

PROMOTING TECHNOLOGY TRANSFER AND INNOVATION

Utilizing university intellectual property to drive innovation
Creating a platform for dialogue to drive innovation

Driving Innovation

through the

Utilization of University-generated Intellectual Property
and e th

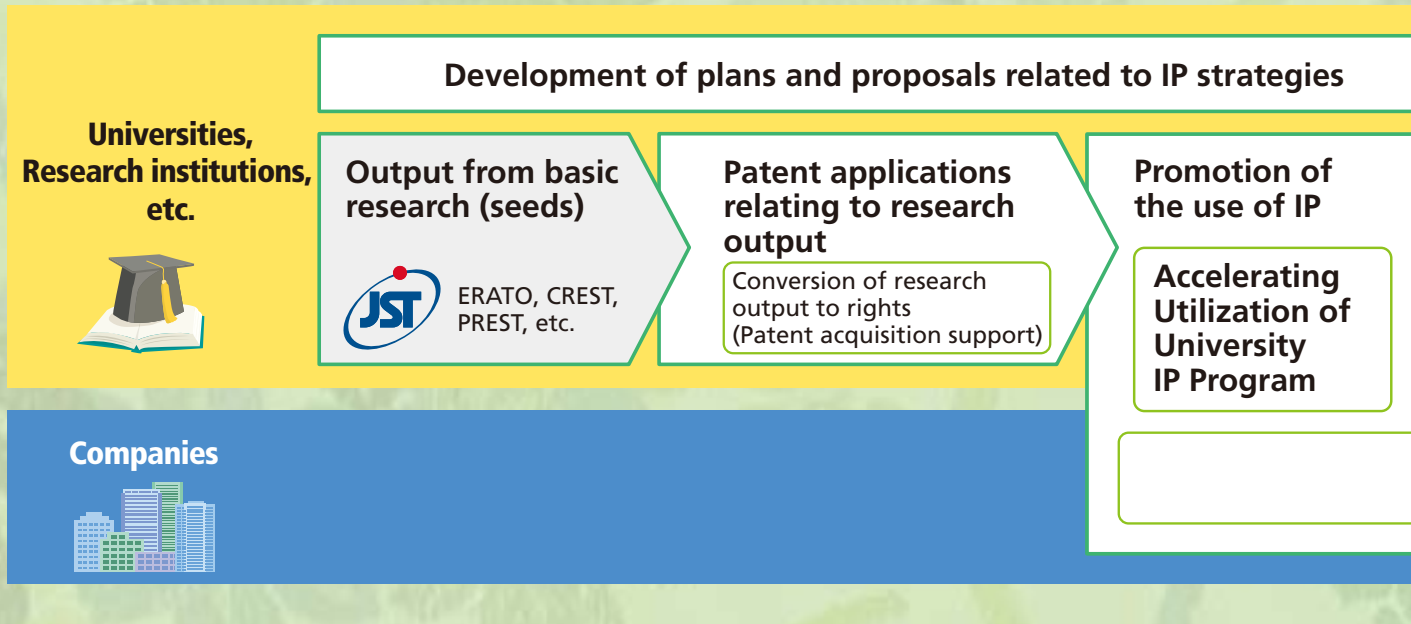
Creation of a Platform for Dialogue between Industry, Academia and Government

Bridging the gap between
academia and industry

Utilizing intellectual property (IP) created whole of society from research output

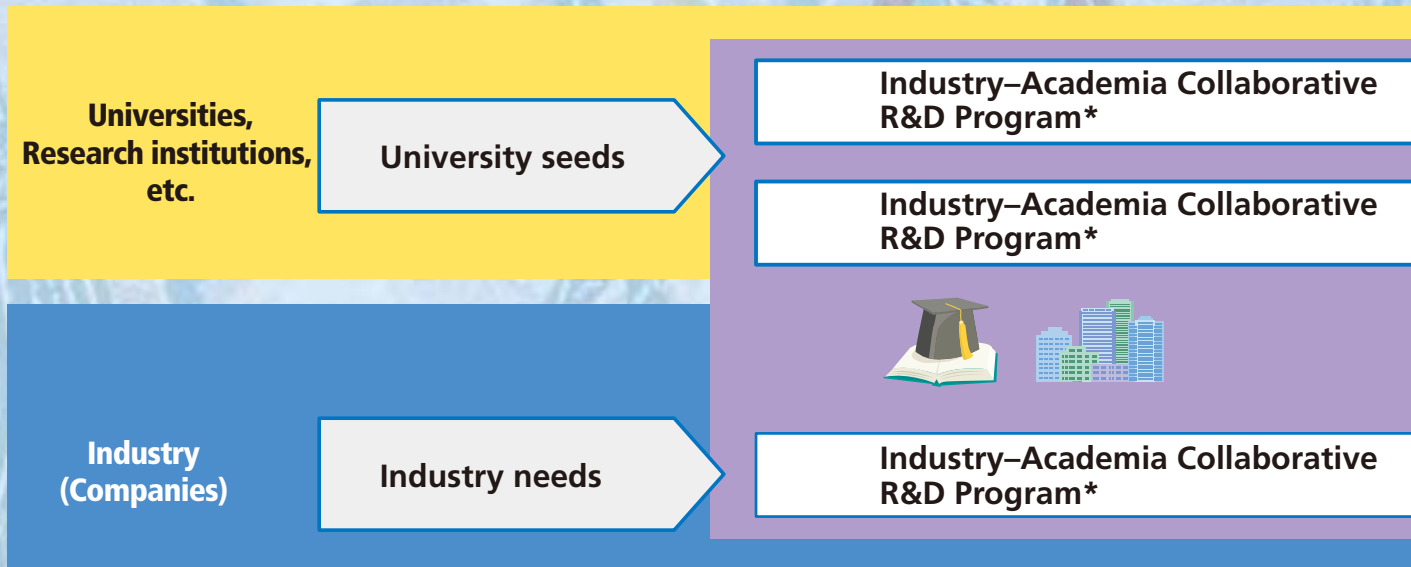
Utilizing university IP to drive innovation

JST's program to promote technology transfer and innovation through collaboration between universities—and other public-sector research institutions—and the private sector encompasses a broad array of bridging activities. These include promoting the pursuit of patents based on the basic research output—science and technology seeds (hereafter, "seeds")—of universities



Creating a platform for dialogue to drive

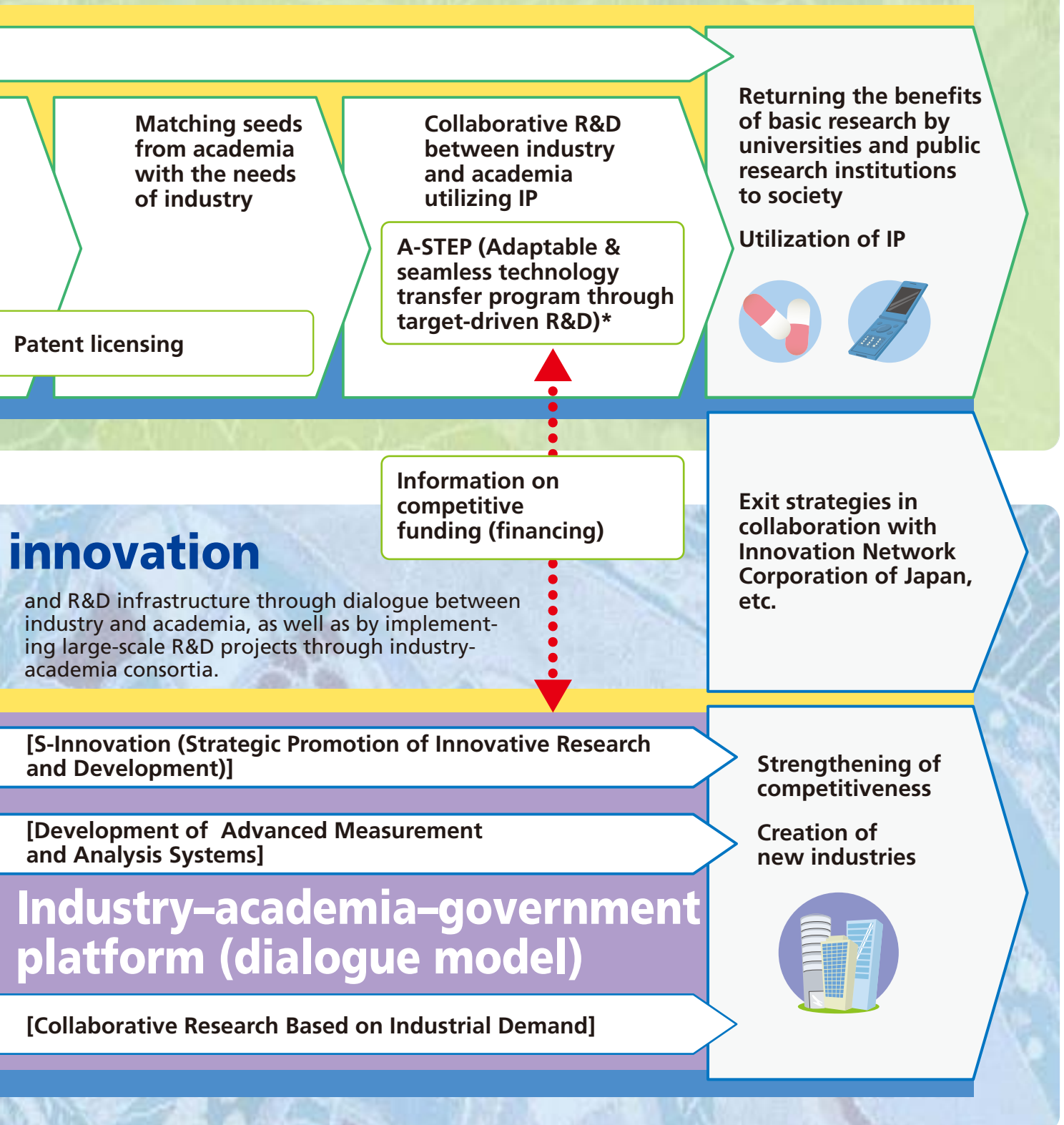
JST works to accelerate innovation driven by close collaboration between industry, academia and government, and facilitated by a platform for dialogue between all three sectors. JST also aims to foster the creation of new industries and assist industries' efforts to strengthen their competitiveness. To achieve these goals, JST specifically focuses on strengthening basic research

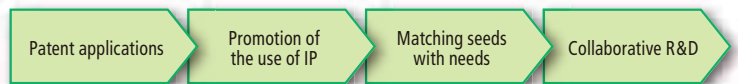


*Funding Program

by universities to realize benefits for the

and the use of such research output; matching these seeds with the needs of the industrial sector; and supporting collaborative research and development (R&D) between industry and academia based on the IP and seeds held by universities.





Programs to promote the utilization of high-quality research output from universities and public research institutions: Formulation of IP strategies and the pursuit of patents.

Development of Plans and Proposals Related to IP Strategies

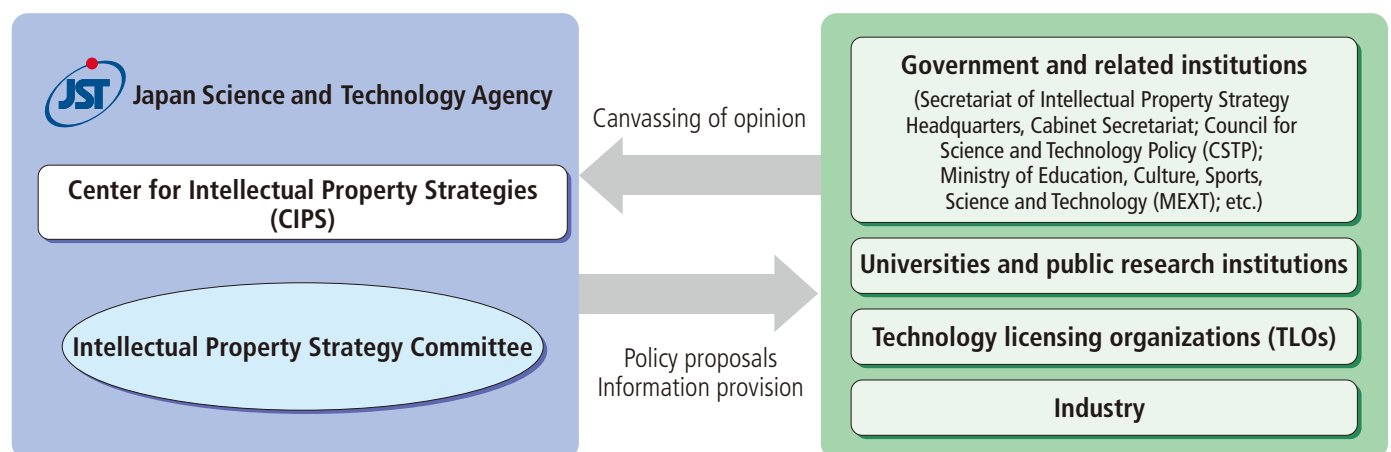
Through a process of opinion exchange and surveys involving universities and research institutions, JST works to identify and clarify key issues relating to IP. These issues are discussed by the Intellectual Property Strategy Committee, which is convened under the auspices of JST's Center for Intellectual Property Strategies (CIPS)*. Based on these discussions, the committee generates plans and makes policy proposals related to IP strategy.

In a period when the number of patent applications by universities has increased steeply, JST aims to bolster its contribution to the generation of innovation by working to maximize the utilization of Japan's research output-based IP.

* CIPS was established in April 2009 with the objectives of producing IP strategies for Japan and conducting a range of programs, including support for IP-related activities at universities and public research institutions.

CIPS' main activities include:

- developing IP strategies
- helping universities acquire patents
- managing Accelerating Utilization of University IP Program
- promoting patent licensing



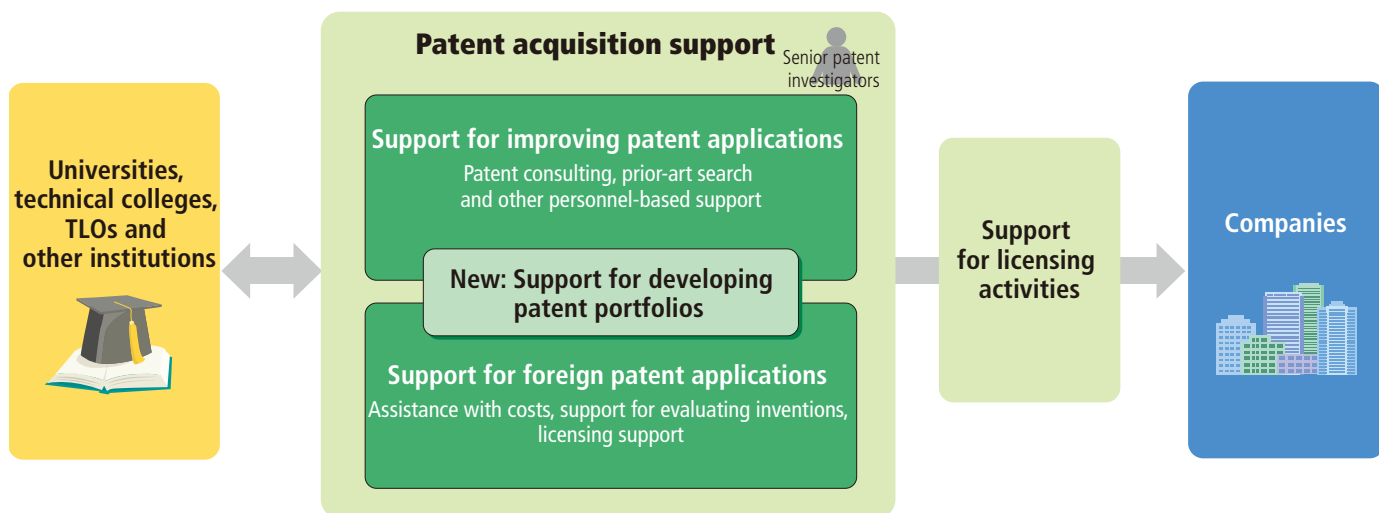
Patent Acquisition Support

Supporting the first step in converting research output to IP

JST's senior patent investigators* support universities, technical colleges, TLOs and other institutions nationwide aiming to acquire patents based on research output.

- Support for improving patent applications: Provision of support to universities, technical colleges and TLOs, including patent consulting and preliminary examination of technology
- Support for foreign patent applications: Provision of assistance to universities, technical colleges and TLOs to help cover costs related to foreign patent applications
- Support for creating patent portfolios: Provision of support in building patent portfolios based on a high-value core patent

* Senior patent investigators possess extensive experience working in private-sector companies in such areas as R&D, and are required to maintain strict confidentiality while engaged in this specialized work.



■ Support for improving patent applications

Senior patent investigators at six JST regional patent-acquisition support offices throughout Japan (Hokkaido, Tohoku/ Kanto/Koshinetsu, Chubu, Kansai, Chugoku/Shikoku and Kyushu) provide a range of personnel-based support services to university IP offices, including patent consulting and prior-art search.

Process flow leading up to patent application	Support services (examples)
<div style="background-color: #92d050; padding: 5px; display: inline-block;">Awareness programs</div> 	Support for holding IP seminars
<div style="background-color: #008080; color: white; padding: 5px; display: inline-block;">Research</div> <div style="background-color: #008080; color: white; padding: 5px; display: inline-block;">Invention</div> 	Patent consulting <ul style="list-style-type: none"> ● Registration procedures for invention ● Advice on obtaining patents ● Prior-art search
<div style="background-color: #4169e1; color: white; padding: 5px; display: inline-block;">Registration of invention</div> <div style="background-color: #4169e1; color: white; padding: 5px; display: inline-block;">Evaluation committee</div>	Evaluation of invention <ul style="list-style-type: none"> ● Evaluation of patentability (including prior-art search) ● Evaluation of utility

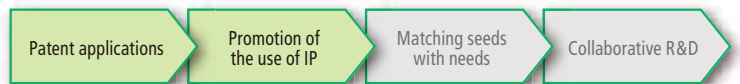
■ Support for foreign patent applications

For foreign patent applications undertaken by universities, technical colleges, TLOs and other public research institutions, JST provides a range of specialized support, including assistance with costs, evaluation and advice.

Content of support

- Assistance in covering patent-related costs, including attorney fees, translation costs and local agent fees. (Patent Cooperation Treaty (PCT) application international filing fees must be covered by the applicant.)
 - (1) Foreign patent applications based on claim of priority
 - (2) Procedures from designated-country transition to acquisition of rights
- Support for technology evaluation and patentability evaluation
 Inventions are evaluated by the IP Judging Committee, which comprises eminent experts from outside JST. The committee provides an evaluation report along with its decision on whether or not JST will provide patent application support for the invention.
- Licensing support
 JST's J-STORE database, a comprehensive source of information on research output, includes information on unreleased patents as well as published patents. Inventors may register their applications on the database and JST provides support for publicity activities.

CIPS–Support for Improving Patent Applications: ✉ j-sup@jst.go.jp
CIPS–Support for Foreign Patent Applications: ✉ kenri@jst.go.jp



Support for developing patent portfolios

To promote the building of patent portfolios based on high-value core patents, JST appoints a senior patent investigator who provides advice on related patents from the stage of filing a Japanese patent application through the acquisition of effective rights, and also gives priority support for foreign patent applications.

Support requirements

- Foreign applications are being undertaken for the core patent, and a clear plan is in place to build a patent portfolio, etc.
- JST calls for candidates once a year whereby it selects and approves candidates.

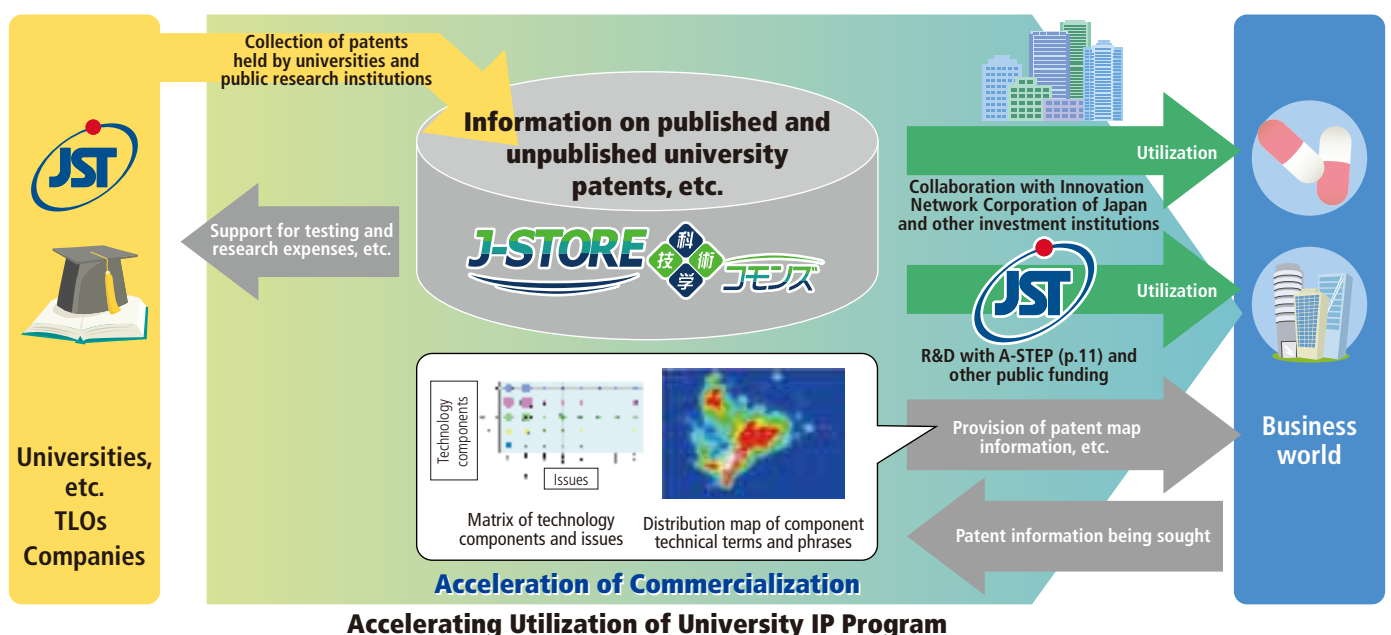
Accelerating Utilization of University IP Program (Commenced in FY2011)

<http://www.jst.go.jp/chizai/gyomu4.html>

Accelerates business use of unused patents held by universities and public research institutions in collaboration with investment institutions

Outline

- **Use of J-STORE and Science and Technology Commons**
J-STORE (<http://jstore.jst.go.jp/>) presents information on patents held by universities and public research institutions that are available for licensing, including Science and Technology Commons* patent data.
* System whereby patents can be freely used at the research stage.
- **Support to Increase the Value of Patents Held by Universities and Public Research Institutions**
Support for strengthening technologies, creating new applications, fabricating prototypes, conducting market surveys and other testing and research expenses and technology transfer investigation expenses related to patents submitted to the J-STORE or Science and Technology Commons.
- **Technological Analyses of Patents Held by Universities and Other Parties**
Analyzes patents registered in the J-STORE or held by domestic universities and public research institutions from various perspectives, and provides information on patent maps and portfolios. The results of these analyses are reflected in patents when they are newly registered in the J-STORE and in setting important perspectives for "Support to Increase the Value of Patents Held by Universities and Public Research Institutions." Requests for patent mapping are solicited on an ongoing basis.
- **Collaboration with Investment Institutions**
Supports the use of unused patents by providing information on patent groups to investment institutions, intellectual property (IP) funds and other groups, considering business needs.





J-STORE (JST Science and Technology Research Result Database for Enterprise Development)

<http://jstore.jst.go.jp/EN/> 

Free open database of university, JST and other research results available for licensing

Broad distribution of information to the general public via the Internet regarding university, JST and other patents (including unpublished patents) that can be licensed to companies, Science and Technology Commons patents which can be used freely at the research stage, technology seeds, patent maps and other data.

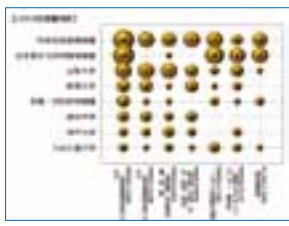
* Science and Technology Commons website integrated from August 2011.

J-STORE Homepage




Patent Mapping Functions

- **Automated generation of patent maps**
Provides an overview of the number of domestic published patents with specified conditions recorded (top-ten rankings by applicant, inventor and IPC category; shows number of patents by year).
- **Patent map searches**
Can search patent maps generated by JST covering domestic disclosed patents recorded in J-STORE.



Search Functions by Use Contents

- **Patent information**
Information on disclosed and unpublished patents held by over 170 universities and public research institutions; information on foreign patent applications
*Science and Technology Commons patents are denoted by the  logo
- **Technology seeds information**
Information explaining technologies: presents research findings focusing on such aspects as "outline of the technology," "use and application fields" and "competing technologies."
- **Research reports**
Outlines of reports on research conducted under JST Strategy Creative Research Promotion Programs.
- **Technical eye**
Column explaining recommended technologies chosen by technical experts.

Science and Technology Commons

<http://jstore.jst.go.jp/EN/> 

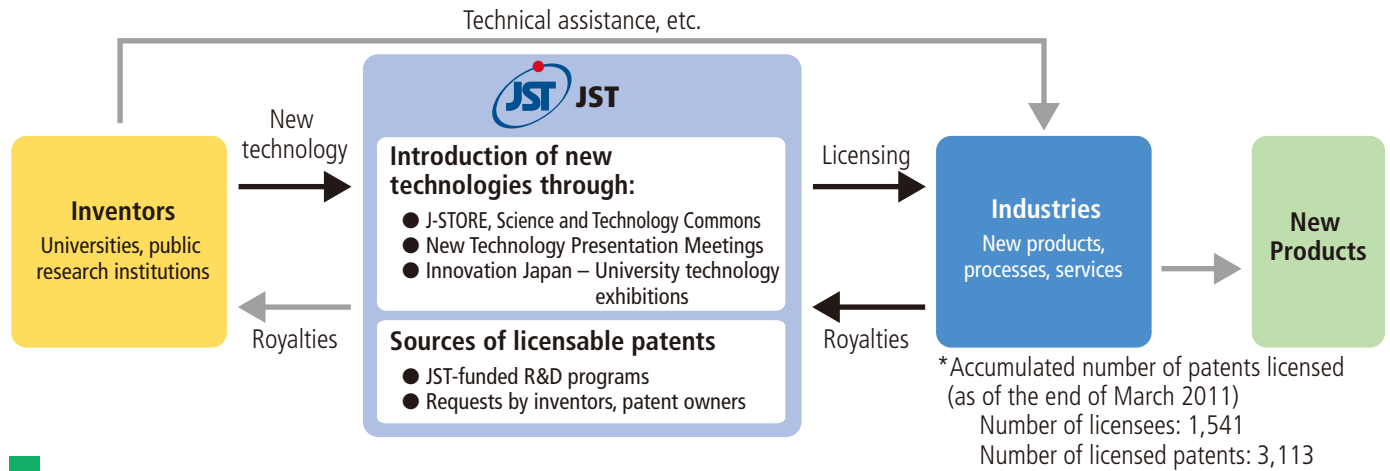
Collects university and other patents, and makes them available for free use at the research stage

Science and Technology Commons is an environment in which patents held by universities, companies and other organizations can be freely used at the research stage, to promote the utilization of patents and stimulate research. Opening patent use at the research stage provides a research environment in which patents are not a restriction, and works to promote patent use and to invigorate research. (The execution of a license agreement is required at the practical stage).

* Information on patents provided to Science and Technology Commons is now available through J-STORE. (Operation of the former Science and Technology Commons website <http://commons.jst.go.jp/> was discontinued in August 2011.)

Licensing

Promoting patent licensing from universities and public research institutions to industries



New Technology Presentation Meetings

JST aims to foster new links between academia and industry through technology presentations given by inventors based on their own perspective of practical applications.

To promote the return of benefits from research output achieved by universities and JST to society as a whole, inventors present their own perspectives on the potential for commercial applications for their new technologies to companies. In addition, opportunities are provided for direct dialogue with individual inventors. Companies may ask questions relating to presentation themes and discuss requests relating to joint research and the adoption of technologies. Approximately 60 New Technology Presentation Meetings are held each year. In FY2011, almost 23,000 people attended these meetings, which led to about 600 dialogue consultations between inventors and companies as of the end of December.



Presenters: Researchers from universities and other institutions
Audience: Companies, etc.
Place: Mainly at JST's Tokyo Headquarters

Innovation Japan: University Technology Exhibitions

Supporting the matching of research output from universities and public research institutions with industry

To promote the practical application of research output from universities and public research institutions, JST organizes national-scale university knowledge fairs with the aim of matching high-quality technology seeds with the needs of industry.

- Exhibits of university research output from the most advanced technology fields
- Holding of New Technology Presentation Meetings in which researchers themselves present their research results
- Holding of Open Innovation Seminars



Exhibition dates: September 21 (Wed)–October 22 (Thu), 2011

Place: Tokyo International Forum

Organizers: JST, New Energy and Industrial Technology Development Organization (NEDO)

Visitors: About 38,000 people; corporate researchers, senior managers and marketing managers; university researchers, etc.

University exhibits: 300 booths

New Technology Presentation Meetings: 147

Fields: IT, life science, medical technology, equipment and device, nanotechnology environment and purification, low carbon and energy, material and recycle, aged society, disaster prevention.

CIPS–Licensing: ✉ license@jst.go.jp

Department of Industry–Academic Collaboration: ✉ scett@jst.go.jp



Technology Seeds Integrated Search System

e-seeds.jp

A one-stop site providing information on research output from universities and research institutions throughout Japan (In Japanese only)

e-seeds.jp is a search Web site developed with the objective of facilitating the utilization by society of research output generated by universities and public research institutions. The Web site, which is available free of charge, enables users to carry out integrated searches for collections of science and technology seeds (seeds) and research information produced by universities and public research institutions. The Web site also provides direct links to research laboratories and industry–academia collaborative offices. In addition to keyword-based searches, users may specify such search parameters as region and research institution.

Technology Needs Communication Meetings

Communicating the needs of companies to universities

At Technology Needs Communication Meetings, companies communicate their research-related needs to universities, including issues that require short-term solutions and issues on which companies wish to conduct collaborative research. The main objective of Technology Needs Communication Meetings is to facilitate the generation of new technology. More than 100 consultations were carried out at four Technology Needs Communication Meetings in FY2011, which attracted approximately 600 participants, as of the end of December.



Presenters: Companies
 Audience: Universities, TLO coordinators, researchers, etc.
 Place: Mainly at JST's Tokyo Headquarters
 Allotted time: 20–40 minutes per theme
 Content: Technology seeds that companies are seeking from universities, research content, fields and issues into which companies wish to conduct collaborative research



Individual consultations in separate meeting rooms
 Consultants: Universities, TLO coordinators

Creating new opportunities for cooperation between industry and academia.

Outcomes include:

- Consultations between companies and university researchers
- Technology consultations
- Collaborative research

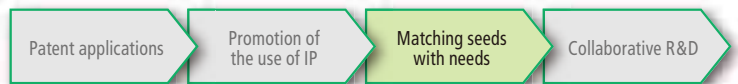
Portal Site for Industry–Academia–Government Collaboration

(In Japanese only)

A portal site for information related to industry–academia–government collaboration in Japan



The “Industry–Academia–Government Guidepost” Web site gathers together a comprehensive range of information relating to industry–academia–government collaboration to enable all interested parties to meet their information needs through this one-stop portal site. The site is open to the general public via the Internet free of charge.



Provision of information relating to industry–academia–government collaboration

Industry–Academia–Government Collaboration Data Book

- This publication gathers together statistics and data useful in activities related to industry–academia–government collaboration. It uses charts and tables to provide user-friendly information.

Event information

- Provision of timely information on upcoming events related to industry–academia–government collaboration and IP.



Industry–Academia–Government Collaboration Journal (Issued monthly on the 15th)

<http://sangakukan.jp/journal/> (In Japanese only)

An interactive online journal whose objective is to promote and facilitate smooth collaboration between industry, academia and government

Journal articles covering a broad array of fields

Industry–academia–government collaboration, entrepreneurship, IP, human resource development, management of technology (MOT) and education, government budgets and policy, international collaboration, overseas trends, collaborative R&D, commercialization, etc.

A sample article in English, “Translation of two typical Industry–Academia–Government Collaboration Cases in Japan” is available here: http://www.jst.go.jp/report/2010/101115_e.html

Industry–academia–government collaboration support database

<http://sangakukan.jp/shiendb/> (In Japanese only)

A valuable online database to support the parties involved in industry–academia–government collaboration

Extensive range of available information

- Program and project database (Approximately 2,800 entries)
 - > R&D support programs conducted by national and regional government agencies
 - > Financial assistance programs operated by foundations and other bodies
 - > Venture capital
- Database of personnel involved in industry–academia–government collaboration (Approximately 1,700 entries)
- Institution database (Approximately 1,600 entries)

Human Resource Development Program for Personnel Involved in Technology Transfer

Developing personnel capable of playing a leading role in the technology transfer of research output

This training program was established with the objectives of enhancing the specialist skills of people involved in technology transfer programs at universities and TLOs and building a network of human resources. Approximately 1,000 people took part in 27 programs within six courses in FY2010.

- In addition to lecture-based learning, this program includes case studies and group discussions. The program emphasizes two-way communications between participants and lecturers as well as among participants.
 - > Participants acquire practical knowledge based on case studies, beginning with basic knowledge on the flow of procedures for an entire technology transfer project.
 - > This program is useful in bolstering practical, specialized skills through the examination of technology transfer failure and success cases as well as through feedback given on case studies presented by each participant.



General Consulting Service for Technology Transfer

A one-stop consulting service

JST provides a free-of-charge consulting service for companies, universities, public research institutions and TLOs, covering a wide range of matters related to technology transfer and industry–academia–government collaboration. Consultations—available via telephone, e-mail and interview—include such areas as general information on JST programs and other public-sector programs, referrals to potential partners and collaborating organizations, technology content and progress status, and licensing.

Competitive Funding Program

A-STEP (Adaptable & Seamless Technology Transfer Program through Target-driven R&D)

Promoting industry–academia collaborative R&D based on the research output and IP generated by basic research

Objectives

This program supports collaborative industry–academia R&D based on the results of high-quality basic research (research output, IP, etc.) to ensure that the benefits of research are passed onto Japanese society. Depending on the R&D phase and objectives of each particular project, A-STEP combines the optimal R&D funding and period to enable seamless pursuit of medium- to long-term R&D. Through this approach, the program aims to bridge the gaps between academic research results and industry to realize highly effective and efficient innovation.

Overview

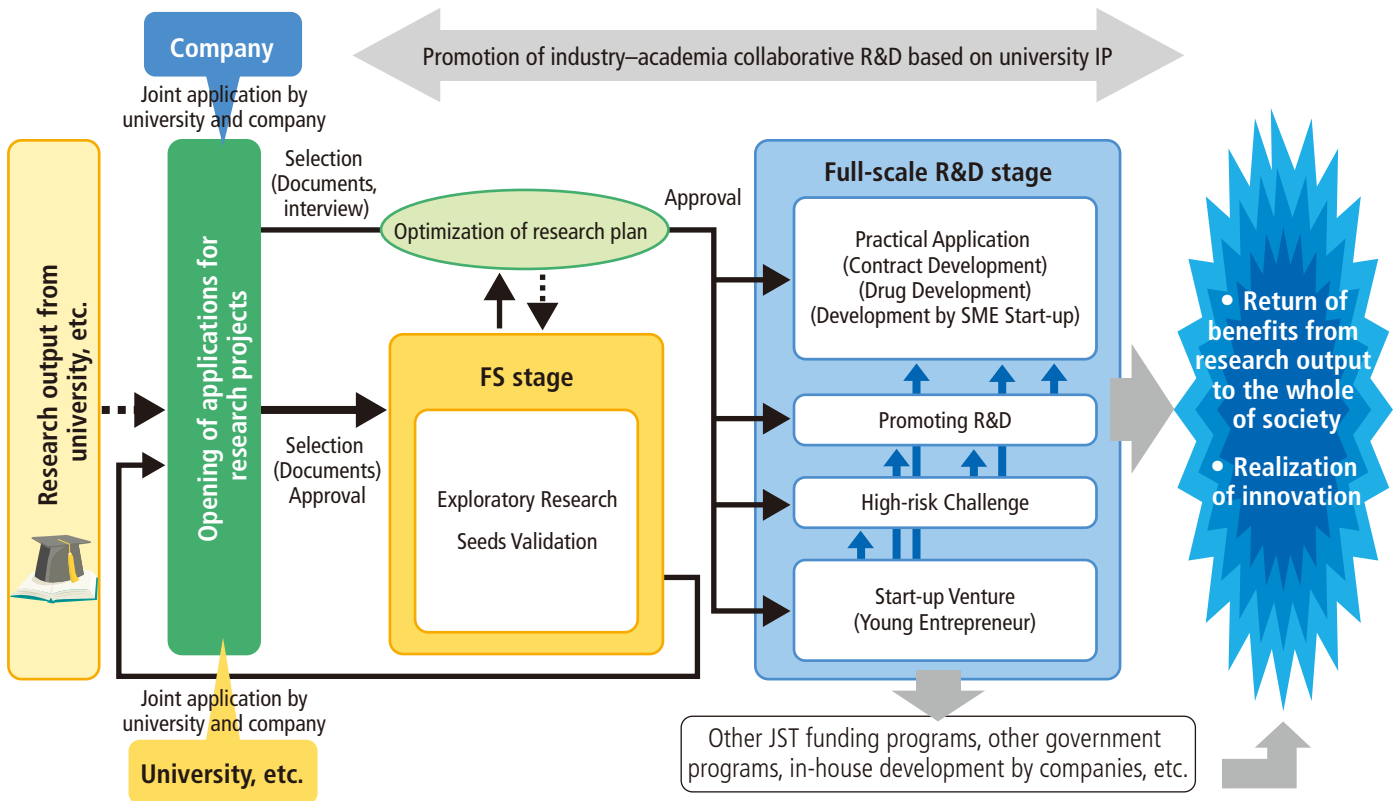
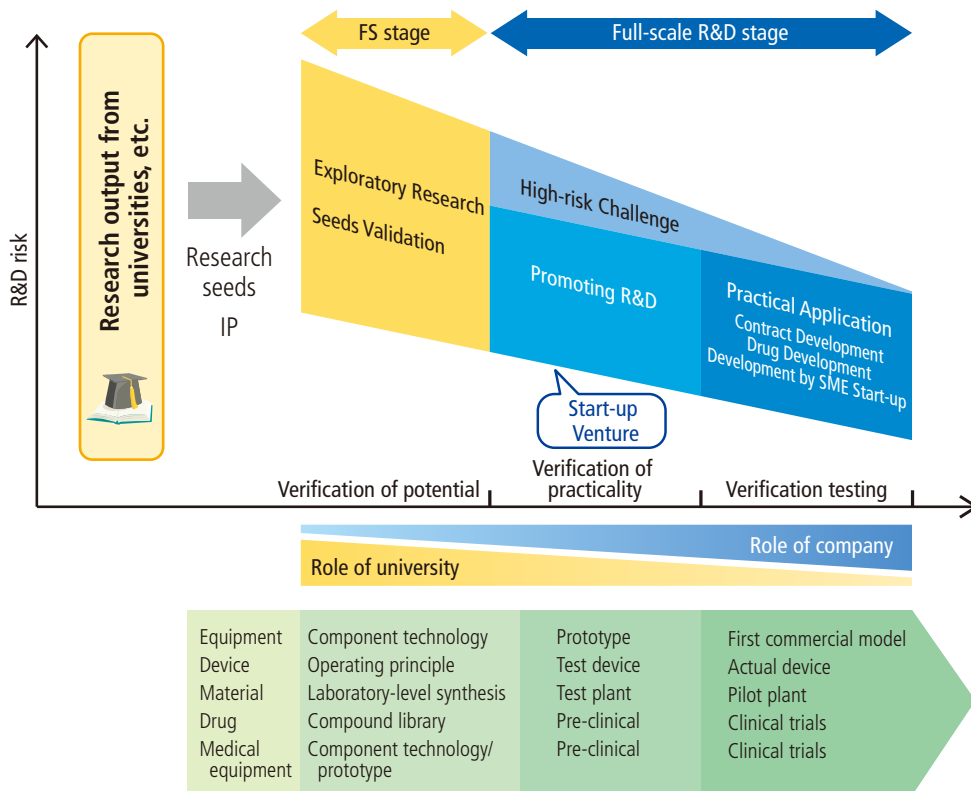
A-STEP comprises 6 types of support at the feasibility study (FS) stage and full-scale R&D stage.

- **FS stage**
Investigation of technology transfer potential; validation of potential as a technology seed that will meet the needs of companies
- **Full-scale R&D stage**
R&D in preparation for the establishment of a university-launched start-up venture that aims for the practical application of technology seeds; and R&D during the practical verification and testing phase through joint R&D by an industry–academia partnership

Unique characteristics of A-STEP

- **One-stop support**
A-STEP unifies such functions as consultation services for universities and companies and front-office services for the receipt of applications. By contacting the A-STEP office, all relevant information can be acquired.
- **Seamless R&D support**
At the full-scale R&D stage, in which applicants may freely combine several types of support into one application, A-STEP provides seamless, medium- to long-term support through “stage-gate evaluation” whereby each type of post-evaluation and pre-evaluation for the next type are carried out together. This approach facilitates the pursuit of R&D that has produced strong results without having to reapply for further support. The system also helps us to provide a seamless connection between R&D output and further R&D, thereby enabling the rapid utilization of results.
- **Optimizing flexible R&D**
At the selection stage, in cases where it is judged that an earlier stage support type is preferable over the support type being applied for, it is possible to continue with selection based on a revamped plan and proceed to R&D execution in accordance with the advice of the evaluation board. This is designed to facilitate the creation of a flexible R&D environment in which researchers and companies are encouraged to boldly make their R&D plans as effective and efficient as possible.

Utilizing university IP to drive innovation





A-STEP Support Content

Feasibility Study (FS) Stage		
Support Type	Exploratory Research	Seeds Validation
Support objective	Support toward practical application for those basic research areas with the potential for technology transfer identified through dialogue between university or other research institutions-based researchers and coordinators, promotion of coordination activities.	The output from academic research is seen to hold potential technology seeds. The applicant pair, comprising the academic researcher and a company, verify the potential for future practical application.
Applicant requirements	Joint application by university or other institution researcher and coordinator University or other institution researcher with opinion of company engaged in R&D required	Joint application by university or other research institution-based researcher and a company
R&D period (in principle)	Up to one year	Up to one year
Total R&D funding (including indirect expenses)	Standard amount: ¥1.7 million (up to ¥3.0 million)	Standard amount: ¥8 million
	Contract fund	

Full-scale R&D Stage							
Support Program type	Start-up Venture		High-risk Challenge	Promoting R&D	Practical Application		
Program Sub-type	Young Entrepreneur				Development by SME Start-up	Drug Development	Contract Development
Support objective	R&D support for the establishment of a high-growth start-up venture based on technology seeds from academic research	R&D support for young researchers who have a strong desire to start a business venture based on the practical application of their own research output	Support for high-risk R&D projects. Covers the R&D phase up to verification testing of technology seeds from academic research	Support for R&D that aims to establish a core technology. Covers the practicality verification phase for technology seeds from academic research	Support for practical application development relating to technology seeds from academic research. Covers R&D-focused small start-up ventures	Support for practical application development for novel drugs, etc., based on seeds from academic research	Support for large-scale practical application development of seeds from academic research. Covers projects that carry significant development risk
Applicant requirements	Three parties: Academic researcher, entrepreneur and a venture start-up support organization	A young researcher on a limited-period contract and a venture start-up support organization, such as a university	Company and academic researcher	Company and academic researcher	Company (paid-in capital of ¥1,000 million or less) and academic researcher	Company (paid-in capital of ¥30,000 million or less) and academic researcher	Company and academic researcher
R&D period (in principle)	Up to three years	Up to three years	Up to three years	Up to four years	Up to five years	Up to five years	Up to seven years
Total R&D funding (including indirect expenses) (in principle)	Up to ¥150 million. Separately, up to ¥15 million as venture start-up support expenses	Up to ¥45 million. Separately, up to ¥3 million as venture start-up support expenses	Up to ¥60 million	Up to ¥200 million	Up to ¥300 million	Up to ¥1,000 million	¥100 million to ¥2,000 million
	Contract fund		Matching fund		Contract fund		
Payment of royalties based on product sales							

Flow of Royalties Payments to Owner of Technology Seeds in Practical Application

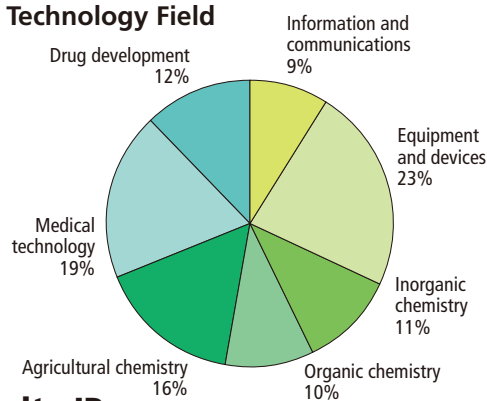


FY2011: Approved projects and technology fields

Number of projects approved by support type

● FS stage:	2240
Exploratory Research	2013
Seeds Validation	213
Start-up Validation	14
● Full-scale R&D stage:	74
Young Entrepreneur	4
Start-up Venture	3
Promoting R&D	12
High-risk Challenge	38
Practical Application (Development by SME Start-up)	13
Practical Application (Drug Development)	1
Practical Application (Contract Development)	3

Approved Projects at the FS Stage by Technology Field



Achievements to Date in the Utilization of University IP

Commenced FY1958

1959 Contract development

Synthetic crystal
University of Yamanashi / EPSON
TOYOCOM CORPORATION



Crystal unit and crystal oscillator (radios, televisions, clocks, computers, mobile phones), etc.

1980 Contract development

Natural interferon-beta (IFN-β)
Toray Industries, Inc.



Formulation of interferon (a drug used in the treatment of brain tumors, malignant melanomas, hepatitis B, etc.)

1990 Contract development

Bi-based superconducting wire
The University of Tokyo and others /
Sumitomo Electric Industries, Ltd.

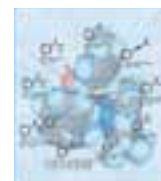


Large-capacity power cables, superconducting motors, etc.

1991 Basic research program

1998 Licensing

Noyori catalyst for synthesizing optically active alcohols
KANTO CHEMICAL CO., INC., TAKASAGO
INTERNATIONAL CORPORATION



This is an application of the research output of Professor Ryoji Noyori, who shared half of the 2001 Nobel Prize in Chemistry in recognition of this development. Used in the synthesis of raw materials for pharmaceutical and agrochemical intermediates, etc.

1972 Contract development

High-intensity red LED (GaAlAs)
Tohoku University and others /
STANLEY ELECTRIC CO., LTD.



Small and large display devices, etc.

1977 Contract development

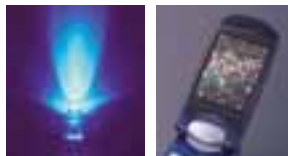
Magnetic material amorphous metals
Tohoku University / Hitachi Metals, Ltd.
and others



Telephone pole transformers, magnetic parts in electronic equipment, etc.

1986 Contract development

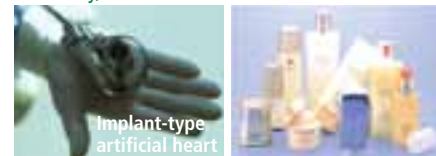
GaN blue LED
Nagoya University / Toyoda Gosei
Co., Ltd.



Small and large display devices, etc.

1993 Contract development

Biocompatible polymer with phospholipid polar group
The University of Tokyo, Tokyo Medical and Dental
University, NOF CORPORATION



Medical equipment (coatings), contact lens care products, cosmetics, etc.

Direct market effect (product sales) generated by JST program results:
¥646,700 million (approximate total) / Cumulative royalties: ¥19,400 million (calculated based on a royalty rate of 3%)



Achievements to Date in the Utilization of University IP

Support for patent applications Overseas: 8,991 applications	Human resource development and training Number of sessions held: 198 (total of 5,267 participants)
Science and Technology Commons Number of Registered Patents: 4933 Assistance Issues: 37	J-STORE Number of database entries: 29,400
Technology transfer consulting 3,167 cases	e-seeds.jp (171 institutions; 60,831 seeds)
University trade exhibitions: Held seven times Total number of participants: Approximately 270,000 people Number of matching cases: 1,668	
New Technology Presentation Meetings: Held 289 times Total number of participants: 161,881 Number of matching cases: 1,334	
Technology Needs Communication Meetings: Held 18 times Total number of participants: 2,934 Number of matching cases: 29	
Basic Research Program / Licensing Cumulative number of patents licensed: 3,113 / 1,541 companies	

Cumulated royalties: ¥19,400 million
Based on a royalty rate of 3%, this converts to product sales of approximately ¥646,700 million (Market effect)

Breakdown

● Licensing

Cumulative royalties: ¥3,800 million

Market effect: Approximately ¥126,700 million

● Contract development

Cumulative royalties: ¥15,600 million

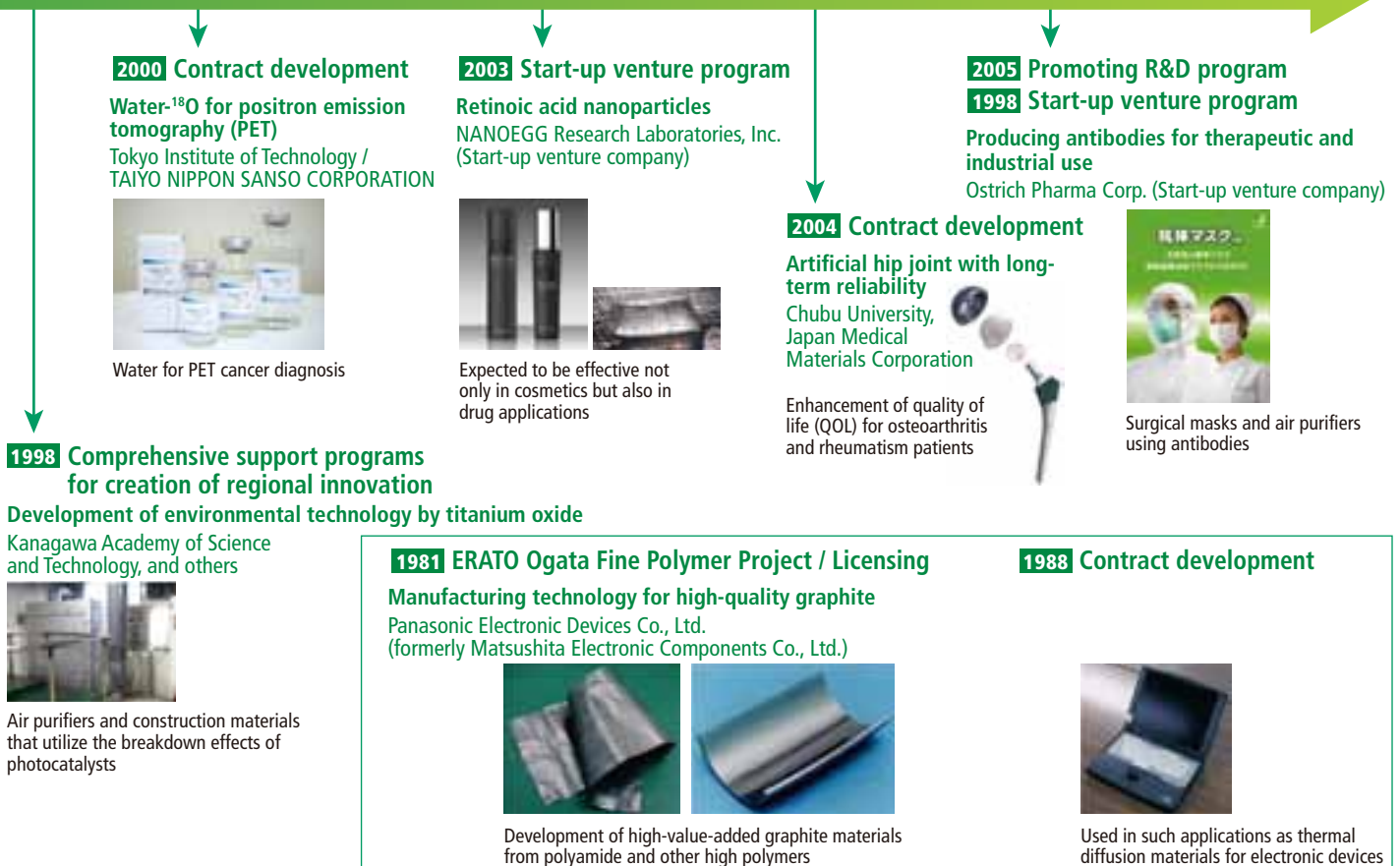
Market effect: Approximately ¥520,000 million

Number of start-up venture companies established on the basis of output from JST programs: 248*1

*1 Data as of the end of November 2009

Patents, etc., held
(including overseas): 7,388

Data as of the end of March 2011



INDUSTRY–ACADEMIA COLLABORATIVE R&D PROGRAMS

S-Innovation (Strategic Promotion of Innovative Research and Development)

Based on attractive R&D themes, bringing together academic researchers and private enterprise to generate innovation

Objectives

R&D themes chosen for the S-Innovation program are selected mainly from among the research output of JST's basic research programs, such as CREST, ERATO, PRESTO and SORST, which aim to create innovative new technologies, and lead to the advancement of science and technology and the emergence of new industries. S-Innovation is based on the seamless, long-term pursuit of R&D toward the practical application of novel technologies. It is envisaged that the innovation resulting from such technologies will form the foundations of future industries.

Overview

Process up to the setting of R&D themes

1. Review of R&D themes
R&D themes are mainly selected from among the output of such programs as CREST, ERATO, PRESTO and SORST.
2. Holding of workshops
Academic researchers and people from the industrial sector together discuss such issues as the potential for establishing a theme, and the necessity and direction of theme adoption.
3. Setting of R&D themes
R&D themes are set and Program Officers (POs) are appointed. The PO is responsible for evaluating and managing theme progress.

Process from call for proposals through approval

4. Call for project proposals
For each R&D theme set, applications are called from industry–academia collaborative teams comprising companies, universities and other parties.
5. Project selection and approval
POs conduct selection procedures based on submitted documentation and interviews. For each R&D theme, approximately five projects are approved.

Execution of research

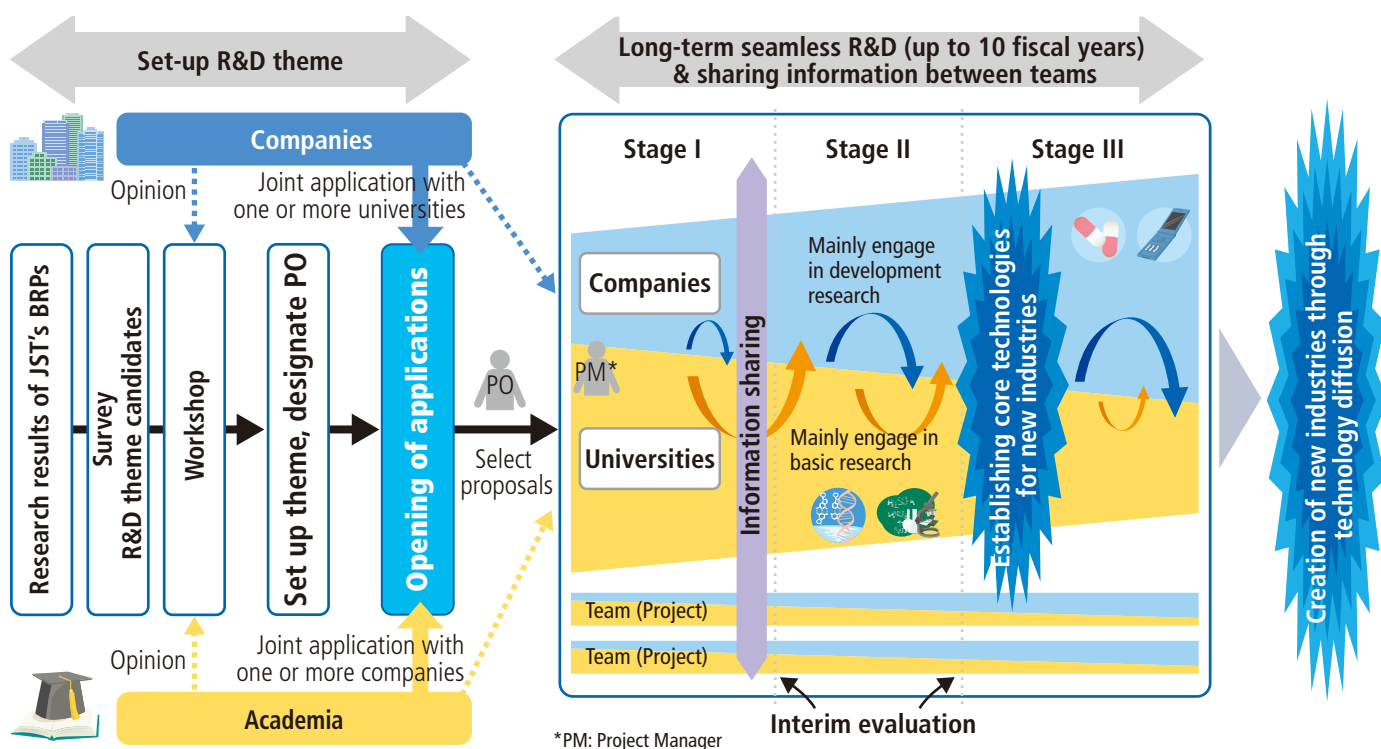
6. A platform (consortium) comprising R&D theme POs work to ensure information is shared among project teams as they strive to realize effective R&D.

Number of projects approved

Approximately five

S-Innovation Support Content

Number of projects approved	Approximately five projects per R&D theme		
R&D period	Up to 10 fiscal years (comprising three stages)		
R&D phase	Stage I	Stage II	Stage III
	Basic and foundational R&D aiming to establish component technology	R&D of component technology	R&D of applications (verification testing aimed at commercialization of product)
R&D period by stage (approximate)	2–3 years	3–4 years	2–3 years
R&D funding (including indirect costs)	Up to ¥70 million per project team		
	Contract fund	Contract fund	Matching fund
R&D system	Industry–academia collaborative R&D teams are formed through partnerships between companies and universities, etc. The project manager (PM), who is responsible for team coordination, is chosen at the time a proposal is submitted. Centering on the PO, each PM works to share information among teams as R&D proceeds.		



R&D themes

Theme	PO	Theme	PO
iPS Cells	Dr. Shin-ichi Nishikawa (Deputy Director, Center for Developmental Biology, RIKEN)	Organic Electronics	Dr. Yoshio Taniguchi (Professor Emeritus, Shinshu University)
Photonics Polymer	Dr. Seizo Miyata (Professor, Tokyo Institute of Technology)	Superconductivity System	Dr. Ken-ichi Sato (Fellow, Sumitomo Electric Industries, Ltd.)
ICT/IRT for Aged Society	Dr. Tohru Ifukube (Professor Emeritus, The University of Tokyo)	Spin Current	Dr. Koji Ando (Fellow, National Institute of Advanced Industrial Science and Technology)

INDUSTRY–ACADEMIA COLLABORATIVE R&D PROGRAMS

Development of Advanced Measurement and Analysis Systems

Development of technology and systems for advanced measurement and analysis that will bolster the infrastructure for creative and original R&D

Objectives

To build the infrastructure that will support creative and original R&D activities—essential to the generation of innovation—JST is promoting the development of systems and technology for advanced measurement and analysis.

Overview

In the field of measurement and analysis systems, JST calls for proposals in the following four programs.

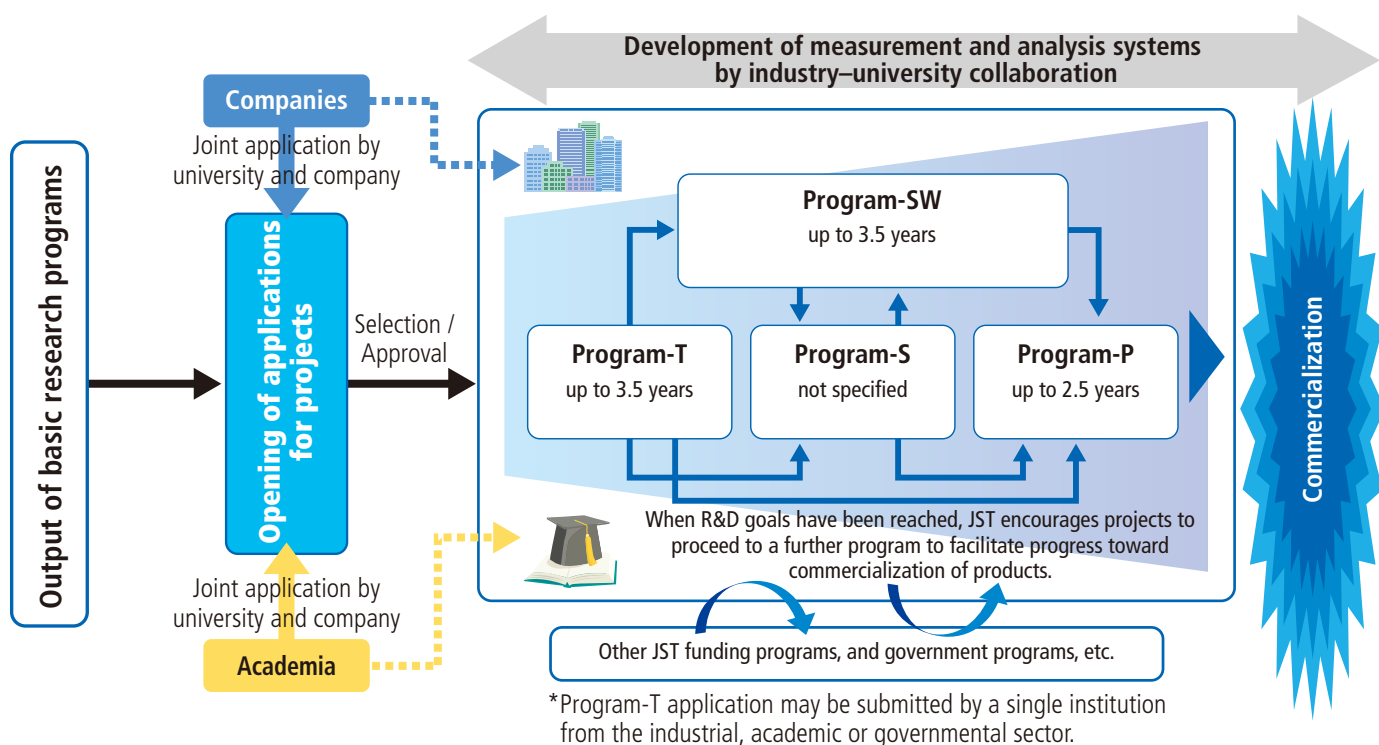
- **Technology Development Program for Advanced Measurement and Analysis (Program-T)**
This program seeks to develop novel and creative technologies for advanced measurement and analysis so as to rapidly improve the performance of such systems.
- **System Development Program for Advanced Measurement and Analysis (Program-S)**
This program seeks to develop systems needed for advanced measurement and analysis in frontier research areas. It assembles development teams that closely interface with industry, academia and government; operates under an authoritative team leader; and carries out R&D ranging from enabling technologies to applied development and prototyping.
- **Software Development Program for Advanced Measurement and Analysis (Program-SW)**
This program seeks to develop application, database and platform software for the purpose of promoting the practical application and adoption of advanced measurement and analysis prototype systems.
- **Prototype Validation / Practical Realization Program for Advanced Measurement and Analysis (Program-P)**
This program seeks to develop prototypes up to the practical realization stage by verifying, improving, optimizing or generalizing the prototype. It assembles development teams that closely interface with industry, academia and government; operates under an authoritative team leader drawn from industry; and includes the participation of world-leading users of measurement and analysis systems in the development team.

Number of projects approved (FY2011)

Program-T: 8 Program-SW: 1
Program-S: 4 Program-P: 4

Development of Advanced Measurement and Analysis Systems: Support Content

Program	Program-T	Program-S	Program-SW	Program-P
Development phase	Development of component technology that is novel and original. The technology is seen as having the potential to dramatically advance the performance of measurement and analysis systems.	Development of measurement and analysis systems that meet the needs of leading-edge research and shop floor-level manufacturing (<i>monozukuri</i>)	Application, database and platform software development for the purpose of promoting the practical application and adoption of advanced measurement and analysis prototype systems	Carry out applied development for the purpose of verifying, advancing and optimizing the performance of prototype systems through test use by users. Developed to the stage of potential commercialization (at the end of development, build-to-order production is possible)
Development period	In principle, up to 3.5 years	Not specified	In principle, up to 3.5 years	In principle, up to 2.5 years
Development funding (including indirect costs)	Not specified	Not specified	Not specified	Not specified
	Contract fund	Contract fund	Contract fund	Matching fund
Development system	Industry–academia collaborative development teams focused on a team leader are formed. (Program-T may be carried out by a single institution from the industrial, academic or governmental sector.) The Program Officer (PO), who is responsible for supporting progress in development projects, and the Business Organizer (BO), who is tasked with supporting projects from a commercialization perspectives and assist the development teams.			



INDUSTRY-ACADEMIA COLLABORATIVE R&D PROGRAMS

Collaborative Research Based on Industrial Demand

Promoting basic research that will contribute to solutions to technical themes shared across the industrial sector

Objectives

Based on a dialogue between the academic and industrial sectors, universities and other public research institutions carry out basic research that will contribute to solutions to technical themes shared across the industrial sector. As well as accelerating solutions to technical themes in the industrial sector, this program facilitates feedback to basic research projects from the perspective and knowledge of the industrial sector. The program aims to stimulate basic research at universities and bolster Japan's industrial competitiveness.

Overview

Process from call for proposals for technical themes through setting of technical themes

1. Call for proposals for technical themes
Proposals for technical themes are called from industry (industry bodies or companies).
2. Review of technical themes
Interviews are held in order to gather knowledge from interested parties in industry and academia.
3. Setting of technical themes
Technical themes and Program Officers (POs), who are responsible for managing technical themes, are selected.

Process from call for research project proposals through approval

4. Call for research project proposals for each of the technical themes
Proposals for research project proposals are called from university researchers.
5. Research project selection and approval
Research projects that will contribute to solutions to technical themes are approved.

Execution of research

6. Establishment of platform (“Forum for Collaboration and Innovation”)
As well as facilitating feedback to basic research projects at universities from the perspective and knowledge of the industrial sector, this platform provides a place for the exchange of opinions between industry and academia so that the output from basic research at universities can be utilized by industry.

Number of projects approved

Research projects: Up to approximately 10 per technical theme

R&D funding

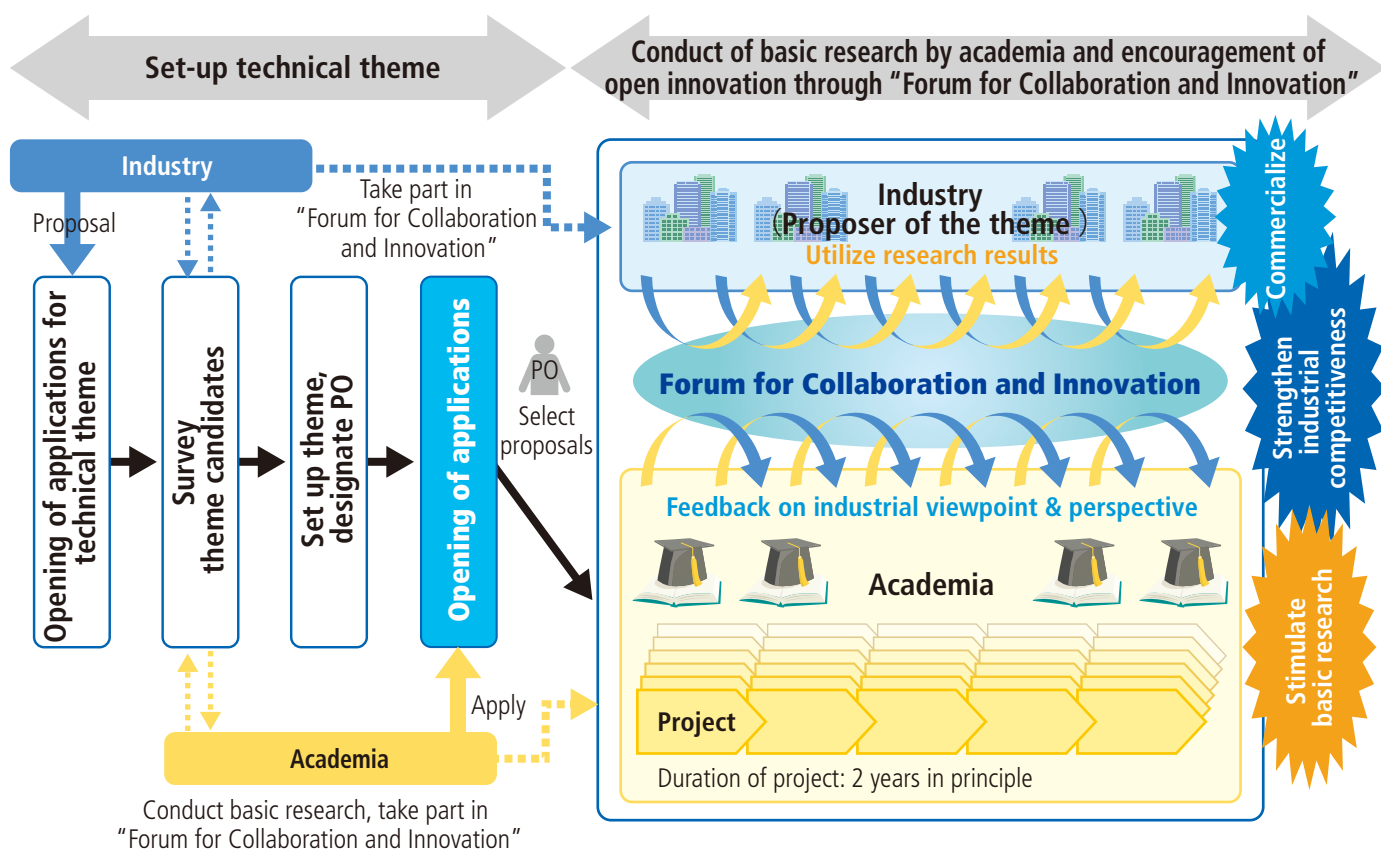
Approximately ¥300 million per year for each technical theme

R&D period

Approximately 10 years maximum for each technical theme
2 years for each research project in principle

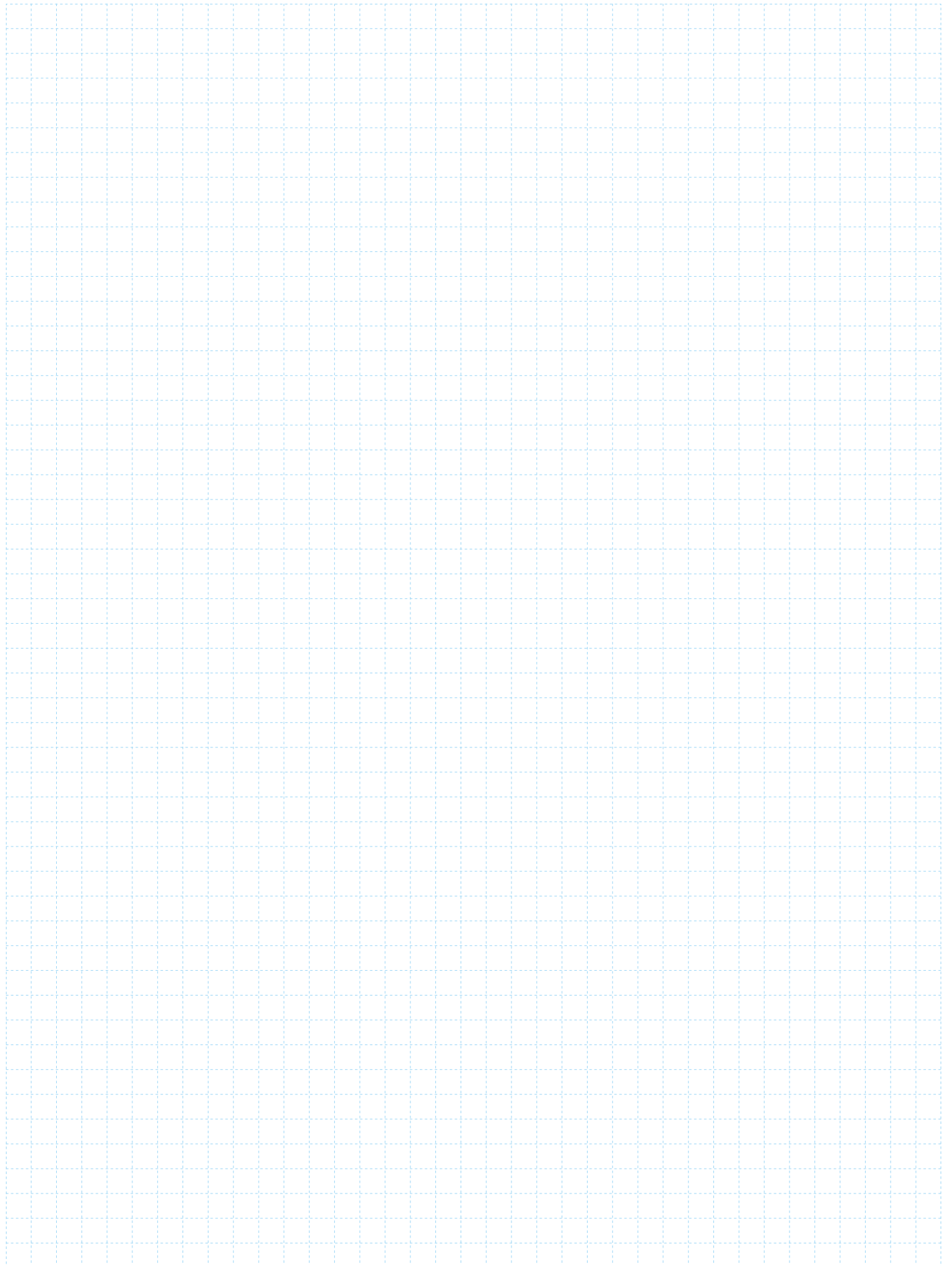
Collaborative Research Based on Industrial Demand: Support Program Content

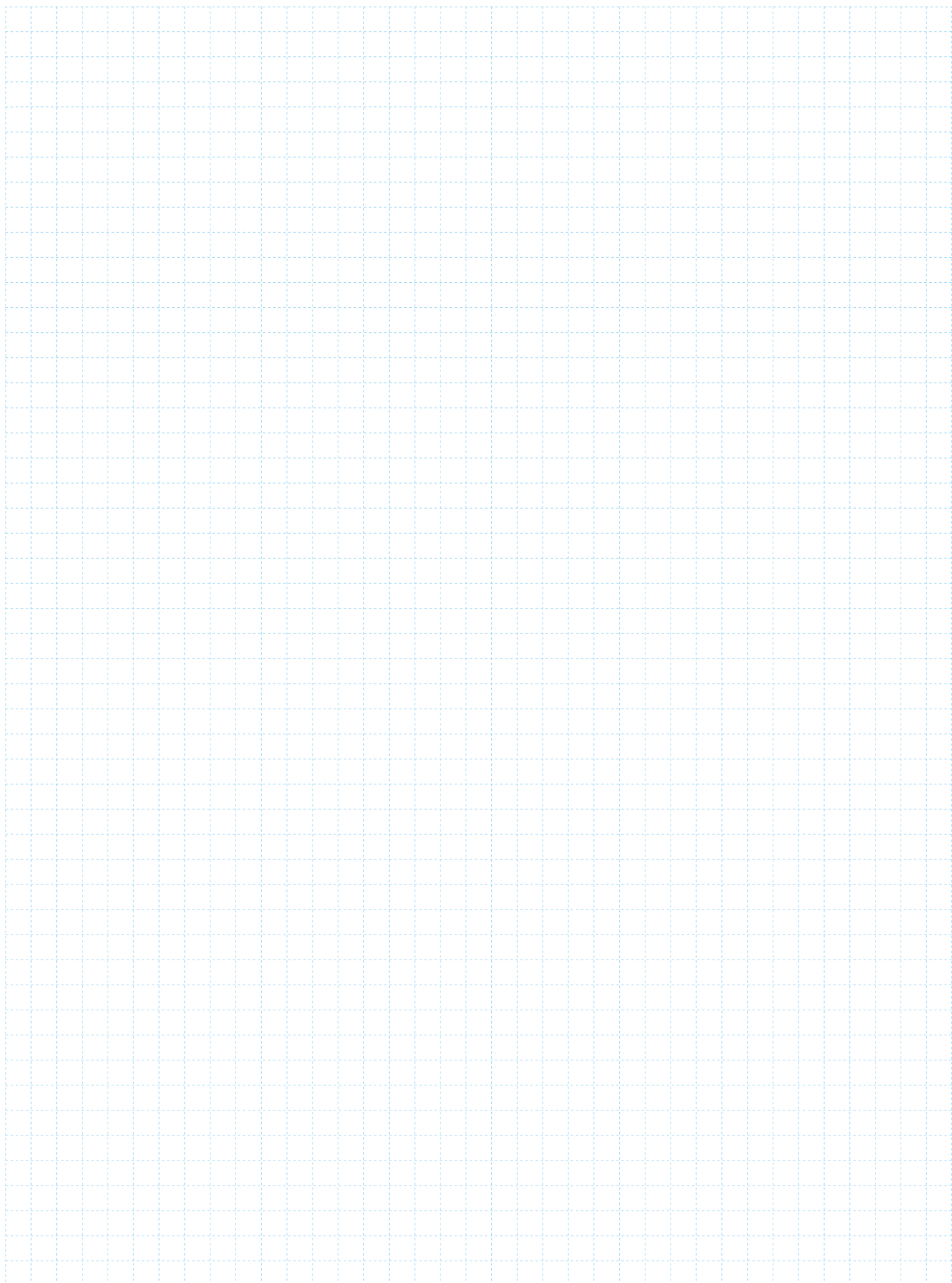
Number of projects approved	Up to approximately 10 per technical theme
R&D period	Approximately 10 years maximum for each technical theme (2 years for each research project in principle)
R&D phase	Basic research driven by the needs of industry
Research funding (including indirect costs)	Approximately ¥300 million per year for each technical theme (Contract fund)
Research system	In addition to universities carrying out basic research, industry and academia keep in close contact for the exchange of opinions through a “Forum for Collaboration and Innovation.”* *This refers to a communication platform for the exchange of opinions between industry and academia so that the output from basic research at universities can be utilized by industry.



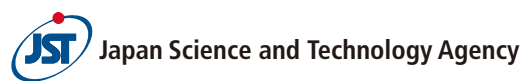
Technical themes

Theme	PO	Theme	PO
Heterogeneous Structure Control: Towards Innovative Development of Metallic Structural Materials	Dr. Masaharu Kato (Professor, Tokyo Institute of Technology)	Terahertz-wave: Towards Innovative Development of Terahertz-wave Technologies and Applications	Dr. Hiromasa Ito (Professor Emeritus, Tohoku University)
In vivo Molecular Imaging: Towards Biophotonics Innovations in Medicine	Dr. Tetsuro Takamatsu (Professor, Kyoto Prefectural University of Medicine)	High Performance Magnets: Towards Innovative Development of Next Generation Magnets	Dr. Hirotohi Fukunaga (Professor, Nagasaki University)





**PROMOTING
TECHNOLOGY TRANSFER
AND INNOVATION**



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Department of Industry-Academic Collaboration
Department of Industry-Academic Alliance

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