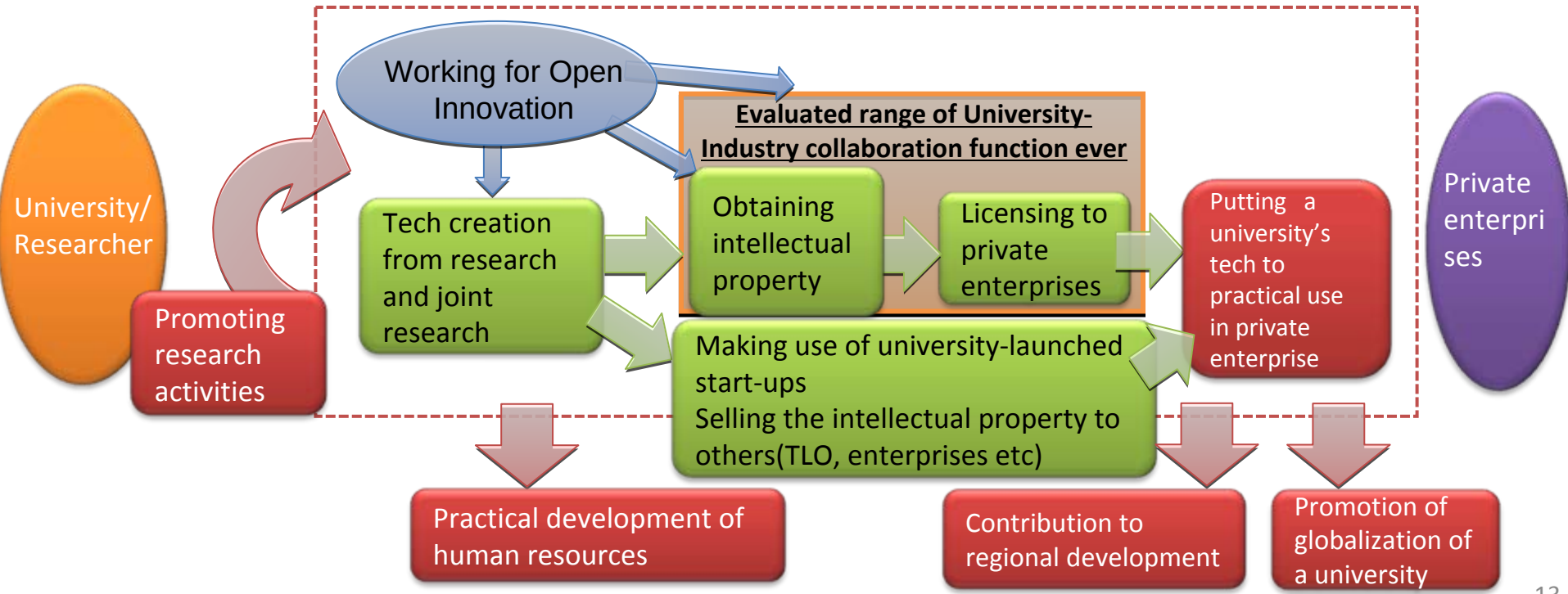
Schedule

A survey including a trial evaluation: Until the end of March 2012
More trial evaluations? Full-dress evaluations? TBD

Scheme of the Trial Evaluation

- In order to visualize university- industry collaboration activities and their effects and make them more accountable, various collaboration activities are identified, including technology creation from research / joint research activities, and IP creation, IP licensing to companies, and commercialization of such IPs by companies, and we consider them as the basic function of industry-university collaboration.
- The thing directly related to the basic function of industry-university collaboration was set as the characteristic indices.(“Promoting research activities”, “Practical development of human resources”, “Contribution to regional development”, “Promotion of globalization of a university”)

Putting a university’s tech to practical use through tech creation and tech transfer
＝ Basic function of University-Industry collaboration



Basic Framework of a Trial Evaluation

①Standard structure: 4 categories of indices consisting of “Impact – Outcome – Output – Input”

②The indices of the basic function of University-Industry collaboration that means putting a university’s tech to practical use through tech creation and tech transfer, are set for a “standard evaluation measures.”

③In addition, several characteristic evaluation areas are to be introduced for specific universities for use based on each’s mission and principal goals for University-Industry collaboration.

(For example: Promoting research activities, practical development of human resources, contribution to regional development, promotion of globalization of University-Industry collaboration activity)

＜A Possible Matrix of Evaluation Indices (under examination, subject to change)＞

	Standard Evaluation Indices	**Characteristic Evaluation Indices** (University choose from these area based on its mission and principal goals for its University-Industry collaboration)			
	A. Making a university’s tech to practical use through tech creation and tech transfer	B. Promoting research activities	C. Practical development of human resources	D. Contribution to regional development	E. Promotion of globalization of University-Industry collaboration activity
Inputs					
Outputs					
Outcomes					
Impacts					

Possible Directions after the Survey

Full-dress evaluations

○Basic structure of indicators
"Inputs – Outputs – Outcomes – Impacts"

○Consideration of adequacy of indicators identified at the trial evaluation, aiming to elaborate them to those which will be usable at future full-dress evaluations

○Benchmarking of AUTM indicators

○Collecting good practices

○Consideration of methods to analyze and report evaluation results back to universities & TLOs

Consideration of organizational restructuring of TLOs & University IP HQs

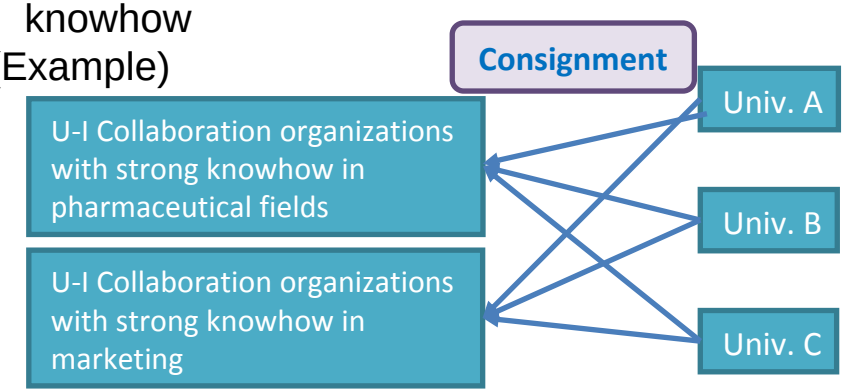
○ Establishment of necessary university-industry collaboration functions and human resources of universities and/or wide-area TLOs

- Human resources (Research Administrators, U-I collaboration coordinators, joint research assistants, etc.)
- Functions (Points of contact between universities and companies)

○Consolidation of activities and/or organizations between outside TLOs and IP HQs of universities if there are redundancy in their functions

○Widening the areas of university-industry collaboration organizations with excellent knowhow

(Example)



○Governmental Support to universities and wide-area TLOs which have improved U-I collaboration indicator records

Summary

- For about fifteen years, the Japanese government has implemented various policies promoting university-industry collaborations such as introduction of TLO schemes, incorporation of national universities, support for university-based venture businesses, and so on.

- However, the value of joint research between universities and industries as well as the value of technology licensing of university IPs to companies in Japan are still far less than those in the USA.

- METI, in cooperation with MEXT, is now conducting a survey on holistic evaluation methods on University-Industry collaboration using diversified indices.