

Session 2.4
Collaboration with Industries and
University and Contribution to the
society

Jun SUGIURA
OIT OSAKA
JAPAN

Profile Jun SUGIURA



日本特許庁
(**Japan Patent Office: JPO**)
初代長官 高橋是清
(The first Commissioner
Korekiyo TAKAHASHI)



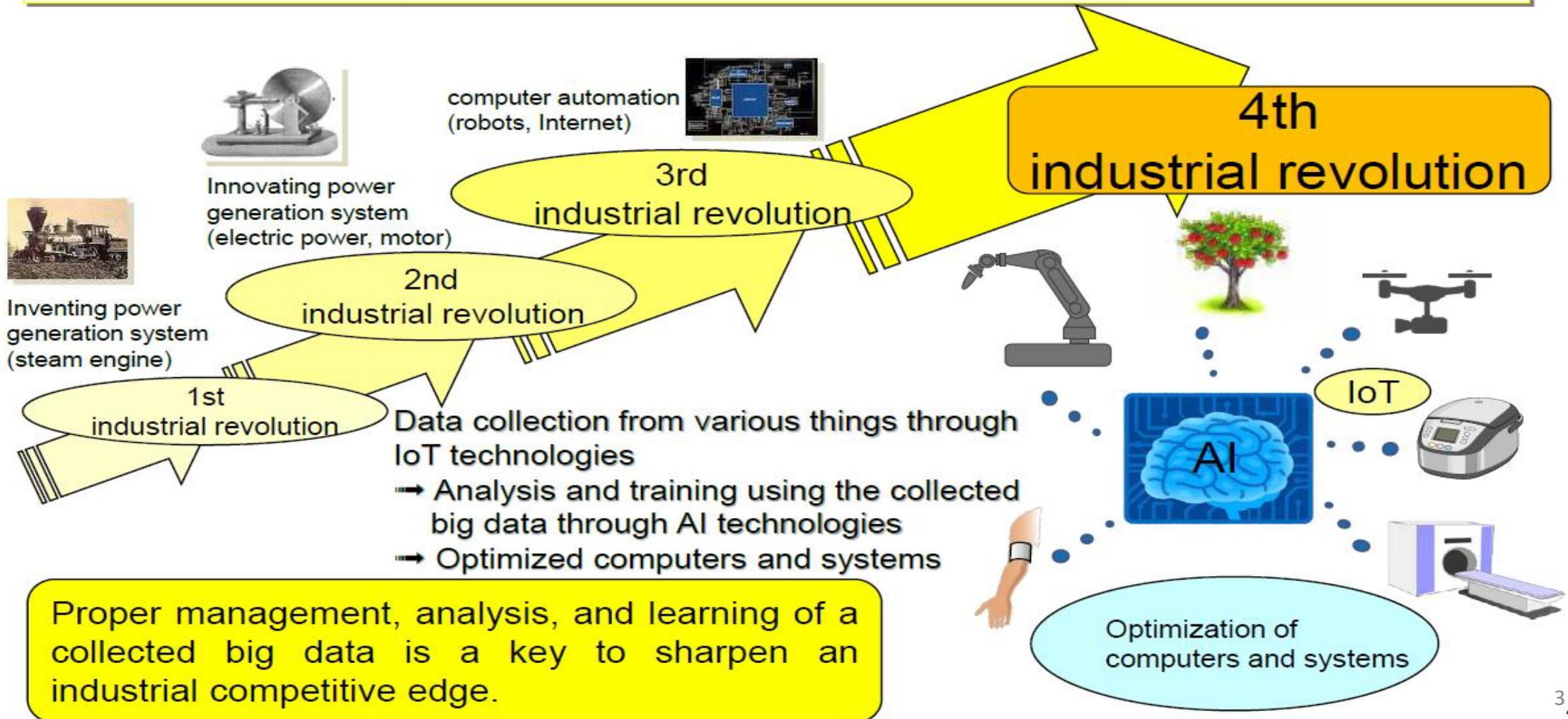
欧州特許庁
(**European Patent Office: EPO**)
欧州特許条約 (European Patent
Convention: EPC) に基づき設立された
地域特許庁



在モロッコ日本国大使館
(**Ambassade du Japon au Maroc**)

Industry 4.0 with IoT and AI technologies etc.

- The fourth industrial revolution is expected with the use of Big Data and AI (Artificial Intelligence) through technological innovations in AI and IoT (Internet of Things) etc.

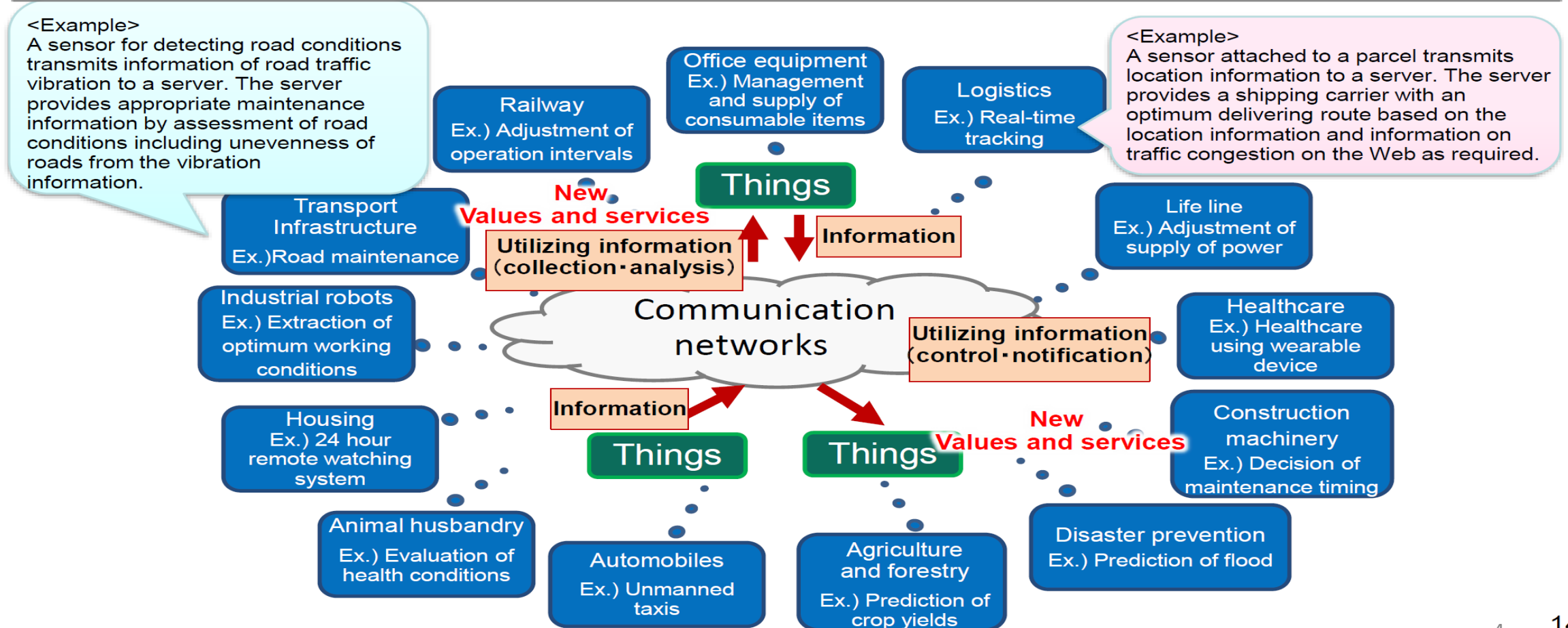


Proper management, analysis, and learning of a collected big data is a key to sharpen an industrial competitive edge.

2-1. About IoT related technologies

Development of IoT related technologies

- Rapid progress is being made in research & development and application to business of “technologies that utilize information obtained by connecting “Things” to networks, thereby finding new values and services” (IoT (Internet of Things) related technology).

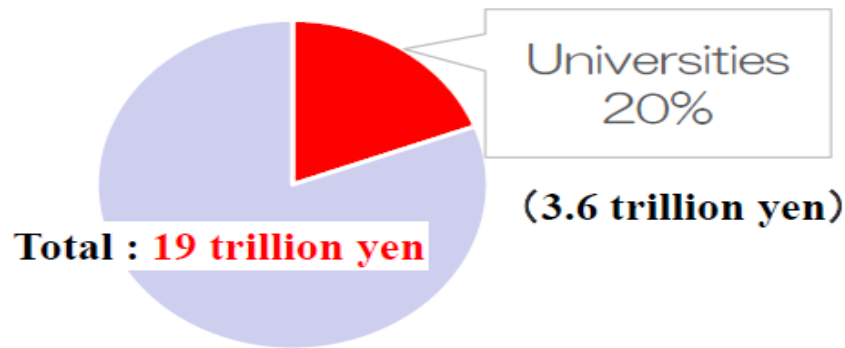


Towards the Super-smart Society (Role of university)

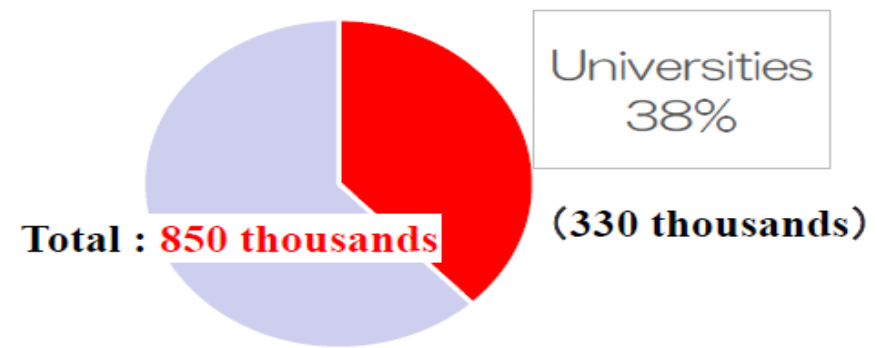
- Human resource development, capable of responding to the 4th industrial revolution:
(EDUCATION)
 - **Practical education through industry-university-government collaboration based on the needs of industry**
 - **Strengthening mathematical and data science education**
 - **Compulsory education of "programming" in elementary school Recurrent education**
- Construction of ecosystem of innovation: (R&D)
 - **A university that is the base of knowledge and human resources, as a core, involves industry, so that research and development and venture are created spontaneously and continuously, so that the fruits of innovation can be invested in the next kind of innovation.**
 - **Base of Connected Industries**

- Universities have 20% of total research funding.
- 38% of researchers work for universities.
- The level of academic research is among the best in the world.

Research Funding



Number of Researchers



Source : Ministry of Internal Affairs and Communications, 'Research survey report on science and technology' (2017)



People expect universities to exploit their research outcome for the society.
Contribution to the Society became the 3rd mission of Universities.

Public-Private Dialogue towards Investment for the Future (April 12, 2016)

The Prime Minister said, “Japan’s universities are undergoing a transformation. We will strengthen the academia-industry collaboration system and aim to triple corporate investment in universities and research and development entities over the next decade.”



出典：首相官邸ホームページ
(http://www.kantei.go.jp/jp/97_abe/actions/201604/12kanmintaiwa.html)

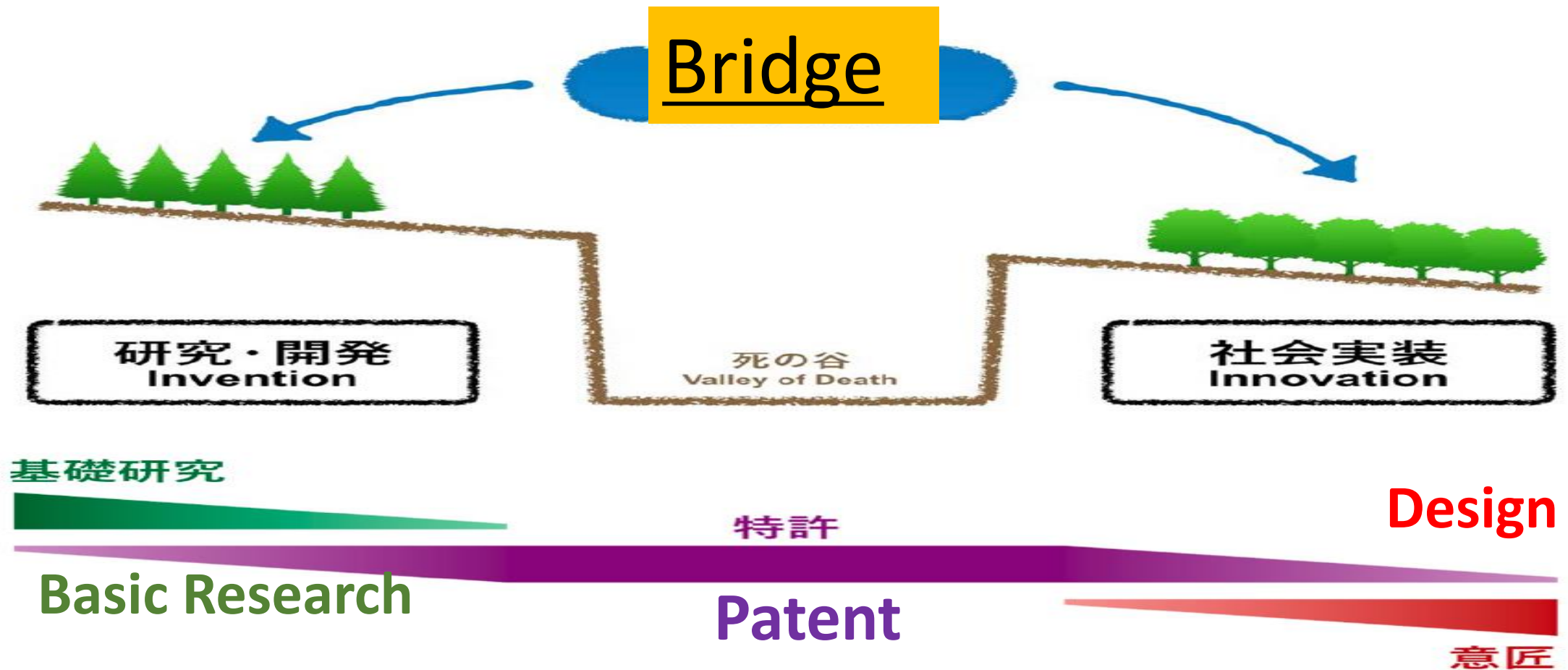
Significance of cooperate investment

- Companies’ needs activate academic research.
- Universities contribute to the society by creating innovation.

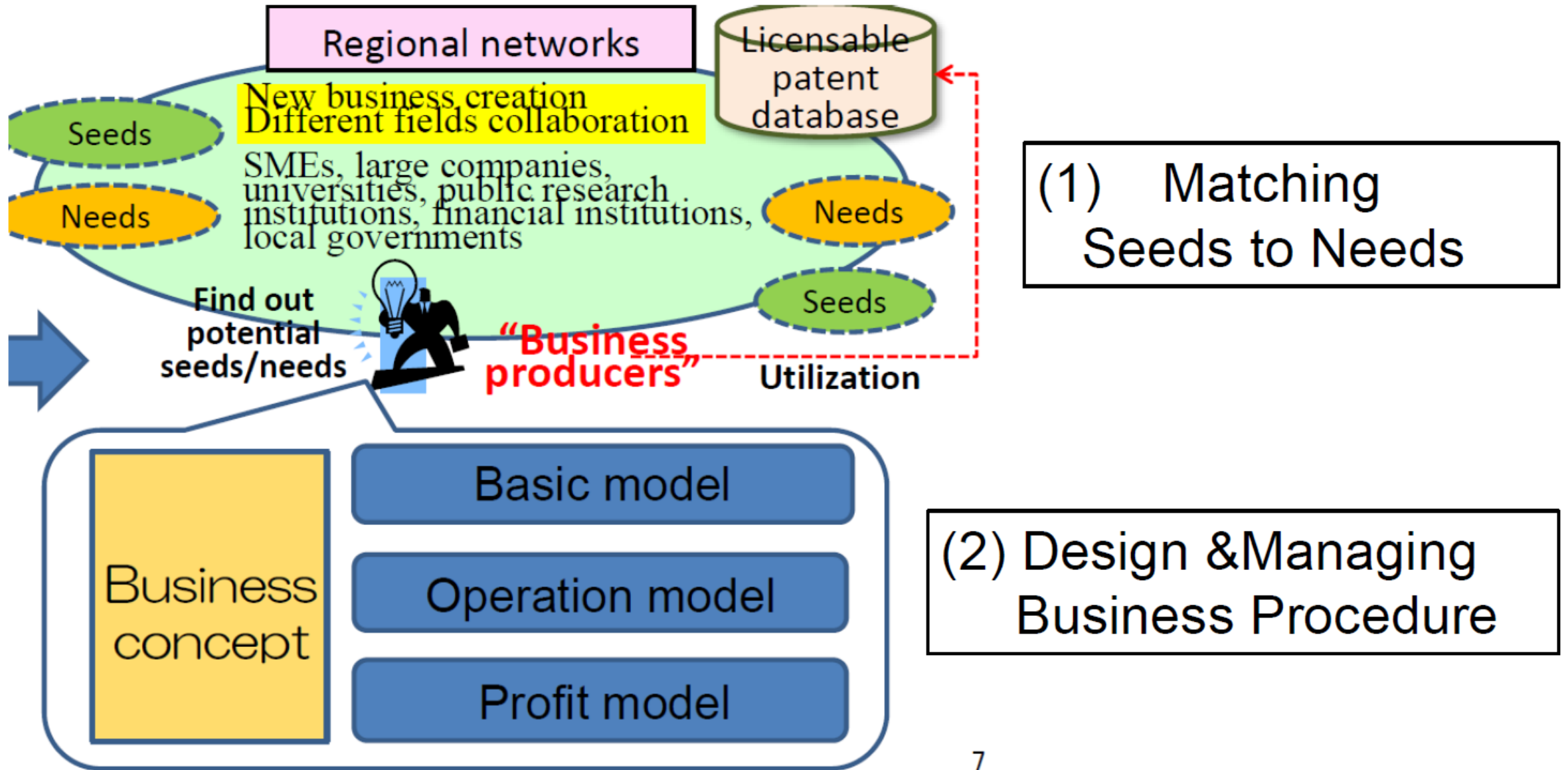
For the Scale up of Joint Research (Guideline)

- Strengthen the management system in universities
- Commitment to the results
- Equitable sharing of expenditure

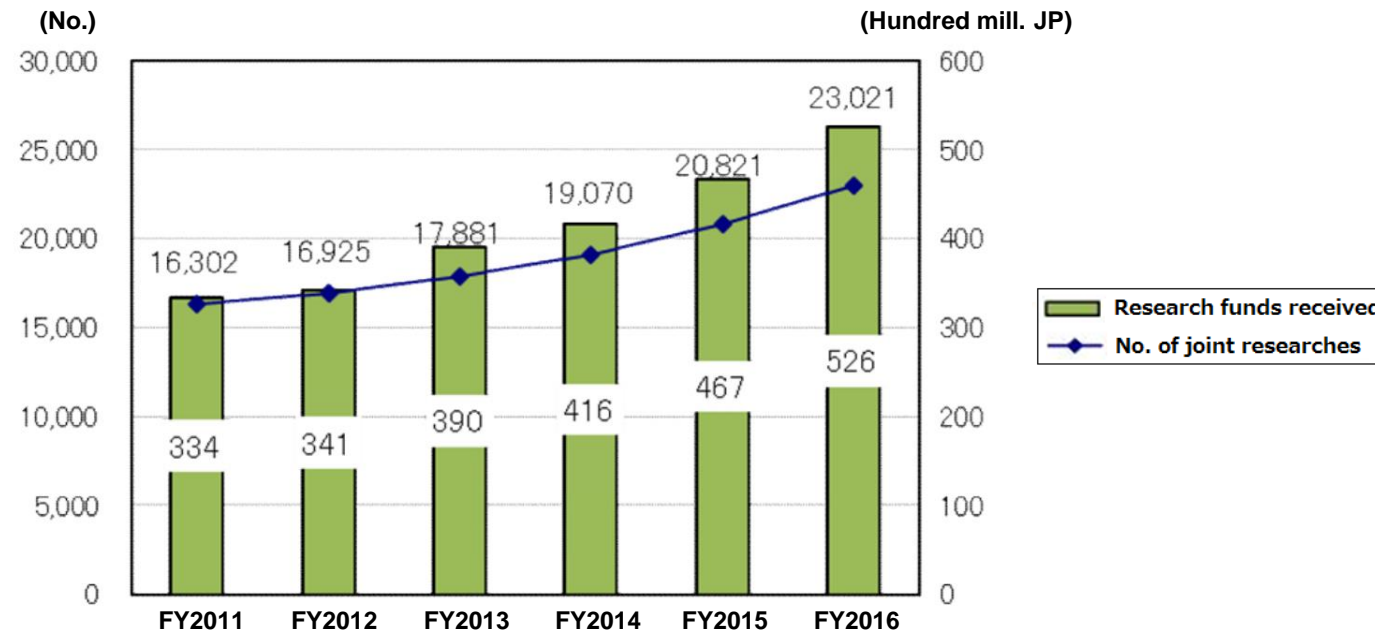
Invention (idea) , Inovation(products) and IP



The roll of IP is to bridge **Invention** to **Inovation**



- In fiscal year 2016, the number of joint researches between universities and private companies was 23,021 increasing 10.6% or 2,200 compared to the previous fiscal year.
- The amount of research funds received by universities for joint research with private companies was around 52.6 billion yen, increasing 12.6% or 5.9 billion yen compared to the previous fiscal year.

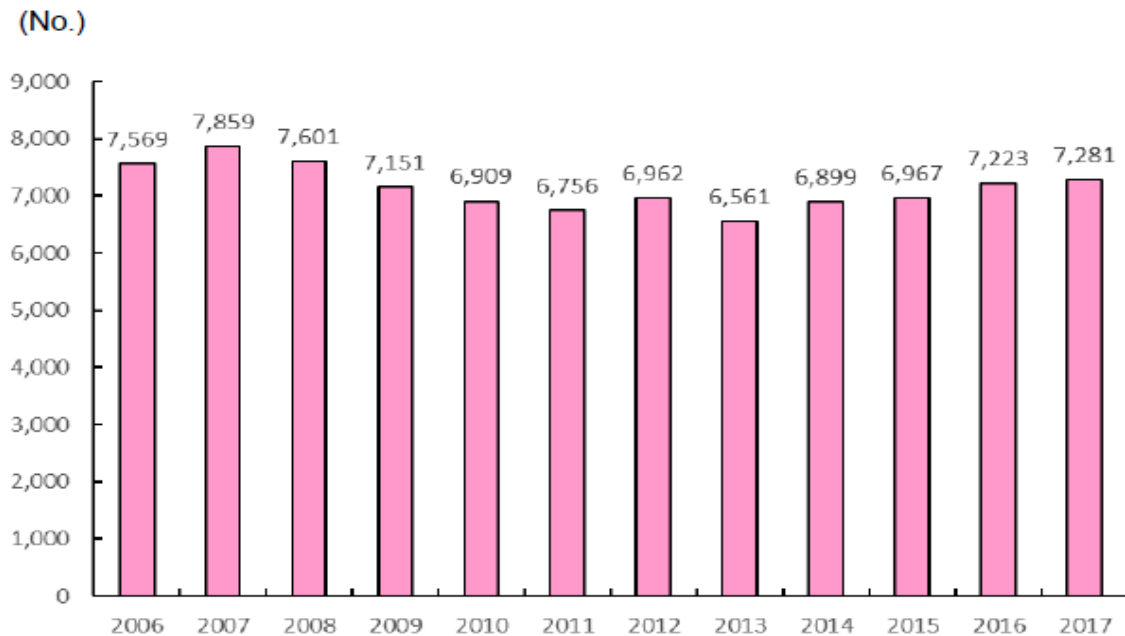


Source: The “FY2016 Current State of Industry-Academia Collaboration in Japan” issued by the Ministry of Education, Culture, Sports, Science and Technology

* Universities include national, public, and private universities or colleges, including junior colleges, public and private colleges of technology, and inter-university research institutes.

➤ In 2017, the number of patent applications filed by universities in Japan was 7,281, marking a 0.8% increase from the previous year.

Number of Patent Applications
Filed by Universities



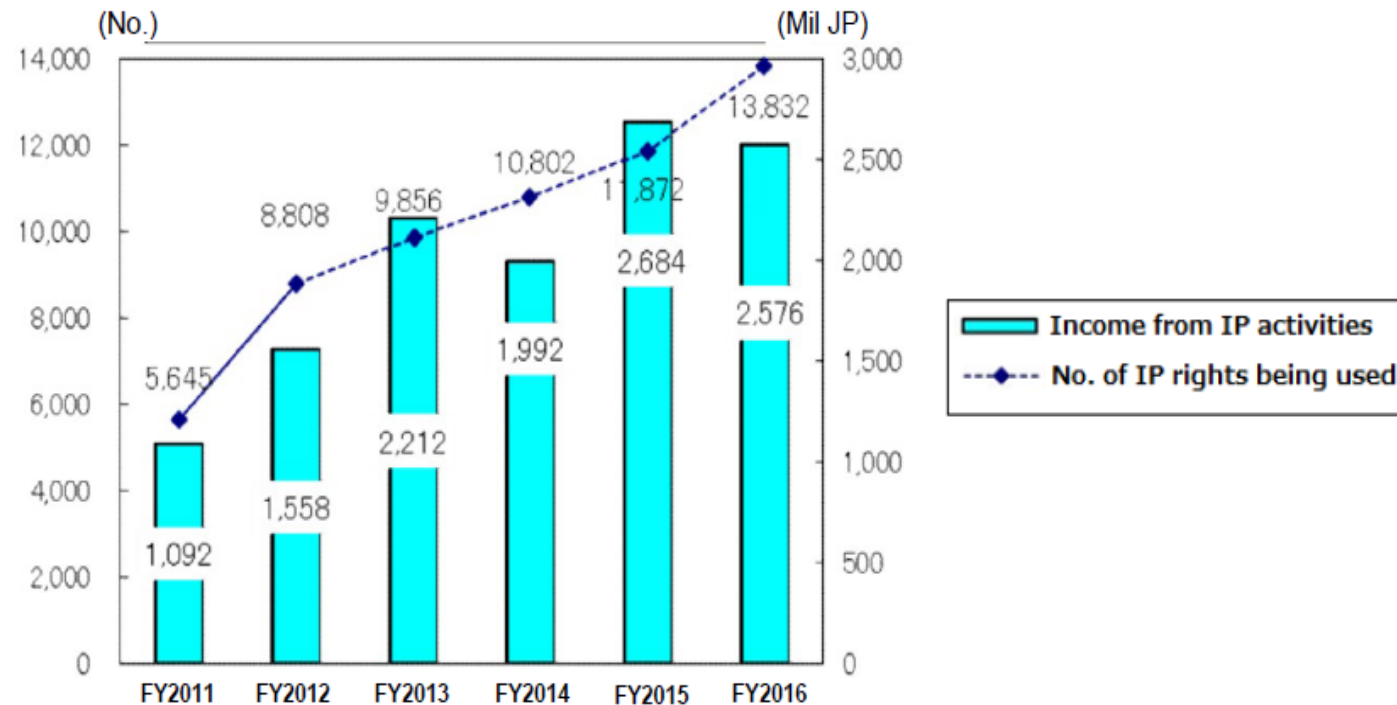
Top 10 Filers
(Universities 2017)

Rank	Name of University	Number of Applications
1	University of Tokyo	310
2	Tohoku University	276
3	Kyoto University	229
4	Osaka University	210
5	Tokyo Institute of Technology	194
6	Nagoya University	164
7	Kyushu University	158
8	Hokkaido University	116
9	Keio University	113
10	Shinshu University	103

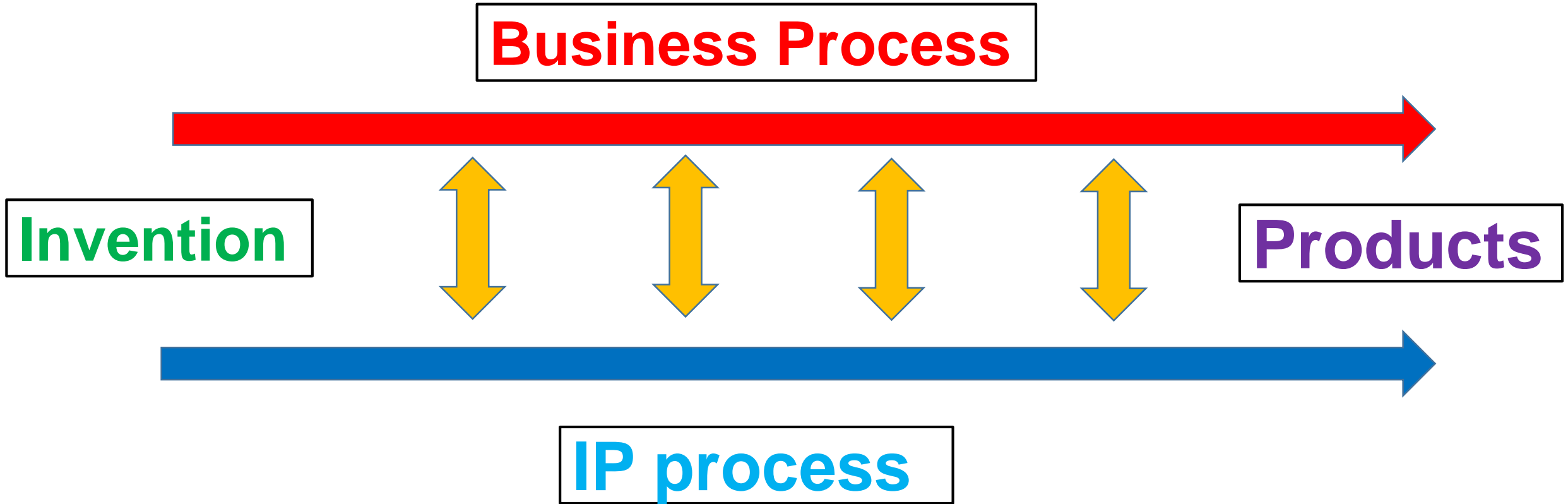
Source: JPO Annual Report 2017

- The number of IP rights and income from IP activities by universities have been on the rise.
- In fiscal year 2016, which ended in March 2017, income from IP activities by universities reached 2.576 billion yen, marking a 4.0% decrease from the previous fiscal year.
- Also, the number of IP rights being actually used by universities reached a record high of 13,832 increasing 16.5% year-over-year.

Changes in the Number of Patent Rights and Income from IP Activities by Universities



Collaboration **Business expert** with **IP expert**



The basic function of IP right (1)

知的財産と知的財産権



第三者が参入不可
(競合企業との価格
競争が起こらない)

バリア・参入障壁
(知的財産権)

知的財産

研究成果、技術、ノウハウ、ア
イデア、デザイン、ブランド、
植物の新品種、文芸・学術・美
術・音楽・プログラムなどの精
神的作品等の知的創作物

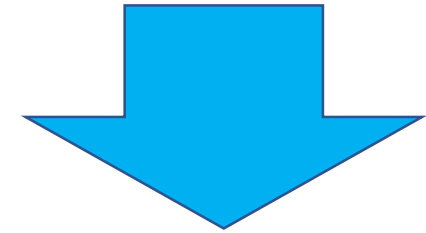
これからの知財入
門～変革の時代
の普遍的知識～
山口大学
知的財産センター

自分だけが使える状態 (模倣を許さない)

価格
価格決定力による
価格の維持

知的財産権の防備有り
(「まね」を許さない)

The principle roll of IP is
Exclusive right for Idea
(IP itself does not make Profit)

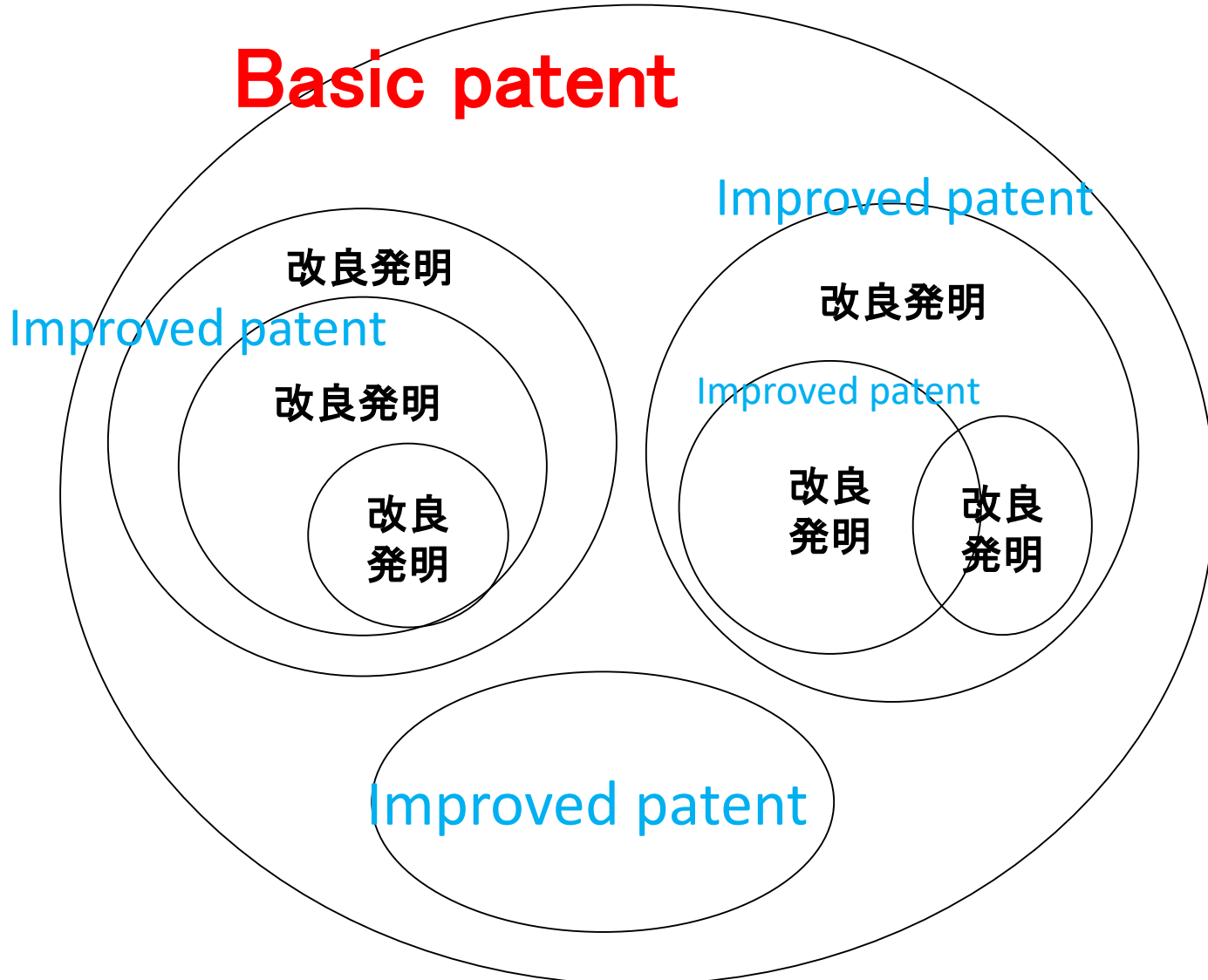


It is
The business
which make the profit

The basic function of IP right (2)

Basic patent vs. Improved patent

Basic patent

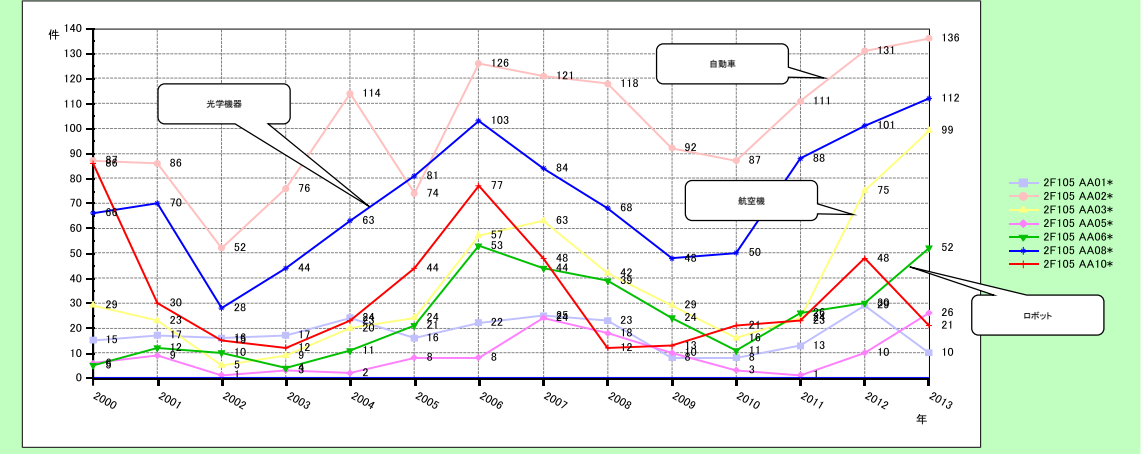
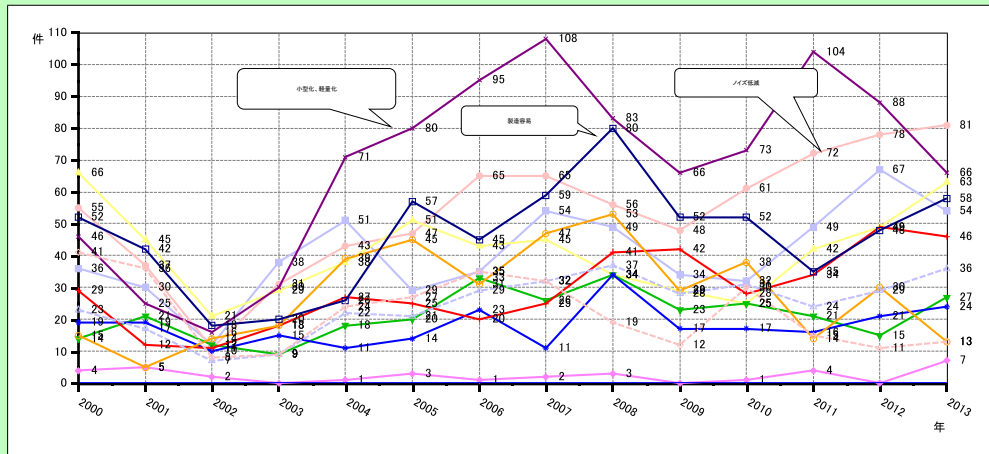


Not only
Basic patent
But,
Improved patent has
also
Exclusive right

The basic function of IP right (3)

Utilization of patent information

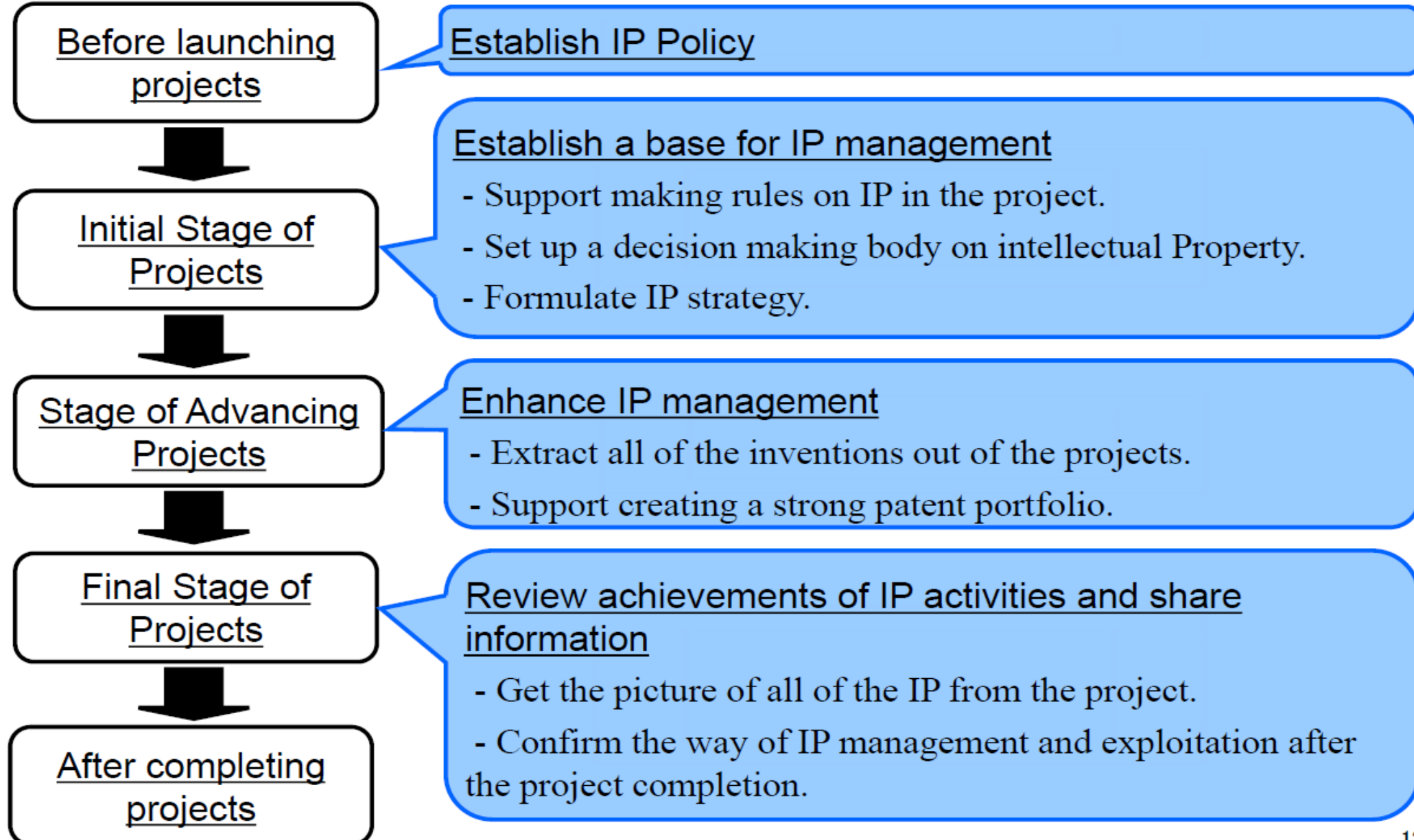
Capture development trends in specific technical fields



Trends by number of applications on purpose

Trends by number of applications on usage

→ Develop development indicators of universities and companies.



	University	Company
purpose	Education, research, social contribution	Business, social contribution
	Acquisition of research funds Publication of research results Student development	New business Defense of company's products etc ...
Attribution of research results	<ul style="list-style-type: none"> Share by equity according to the degree of contribution Change stance by the created results 	<ul style="list-style-type: none"> Share by equity according to the degree of contribution
Implementation of research results	About the result of sharing, University would like to change stance depending on the result.	<ul style="list-style-type: none"> Companies want to use created results exclusively
Compensation for self-implementation	University want companies to pay compensation fee , regardless of whether companies implement the patent or not	(1) If a company monopolizes, pays compensation fee if sales or profits come out. (2) If the company is non-monopolized, no compensation will be paid.
Patent application expenses	If the company implement the patent, the company should pay the patent cost	Companies want to pay patent cost according to their share
For publication of research results	University would like to publish in principle as an academic achievement.	<ul style="list-style-type: none"> Until the research results are marketed, basically companies want to avoid publishing. companies want to close the core area technology and make it know-how
Stance against Student handling	University conclude a contract with students according to the rules of the university. As University can't manage students, Professor supervise students.	<ul style="list-style-type: none"> Companies allow the student's participation in condition that University taking on the responsibility of the students. Companies allow students to take part in the reserch in condition that Students have the same obligation as the university

OIT Four faculties in three Campus



e s



Umeda Campus
• Faculty of Robotics & Design



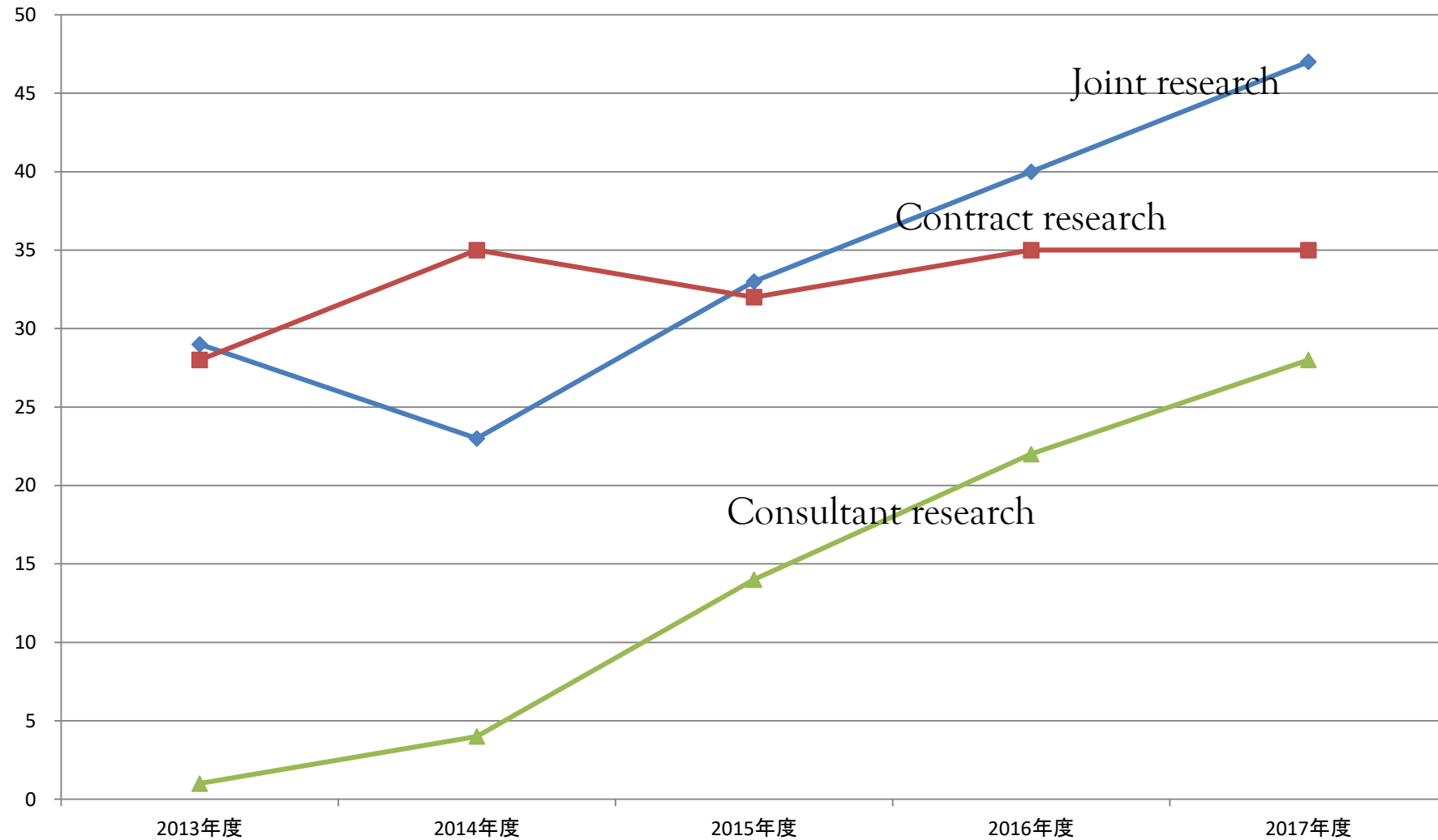
Omiya Campus
• Faculty of Engineering
• Faculty of Intellectual Property

Hirakata Campus
• Faculty of Information Science and Technology

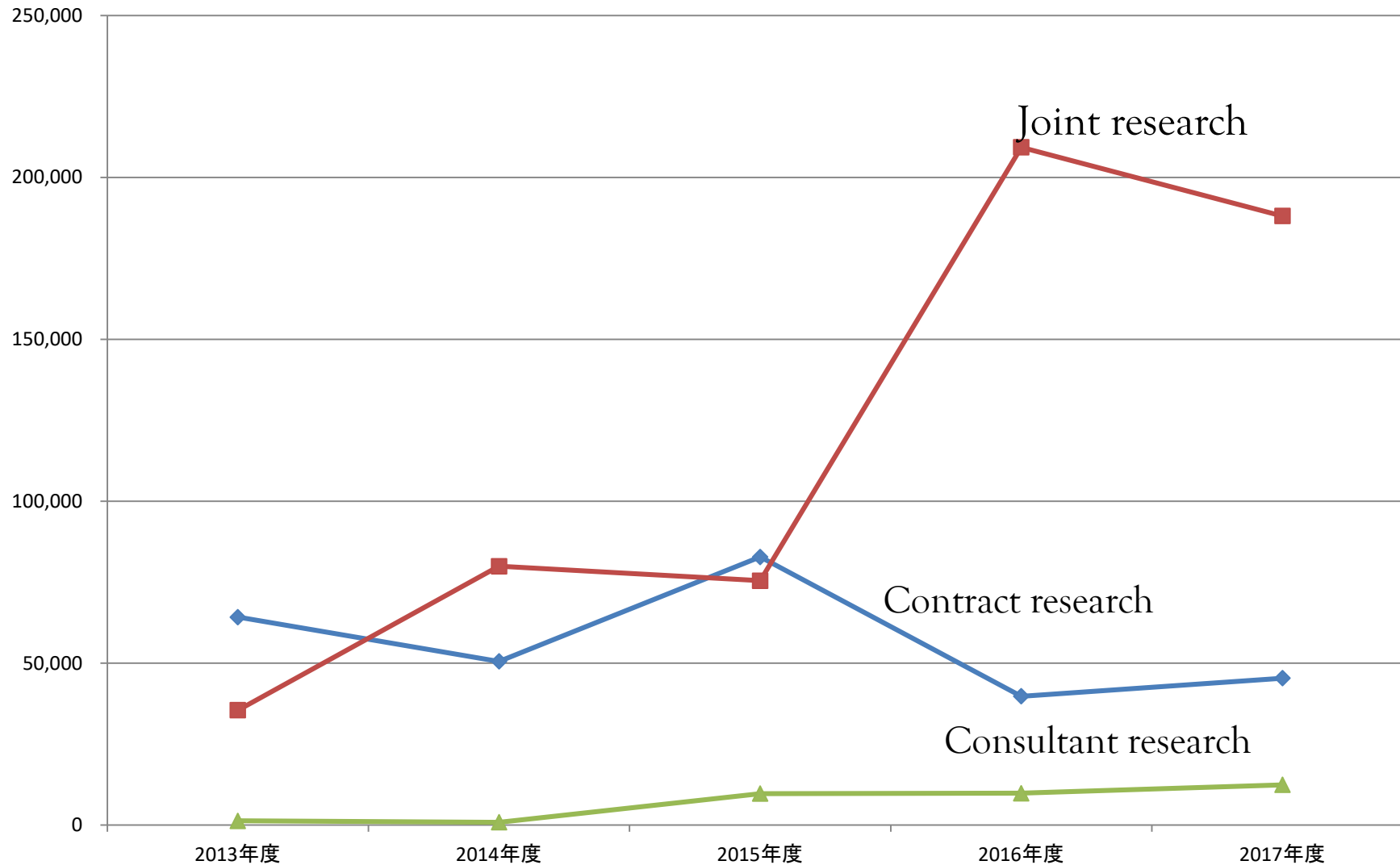


Osaka Institute of echnology

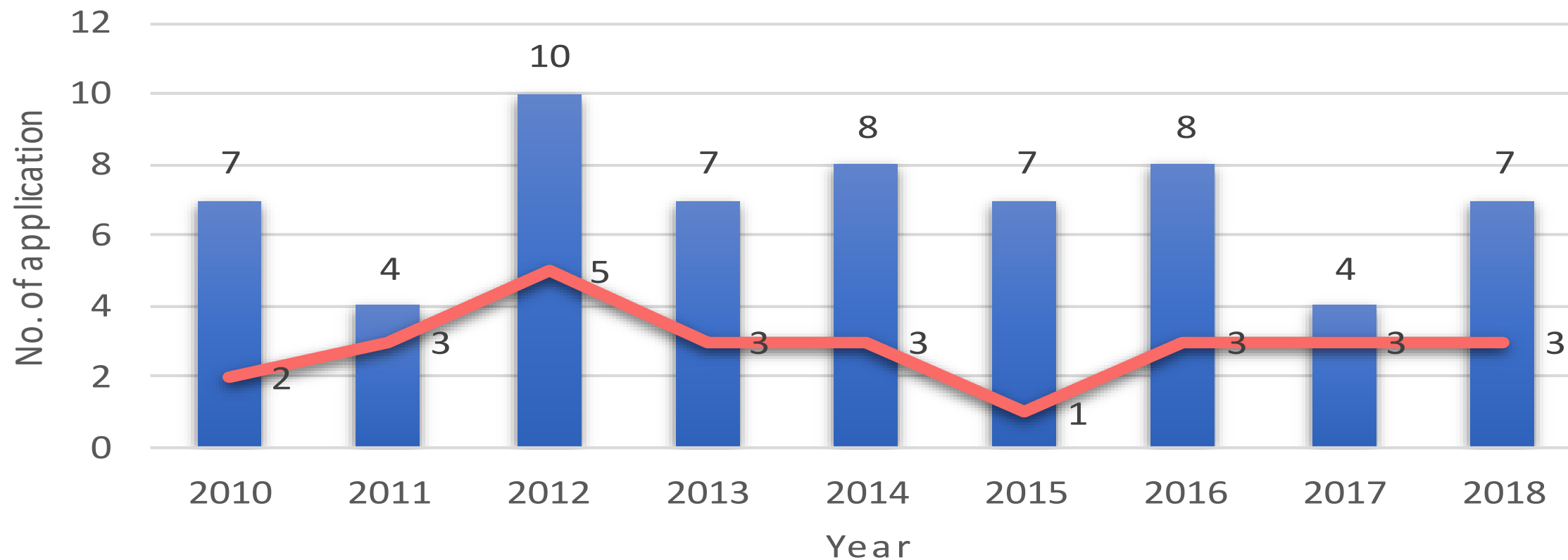
(Number from 2013 to 2017 FY)



(Income from 2013 to 2017 FY (1000 yen))



OIT Patent Filed



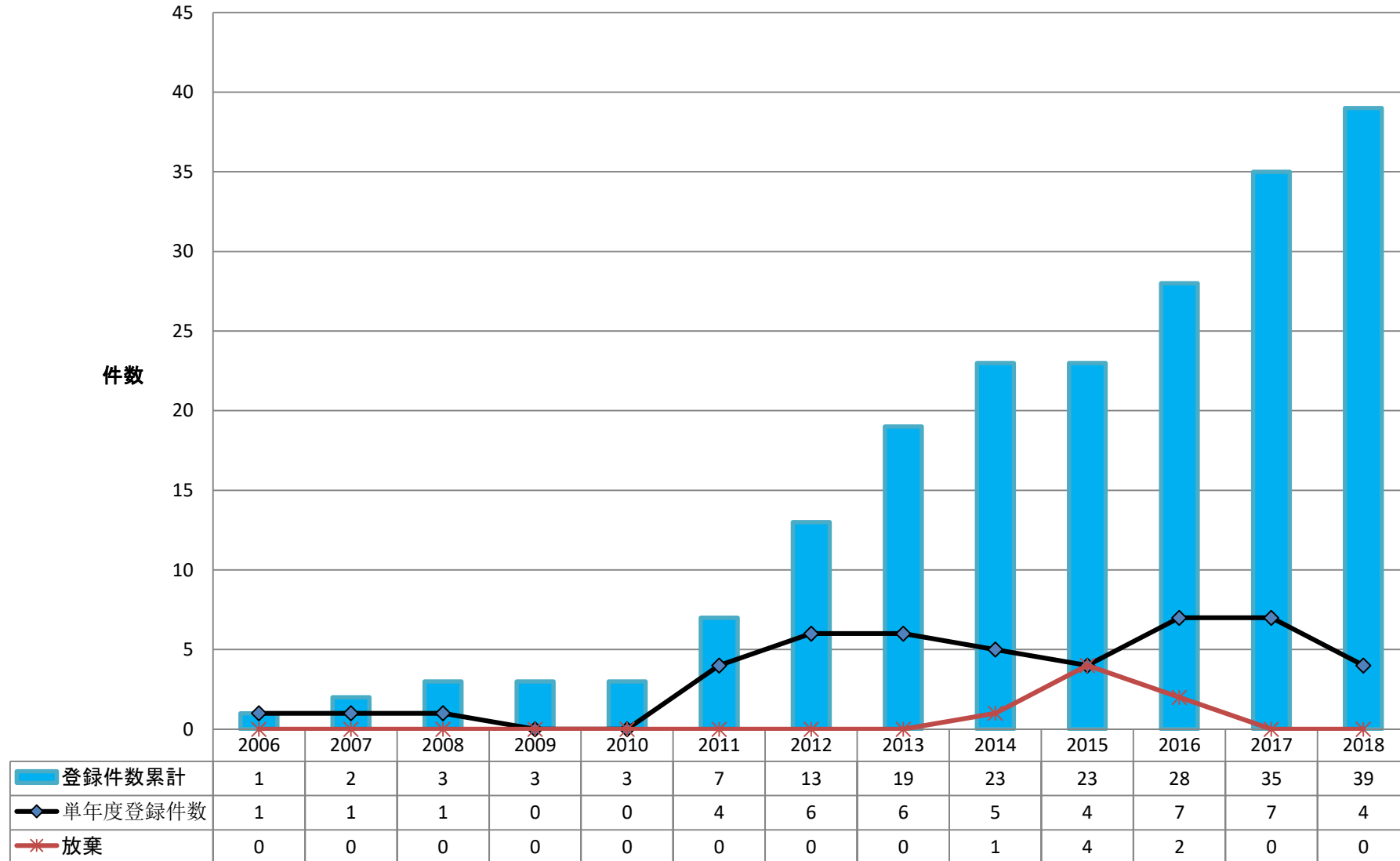
■ Total of Patent Application

— Patent Filed owned by University

Patent Registered Number of OIT

設置大学別 登録件数推移(工大)

2019年3月31日現在



Characteristics of Industry-Academia Collaboration of the OIT

1. Wide variety scheme

- (1) By Engineering Div.
- (2) By Design Div.
- (3) By IP Div.

① “Engineering + Design + IP”
team collaborate service

a. OIT-P, b. X-port

② Services offered
directly by IP Div.

- Consultation
- Seminar & Education
- Collaboration with bank

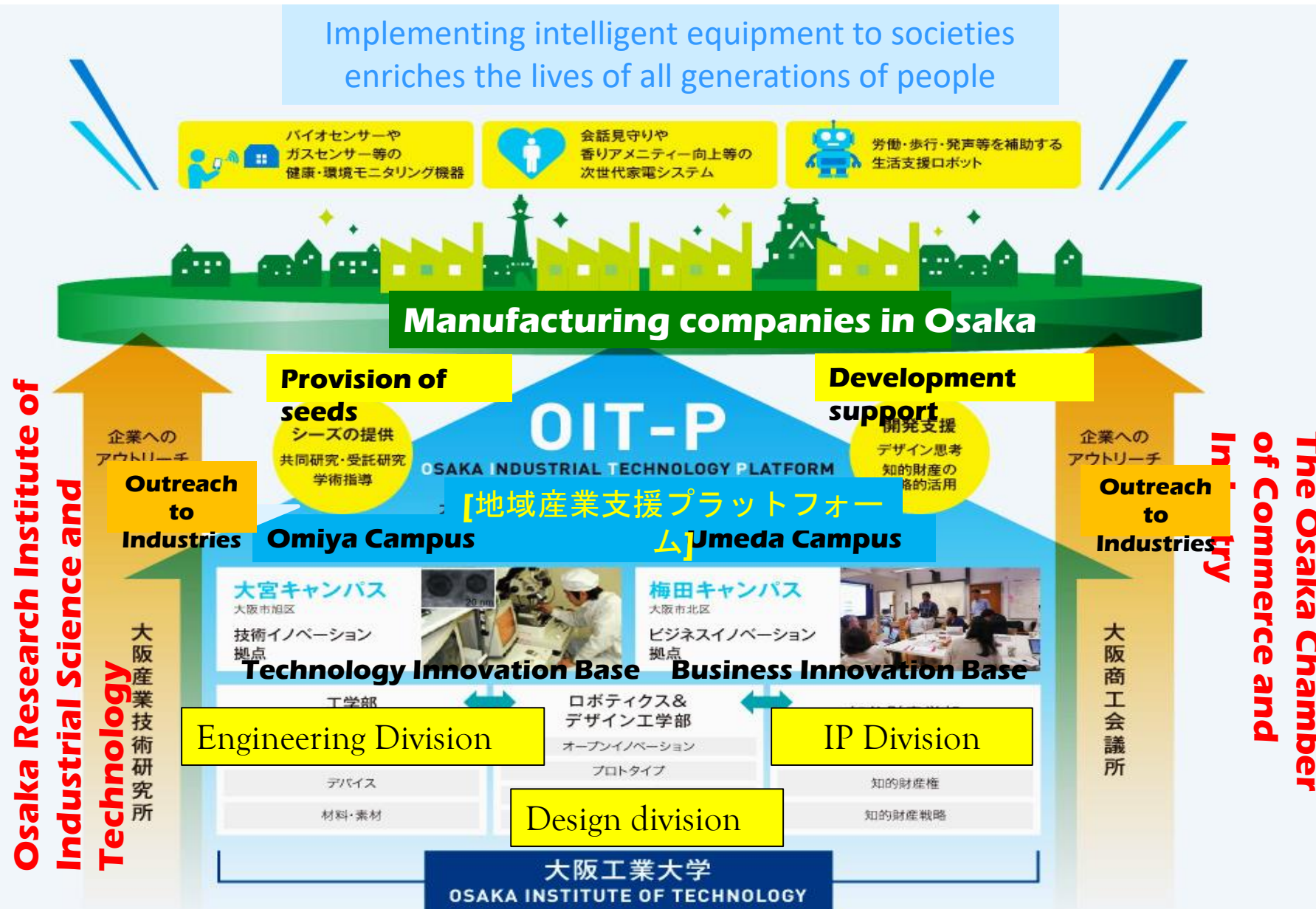
2. Characteristics of collaboration

- (1) Not only for big company
but also for SME
- (2) Focus on client`s needs
- (3) Find the client based on collaboration
with local chamber of commercial & BANKS

3. Fusion of education and industry-academia collaboration for the OIT students

- **Ai-Spec:** Problem solution oriented contest
- **Patent Idea contest:**
Utilization of stocked patent
to some business

Osaka Industrial Technology - Platform (OIT-P)



An open innovation base founded by **Osaka Chamber of Commerce** and **OIT**



At the center of OSAKA City

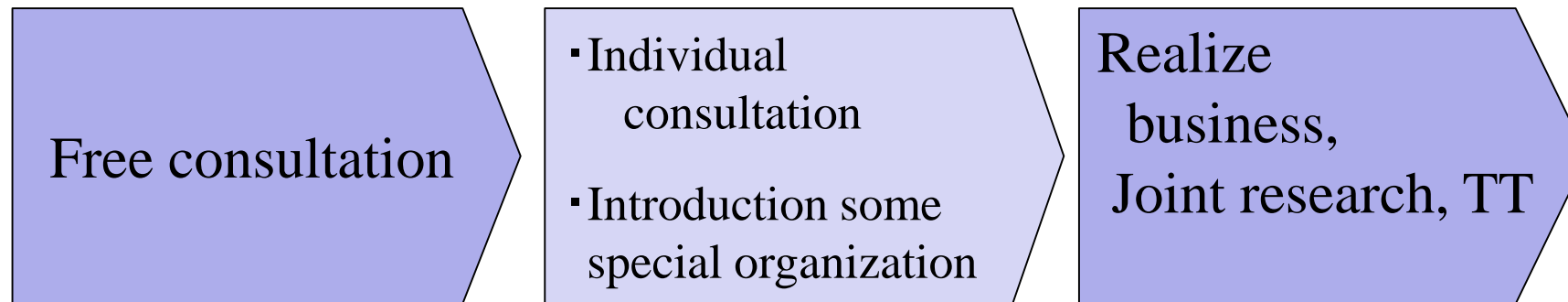
Facility services for members

- ◆ Offer apparatus (ex. 3-D printer, laser processing) to make “Prototype products”
- ◆ Conferance hall, Study rooms

Content of Projects

1. Exchange project
(1) Business Plan contest、(2) Net working program、(3) Project Based learning program with students
2. Training project
(1) Design thinking 、(2) Innovation Mechanism、(3) IP basic knowledge for business
3. Prototype production support
4. Overseas collaboration program
5. IP related advice

Intellectual property related advice service



subject	contents
Human resource development support	<ul style="list-style-type: none">▪ Seminar, Symposium,▪ Visit teaching▪ IP education for researchers
IP management suggestion	<ul style="list-style-type: none">▪ IP management Manual▪ Support for Tech Transfer▪ Internal development
Innovation support	<ul style="list-style-type: none">▪ Patent , Design, Trade mark, Copy right, Trade secret▪ Litigation▪ Survey prior art, Paten map



By the OIT students renovation of Primary School through usiing local Wood(YOSHINO SUGI).



New Idea Contests prepared for the OIT students at OSAKA

Ai-Spec:

Problem solution oriented contest

Patent Idea contest:

Utilization of stocked patent to some business

Proposal:
Teaching “How to use Patent Data base to SME researchers.”

Proposal
Applied a human movement watching technology to a music creation system

特許先行技術調査結果 使用データベース

J-platpat (JPO)
独立行政法人工業所有権情報・研修館 (INPI) が運営する産業財産権関連公報を検索、照会できるデータベース

PATENTSCOPE (WIPO)
世界的所有権機関 (WIPO) が所有する無料の特許検索データベース
6500万件の出願から検索

The image shows two side-by-side screenshots of patent search results. The left one is from J-platpat (JPO) and the right one is from PATENTSCOPE (WIPO). Both show detailed patent information including titles, abstracts, and technical drawings.

提案商品 「舞響」

「ダンス」を「音楽」に変換する「スマホアプリ」
スマホでダンス等を撮影 アプリで音楽に変換

The diagram illustrates the app's workflow: a smartphone camera captures a dance performance, which is then processed by an app to generate a corresponding musical score. The visual elements include a smartphone, a bar chart representing data processing, and musical notes.



OIT of the students,
by the students,
for the students

ご清聴ありがとうございました。
Thank you very much for your attention

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Jun SUGIURA

杉浦 淳