

MITOU:

Ingenious Creators

Information-technology Promotion Agency, Japan (IPA)

2021

Pioneering the Future with IT

Senior PMs Talk About the Appeal of MITOU

What are the MITOU Programs?

The Expanding MITOU Ecosystem

MITOU Graduates Leading the Way in Diverse Fields

New Trends Emerging from MITOU Connections

The 20-year Journey of the MITOU Programs

MITOU: 2021

Ingenious Creators

Pioneering the Future with IT

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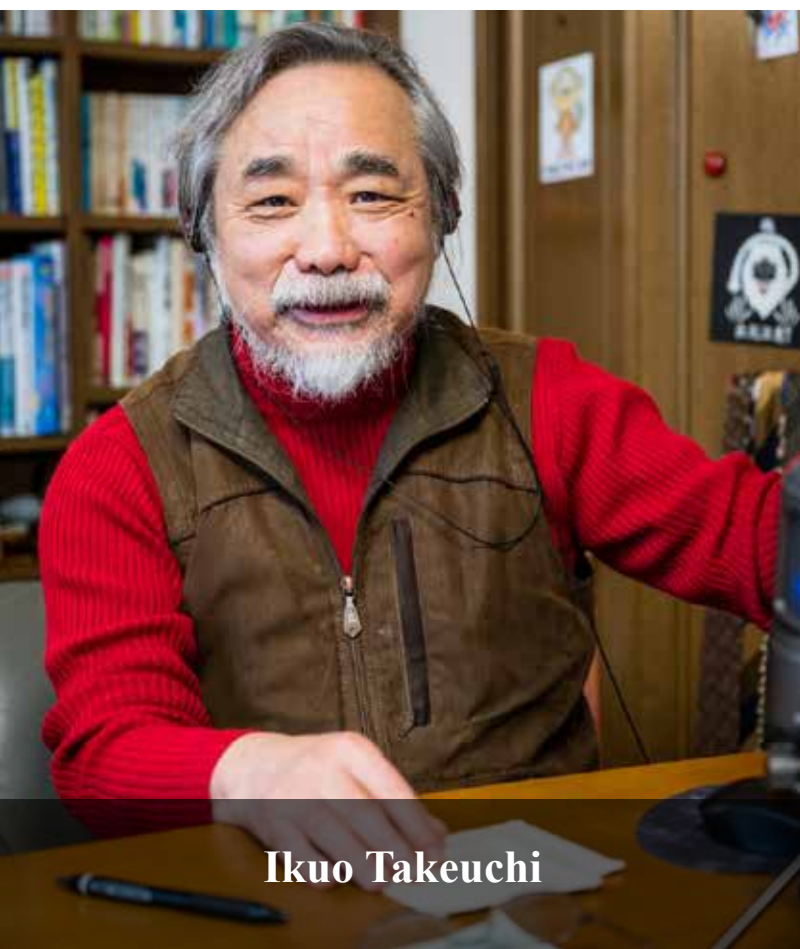
Society Shifting with Digital Transformation Needs **the Power of MITOU**

The MITOU Programs were launched in 2000.

Since then, the challenge of producing a Bill Gates, Steve Jobs, or Mark Zuckerberg in Japan has continued for over two decades.

To date, over 1,900 graduates have emerged from the MITOU Programs, many of whom are active innovators in their respective fields.

With the need for Digital Transformation (DX) becoming an urgent issue, the significance of “MITOU talent” is increasing.



Ikuo Takeuchi



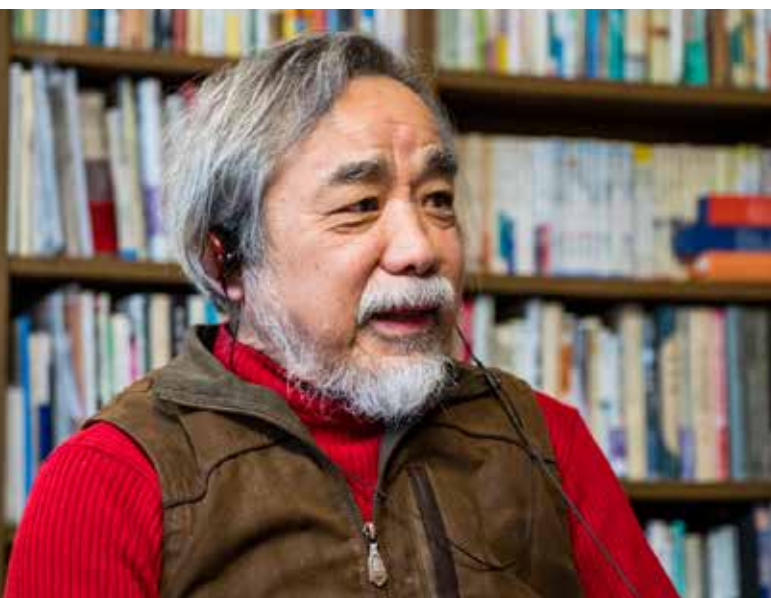
Takeshi Natsuno

Japan's World-Class IT Talent Discovery and Development Project MITOU as a "Centurial National Policy"

■ MITOU's Greatness is the Commitment to Solely Support Individuals

The most valuable aspect of the MITOU Programs is that, unlike start-up support programs in the US and other countries, it is not limited to individuals seeking to start their own businesses. Opportunities are also equally available to those going into academia or general corporate businesses. That is the great thing about MITOU. I believe that this well-balanced approach to discovering, developing, and supporting human talent has contributed to the dynamic growth of Japan's IT industry.

Today, 20 years after the launch of the MITOU Programs, a community and ecosystem of "unconventional talent" based on a total of over 1,900 MITOU Programs graduates has expanded beyond the boundaries of industries and fields and is of substantial value and presence in Japanese society, where the mobility of human resources is low. This is the result of a national project that can only be undertaken from a long-term perspective, and Japan should be proud of this initiative to the world.



Dr. Ikuo Takeuchi

Senior Project Manager (PM), The MITOU Programs
Professor Emeritus, the University of Tokyo

■ The Continuation Over the Past 20 Years Has Produced Significant Results

Looking back at the past, two things have left a solid impression on me as the Senior PM.

First, we made a clear shift in our focus to "discovering and developing talent." This project started as the "Exploratory Software Project" (the former name of the current MITOU Programs which deal with a wider scope of IT related projects). However, after several years of activities, everyone was convinced that the project was, in fact, about developing individuals, and in 2008, the current name and content of the project were adopted.

Second, the budget screening in 2011 by the Government Revitalization Unit, in which several national projects were placed under consideration. I consider the MITOU Programs to be a "centurial national policy," and I feel fortunate that we have been able to continue our activities owing to the understanding and efforts of the people involved. Much later, in 2017, the then Minister of Economy, Trade and Industry, Hiroshige Seko, instructed that more effort should be put into MITOU, and the number of projects adopted has increased in the present day.

■ Seeking Talent with Innovative Ideas and "Enthusiasm and Guts"

In recent years, the diversity of adopted projects has broadened. An increasing number of people are focusing on hardware, such as robots and machines, and projects focusing on medicine and space have also emerged. Looking ahead, we will continue to seek out innovative ideas, individuals with skills and techniques who enjoy their work, and those who also have "enthusiasm and guts" and a firm conviction.

Having been involved with MITOU since its inception, it has gradually become my life's work. I would like to continue to expand this program by continuously incorporating new perspectives based on our basic philosophy of "aiming for the unlimited growth of Japan's IT industry." Through this, I hope to create an environment in which young people can play an active role, and as an "old-timer," I believe that it is my duty to develop their talents by lavishing praise upon more praise for encouragement.

Profile

Born in 1946. Known as a pioneer of Lisp in Japan. After graduating from the University of Tokyo's School of Science, he worked at the Research Institute for Electrical Communication at Nippon Telegraph and Telephone Public Corporation (current NTT). He is the inventor of the "Takeuchi function," which is used for benchmarking programming language processing systems, etc., and developed the Lisp-based artificial intelligence machine ELIS, among others. Subsequently, he served as a professor at the School of Informatics and Engineering, the University of Electro-Communications, Department of Information Engineering, Graduate School of Information Science and Technology, the University of Tokyo, and School of Fundamental Science and Engineering, Faculty of Science and Engineering, Waseda University.

“Japanese-style Silicon Valley” MITOU will Shape the Future of IT in Japan

■ MITOU – Bringing “Silicon Valley” to Japan

Japanese society lags far behind Western countries in the use of IT; this is also true for the process of identifying cutting-edge IT and human resources to drive society forward and develop them into businesses. In the US, the “Silicon Valley” system has become firmly established, not in the sense of the place, but in that it is the name of a model that combines outstanding IT talent, venture capitalists and other investors who invest in this talent, and mentors who support the start-up of businesses.

Meanwhile, in Japan, the amount of venture capital investment itself is small—which does not mean that large companies are playing an alternative role—and the process of helping students and young people who have developed new technologies to commercialize them by supporting them as mentors have not taken root.

Within this environment, MITOU has provided a Japanese-style, Silicon Valley-like environment. The Japanese government has funded young creators with innovative ideas and provided them with mentors in the form of PMs to help their development. Japan has been implementing the Silicon Valley model for 20 years through the government-sponsored MITOU Programs.

■ The MITOU Community is the Future that Japanese Society should Aspire to

One of the most significant activities of the MITOU Programs are the study retreat-style workshop camps* such as the “Boost Conference” and the “Hachigome** Conference.” Not only those who are involved in the projects of the relevant year but also MITOU graduates and experts participate in these camps, where they actively share their opinions on the presentations of the creators and help train them through constructive feedback.

This is not a one-sided affair. There have been instances where high-school creators have successfully rebuffed the criticisms that the graduates have raised, posing questions such as: “Isn’t that the wrong approach?” Just as the word “MITOU=uncharted” suggests, the adopted projects are those that no one has ever experienced before. There is no seniority or hierarchical relationship between the creators, graduates, and PMs. The power of a community where such people can meet and debate on an equal footing is amazing.

With Japan’s population shrinking due to the declining birth rate, if we continue to place seniority as the top priority pillar, both talent and human resources will be exhausted. We have already reached a stage where the age axis can be eliminated. In

the MITOU community, we are proud to be ahead of society in putting this into practice.

*Partially held online in FY2020 due to the COVID-19 pandemic.

**The word “hachigome” means the 8th stage, or eight-tenths point of the way up a mountain.

■ Taking a Further Leap Forward by Building on 20 Years of Experience

Thanks to the success of many MITOU graduates, the social reputation of MITOU talent is rapidly growing. So far, we have appealed for more support and funding for MITOU graduates at every opportunity, but from here onwards, we will be asking that MITOU graduates be fostered and not spoiled.

In recent years, talent discovery and development programs similar to MITOU have been launched in various areas in the public and private sectors, but keeping them going successfully seems to be difficult. In this context, MITOU is now in its 21st year and has established a remarkable community and ecosystem. From here onwards, I would like to see the further expansion of the scope and scale of the program. If implemented on a tenfold scale, the IT landscape in Japan will change dramatically.



Mr. Takeshi Natsuno

Senior Project Manager (PM), The MITOU Programs
Director, Executive Officer and Chief Digital Officer,
KADOKAWA Corporation
President and CEO, DWANGO Co., Ltd.
Guest Professor, Graduate School of Media and Governance,
Keio University

Profile

Graduated from the Department of Economics, School of Political Science and Economics, Waseda University. He is known for launching many progressive services at NTT DOCOMO, including i-mode, the world’s first Internet service for mobile phones, and *Osafu-Keitai* (mobile wallet). He is currently a member of the Cabinet Office’s Council for Promotion of Regulatory Reform and a consultant of the Tokyo Organising Committee of the Olympic and Paralympic Games, while also serving as an outside director to several listed companies. He is active in a wide range of other activities as well.

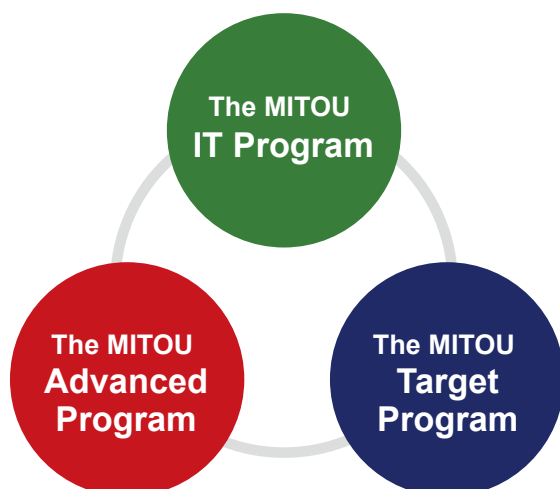
What are the MITOU Programs?



Leading the Evolution of Society through the Synergy of Three Programs

The MITOU Programs are IT human talent discovery and development projects operated by the Information-technology Promotion Agency, Japan (IPA). Consisting of three programs with different targets and objectives, it has produced many talented individuals to date. This section provides an overview of the MITOU Programs, its achievements to date, its social impact, and the characteristics of each project.

Three MITOU Programs conducted by IPA



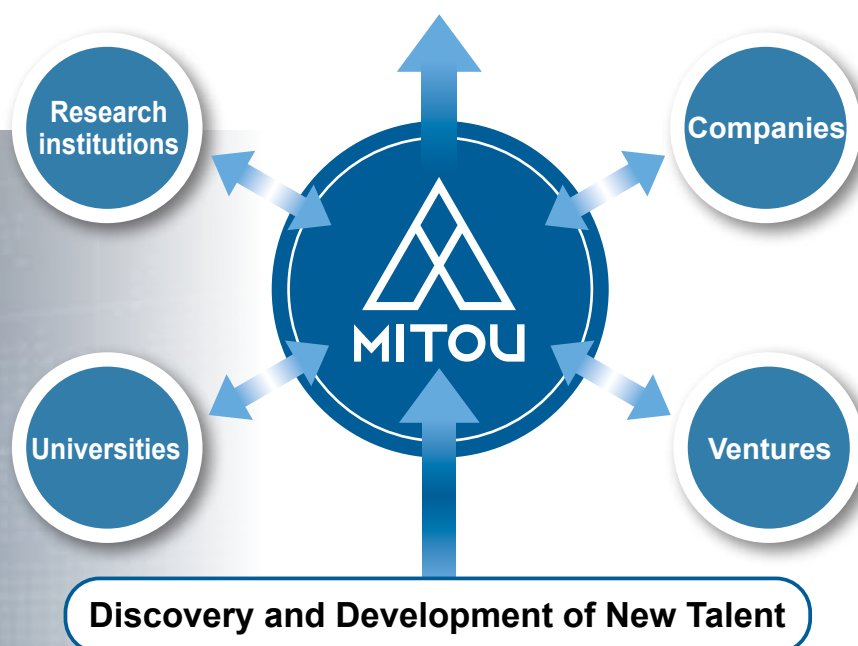
An Unprecedented National Project that Has Continued for 21 Years

The MITOU Programs were launched in July 2000. A sense of crisis over the situation of the domestic IT industry, which was lagging behind Europe and the US, led to its launch. In particular, in the software sector, giants such as the current GAFAM (Google, Amazon, Facebook, Apple, and Microsoft) were emerging one after another and dramatically reshaping our lives and social structures.

What many of these giant software companies had in common was that they were founded by a single genius. The world of software is not about organizational power but about outstanding geniuses who have pioneered an entirely new world. This is why the MITOU Programs, a national project to discover and foster geniuses, was initiated, focusing on individuals rather than companies.

Ever since their inception, the MITOU Programs have been operating under the concept of “geniuses fostering geniuses” to further develop “out-of-the-box” type of geniuses. From among the candidates who apply for the selection process, the industry-leading project managers (PMs) seek out the “raw gems” that are brimming with individuality. By engaging them in serious discussions to give form to their groundbreaking ideas, they have succeeded in fostering an impressive number of creators.

Innovation



A Total of Over 1,900 Graduates Making a Significant Impact in Diverse Fields

The number of projects adopted for the MITOU Programs to date has exceeded 1,000, with the number of PMs reaching approximately 80 and the total number of graduates surpassing 1,900.

The career paths of graduates can be divided into three main categories. Those who start their own businesses to incorporate their ideas into society, those who join companies to work as core IT personnel, and those who go into academia to continue their research at universities or public research institutions.

Many MITOU graduates are among the entrepreneurs of today's high-profile ventures, such as Toru Nishikawa of Preferred Networks, an AI venture company that collaborates with leading companies in various fields with its high technological capabilities; Ken Suzuki of SmartNews, which has revolutionized the news media with its smartphone app; Sadayuki Furuhashi of Treasure Data, which has become the de facto standard as a data analysis platform; and Daiyuu Nobori of SoftEther, a network security company favored by users worldwide.

Along with starting their own businesses, other graduates use their skills in the corporate world. From up-and-coming venture companies to major Japanese IT vendors, telecommunications companies, electrical equipment manufacturers, and overseas IT vendors, the range of industries and business categories is wide and varied.

Besides business, some graduates also apply their skills in the academic field. Some become teachers at universities and technical colleges across the country and combine education and research. Others pursue research at public research institutes such as the National Institute of Advanced Industrial Science and Technology (AIST) and the National Institute of

Information and Communications Technology (NICT). Recently, a growing number of graduates have been active overseas.

The ecosystem that MITOU graduates have created in these various fields is boosting Japan's IT capability.

Entering a New Stage with the Addition of Two MITOU Programs

The MITOU Programs, which began in 2000, have gradually been reshaped over the past 20 years. Originally launched as the "Exploratory Software Project" to commission software development, it was reorganized into the "MITOU IT Program" in 2008 with an emphasis on the discovery and development of young talent. The MITOU Advanced Program and the MITOU Target Program were added in 2017 and 2018, respectively.

The MITOU Advanced Program is a government initiative to develop IT talents with innovative ideas and prototypes utilizing IT with marketability, development feasibility, and business potential, aiming to solve social issues. The participants receive guidance and advice not only on technical aspects but also on commercialization and ways to brush-up their work. Furthermore, there are networking opportunities with peers and graduates from other years.

The MITOU Target Program focuses on progressive technological fields that have the potential to fundamentally transform the world and discovers and develops IT talents in specific fields. In FY2020, the program designated "quantum computing technology" as the target field and called for project proposals from individuals working in this field.

All three MITOU Programs contribute to the evolution of an IT society by working together and enhancing synergies.

The MITOU IT Program

The Search and Refinement of “Raw Gems” A Program to Discover and Develop Young Talent

Fostering Geniuses to Drive IT to New Heights

The Exploratory Software Project was launched to discover counterintuitive geniuses who open up new fields utilizing IT in 2000. It was reorganized into the “MITOU IT Program” in 2008, which has continued to the present day with a significant shift towards finding and fostering more young talent.

This project aims to discover and develop a generation of young “individuals” with unique ideas and technologies, who can bring about innovation in software-related fields and have the ability to apply these ideas and technologies.

Top-runners in the respective fields act as PMs and assess the innovativeness of the ideas, level of skills, as well as the passion and growth potential of the proposals from various perspectives. The creators are selected based on the PMs’ original criteria and are then fostered as the future leaders of Japan’s IT sector.

The selected creators sign a commission contract with the IPA and are supported with project promotion fees commensurate with the results of their activities. In addition, the intellectual property rights resulting from the project will

belong to the individual creators. Another prominent feature of the program is that creators with particularly outstanding abilities are honored with the title of “Super Creator.”

Many of the “MITOU talent” (i.e., graduates) that the MITOU IT Program has produced to date have become active in business, research and other fields, contributing significantly to the revitalization of Japan’s IT industry, increasing its competitiveness and helping to solve social issues.

The MITOU Target and MITOU Advanced Programs are based on the training and mentoring mechanism of the MITOU IT Program.

Proposals are Evaluated according to the PMs’ Original Criteria

The MITOU IT Program starts out by calling for individual proposals that incorporate “MITOU (uncharted)” ideas. To be eligible for applying to the program, applicants must be “under 25 years of age,” “an individual or a group of individuals,” and “willing to contribute to the advancement of Japan’s IT-related industries by utilizing the proposed theme.”

What makes it unique is the screening method. Rather than a typical collegial system, the PMs make judgments based on their unique perspectives. In the first round of screening, each PM conducts a written review, focusing mainly on the fields in which they have expertise. In the second round of screening, the applicants themselves give a presentation to the PM, who then selects the candidate themes to be accepted.

While a review committee consisting of external experts and the IPA makes the final decision on acceptance after deliberations, the core of the screening process is the PMs’ assessment, for which each PM has their original criteria. In the open call, each PM’s message and screening criteria are made public, and the applicant is expected to refer to them in proposing a theme.

For adopted projects, a commissioning contract is signed, and a human resource fostering and development period of approximately nine months commences. Development is carried out to achieve a higher level of results while brushing up



Meetings and workshop camps, where lively debates occur, are held during the period



the contents of proposals under the guidance and advice of the PMs via email and face-to-face tutoring. In addition to conferences and the results briefing sessions that the IPA organizes, the PMs also organize meetings.

During this human resource fostering and development period, project promotion costs are funded to promote the project. The cost per project is determined based on the required working hours and hourly rate for the project, with a ceiling of 1,440 hours of work and an hourly rate of JPY1,900, resulting in a ceiling cost of JPY2,736,000 (FY2020 actual).

The creator is required to prepare a daily work report and submit periodic progress reports to the PM and IPA, and the project is completed with the submission of a final outcome and performance report.

The Passion of Those around Them Makes Individuals Grow Significantly

During the nine-month human resource fostering and development period, development is carried out on a daily project-by-project basis; simultaneously, three major events that provide opportunities to interact with other creators take place: the “Boost Conference,” the “Hachigome* Conference,” and the “Final Presentation Conference.”** The conferences take the form of a two-day and one-night workshop camp, where presentations and Q&A sessions are repeated continuously from morning to evening, with the exception of meal times.



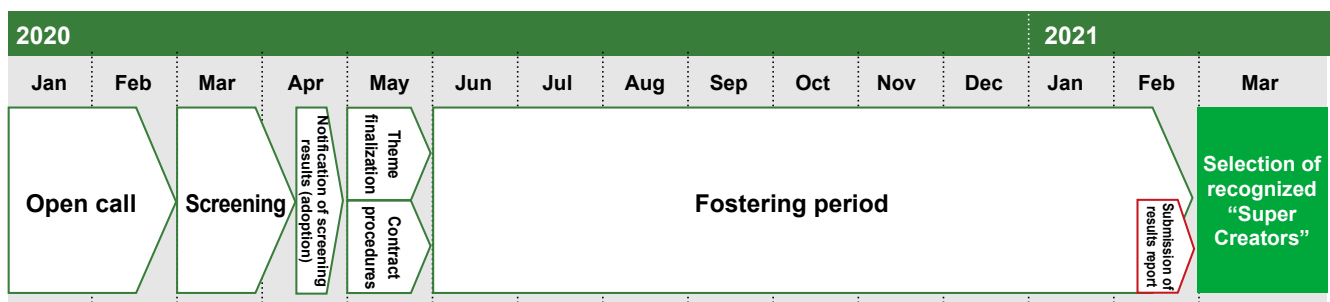
Keen observations and encouragement from PMs and graduates help creators to grow

The first to take place is the “Boost Conference,” which is held to boost or “step up” the projects.

Participants include not only the creators and PMs of the relevant year but also several MITOU Programs graduates, researchers, managers, and other external experts. The creators present an overview of their proposed project and its development progress, following which the conference participants ask questions and give advice.

While the creators understandably try their best, the participants are also serious about their role as “boosters.” They do not hesitate to ask questions and eagerly express any advice they can give. They also offer keen observations from an

FY2020 Schedule



*The word “hachigome” means the 8th stage, or eight-tenths point of the way up a mountain.

**In FY2020, the “Boost Conference” and the “Final Presentation Conference” were held online, while the “Hachigome Conference” was held as a hybrid offline/online event.

The MITOU IT Program



expert's point of view. Owing to this conference, the direction in which the project should go becomes clearer.

The “Hachigome Conference” takes place at the end of the human resource fostering and development period. Similar to the Boost Conference, graduates, PMs, and external experts attend it, and the creators report the progress of the project. Updates on progress from the Boost Conference, current challenges, and the expected final outcome are discussed, followed by a Q&A and advice session.

This conference is the last opportunity to receive feedback from many people on the progress made so far, and although it provides an opportunity to discuss concerns, it can also make

the creators feel uncertain about the gap in progress with their peers. Additionally, it is an opportunity to consider seriously how to approach the project in the remaining three months.

The culminating event is the Final Presentation Conference. As the occasion in which the creators who have matured are given their moment of triumph, this is open to the public and is known as “Demo Day.” Here, the results of the work done over the past nine months are presented, and the PMs and others share suggestions and advice for the future.

“Super Creator” Recognition for Outstanding Results

To date, the MITOU IT Program has adopted over 1,000 projects, with a total of 1,800 creators in total. Themes cover a wide range of fields, with projects adopted in areas such as robotics, AI, and IoT, in addition to operating systems, network control software and application software, among others.

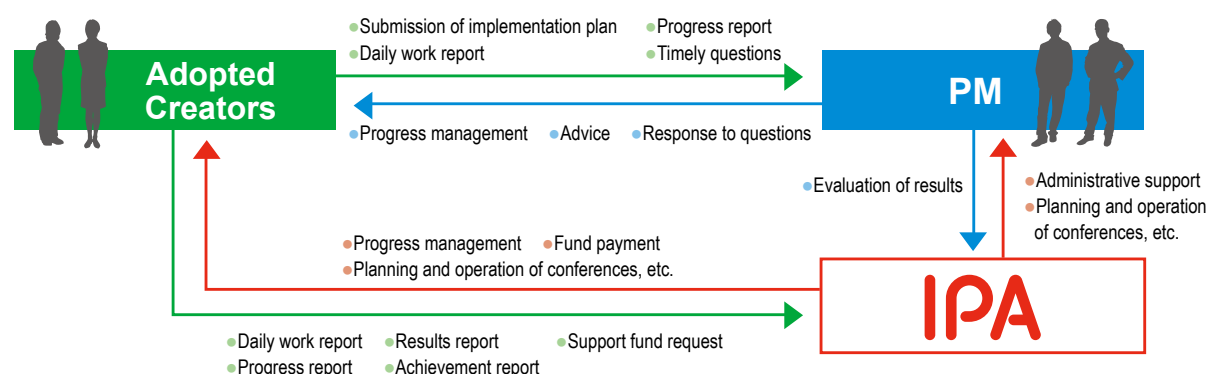
In FY2020, 132 applications were received, with a total of 20 projects adopted, ranging from two to four projects per PM. The adopted projects cover a diverse range of fields, including application software, security systems, development support environments, robot design, and hardware development.

In addition, the MITOU IT Program recognizes exceptional creators who have achieved outstanding results as “Super Creators.” The criteria for recognition are as follows:



The results of the creators' work are presented at the Final Presentation Conference

FY2020 MITOU Programs Support Structure



An Open Door Environment Allows Talent to Flourish



Yuki Igarashi, PM

At MITOU, the focus is on discovering and developing human talent capable of coming up with ideas and technologies that have never been conceived before. We seek out individuals who have great ideas and incredible talent, and after adoption, we create more opportunities to encounter ideas that have never even crossed our minds by creating many opportunities for interaction with people from diverse fields. As a PM, I guide them so that they can turn the cycle of giving shape to ideas as quickly and as often as possible. In addition to the projects I supervise, I also give advice to creators whom other PMs have adopted and sometimes introduce them to technical experts. In the open-door MITOU community, this ease of communication between PMs and creators is also a major appeal.

The Art of Communication Brings Ideas to Fruition



Yoshinori Takesako, PM

Even if the project is relatively rough at the time of proposal, if there is passion and skill, we will adopt it and support its development. As a PM, what I focus on most is to make sure that they learn the art of communication. When it comes to MITOU projects that no one has done before, it is the creators who should be the most knowledgeable about the project. However, if they are unable to communicate the appeal of the project, they will not be able to increase the number of people who understand and support the project. Through dialogue with creators and presentations, the purpose and will of the project are clarified, and the story used to convey it is then refined. In terms of fostering, I place importance on the intuition of the individual and work to avoid micromanagement, and as a PM with experience in growing a seed business in the private sector, I strive to give advice that will lead to the future.

“uncharted (MITOU),” namely, the uniqueness and originality of ideas and concepts; “development capability,” namely, creativity, a high level of planning and design skills, and fast program coding; and “future potential,” which is the potential to demonstrate extraordinary abilities.

In FY2019, 17 out of 26 were recognized as “Super Creators,” bringing the total number of Super Creators to 344 so far. The annual media coverage has been a significant source of encouragement for the creators.

In FY2021, the open call period will run from October 26, 2020, to March 10, 2021, followed by the screening and contract process. Then, the nine-month fostering and development period will be from June 21 to March 11. In FY2021, seven PMs will be responsible for fostering the creators.

List of FY2021 MITOU IT Program PMs

Senior Project Managers



Ikuo Takeuchi
Professor Emeritus,
the University of Tokyo



Takeshi Natsuno
Guest Professor,
Graduate School of Media
and Governance,
Keio University

Project Managers (PMs)



Yuki Igarashi
Associate Professor, School of Interdisciplinary Mathematical Sciences,
Meiji University



Masahiko Inami
Professor, Advisor to the President, Research Center for Advanced
Science and Technology, the University of Tokyo



Mizuki Oka
Associate Professor, Faculty of Engineering, Information and Systems,
University of Tsukuba



Kazuyuki Shudo
Associate Professor, School of Computing,
Tokyo Institute of Technology



Yoshinori Takesako
Division Officer, Data Product Unit, Recruit Co., Ltd.



Kunihiro Tanaka
Representative Director & President, Sakura Internet Inc.



Akihito Fujii
Executive Officer, General Manager of Service Planning and
Development Division, Solution Business Sector, KDDI Corporation



With the experience gained at MITOU as a stepping board, the creators who have completed their fostering and development period continue on to their own journey

The MITOU Advanced Program

Support Innovative Projects that Aim to Solve Social Issues

Supporting Advanced IT Human Talent Regardless of Field or Age

The “MITOU Advanced Program” was launched in 2017 with the aim of developing highly-skilled IT human resources who can contribute to the development of IT-related industries in Japan, with marketable and outstanding ideas and high development feasibility that can contribute to solving social issues.

One of its main characteristics is that in addition to PMs with excellent skills and achievements, business advisors (BAs), who vary in their expertise in organizational management, financing, legal and intellectual property aspects of business, take charge of fostering the innovators to improve the marketability of the project.

All fields are eligible for adoption, and applicants may be of any age. Individuals aged 25 and over who are not eligible for the “MITOU IT Program” are also able to apply. Furthermore, applicants may be employed by a company, university faculty member, or other organization, provided that they have the approval of their organization. Applications are not limited to one individual but teams of several individuals are also accepted.

However, the commission contract is only on an individual basis. The commission is paid to the individual selectee, and the deliverables will belong to the individual selectee. Contracts cannot be concluded by corporate organizations, and this is the main difference with other venture support schemes. The principle of the MITOU Programs as a whole, namely the idea of “fostering individuals,” has been carried through.



Specialists in various areas support the innovators

Support for Business Aspects in Addition to Software Development

Projects may be of any field; however, projects with an innovative IT-based idea either in the conception phase or in the prototype development phase of developing a product or service based on the idea are eligible for the call.

To narrow down the list of candidates for adoption, proposed projects are examined from the four perspectives of “uncharted,” “marketability,” “business feasibility” and “development feasibility.” Following this, the project implementation details are matched through individual interviews with the PM, and if a match is made, a commission contract is concluded as an “innovator.”

The duration of the program is approximately 8 months (FY2020 actual). It is designed to increase the potential of the project not only in terms of the technical aspect of software development but also in terms of its potential to be implemented in society and contribute to problem-solving, such as entrepreneurship and commercialization. BAs provide the necessary support on a spot basis, depending on the nature of the project, and in some instances, the advice of the PM or BA can significantly change the direction of the project.

The scale of the project contract is determined by the hours of work required for the project and the hourly rate; in FY2020, the hourly rate was a flat rate of JPY4,000 (per hour/person), with the ceiling for the cost per project at JPY10 million. However, the ceiling for a one-person project was JPY 6.4 million.



Project results are unveiled at the end of the period at the Final Presentation Conference



Aiming to Solve Social Issues in a Wide Range of Fields

The advantages of the MITOU Advanced Program are the increased possibility of contributing to solving social issues with ideas and prototype products and services, with the combined guidance and advice of experienced PMs and the strong backup of BAs who are experts in the business field. Another advantage is the opportunity to connect with graduates and others who are already active in society in a wide range of fields.

It is not rare that graduates of the MITOU IT Program apply to brush up on their achievements to link their work further to contribute to society.

Ten projects were adopted in the MITOU Advanced Program in FY2020, many of which were proposals by multi-person teams, and a total of 26 innovators were contracted. The themes of the adopted projects spanned a wide range of areas, including software development, blockchain, robotics, weather, automotive, medicine, and materials.

Comprehensive Support for the First Steps to Solving Social Issues



Shigeru Urushibara, PM

We love technology. We believe in the exciting future that technology can create. We know that this future will be realized owing to the persistent efforts and passion of resourceful innovators. Throughout

the MITOU Advanced Program, we provide comprehensive support for the crucial first steps in the implementation of unprecedented technologies in society. We do not confine ourselves to mere technological development. We foster outstanding human resources on a wide range of topics, including business start-ups, capital policy, sales, and cooperative business with other companies. Project managers have in-depth knowledge of their respective technologies, while business advisors are specialists in areas such as contracts, intellectual property, entrepreneurship, and management. We also value the horizontal ties between innovators. Let us create a better future society together with the very best technology.

List of FY2021 MITOU Advanced Program PMs and BAs

Senior Project Managers



Ikuo Takeuchi
Professor Emeritus,
the University of Tokyo



Takeshi Natsuno
Guest Professor,
Graduate School of Media
and Governance,
Keio University

Special Advisor



Gill Pratt
Executive Fellow, Toyota Motor Corporation
CEO, Toyota Research Institute

Project Managers (PMs)



Hiroshi Ishiguro
Professor (Distinguished Professor), Department of Systems Innovation,
Graduate School of Engineering Science, Osaka University
Visiting Director (ATR fellow), Hiroshi Ishiguro Laboratories
at the Advanced Telecommunications Research Institute (ATR)



Shigeru Urushibara
President & Representative Director at ULS Group, Inc.
President & CEO, UL Systems, Inc.
President & Representative Director, Archway, Inc.



Koji Osawa
Managing Principal & Co-Founder, Global Catalyst Partners
Managing Principal & Co-Founder, Global Catalyst Partners Japan



Tatsuya Harada
Professor, Research Center for Advanced Science and Technology,
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Yutaka Hirano
Senior Technical Adviser, Woven Planet Holdings, Inc.



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Tatsuro Fujita
Attorney,
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Uchida & Samejima Law
Firm



Masahiro Samejima
Attorney,
Partner,
Uchida & Samejima Law
Firm



Hirofumi Miki
President & CEO,
MK Management Inc.



Yoshinori Takano
Attorney, Patent Attorney,
Associate,
Uchida & Samejima Law
Firm

The MITOU Target Program

Fostering Human Talent in Technical Fields that Have the Potential to Revolutionize the World

Call for Project Proposals Focused on Specific Progressive Fields

In the IT sector, new technologies develop at a rapid pace. It is impossible to keep up with the development of new technologies without constantly monitoring the latest trends and fostering human resources in innovative technological fields from a medium- to long-term perspective. The MITOU Target Program was launched in 2018 to discover and develop IT talent in progressive fields.

The aim of the MITOU Target Program is to develop highly skilled IT talent who are passionate about software development based on next-generation IT. There is no age limit for entrants, and a diverse range of individuals participate in the project, including university undergraduates, postgraduate students, university researchers, and engineers from IT companies.

The distinctive feature of the program is that proposals are called for in specific progressive fields that have the potential to fundamentally transform the world. Proposals are sought from IT talents who are involved in basic technology and cross-disciplinary innovation in the relevant field and who can apply their own ideas and technical skills.

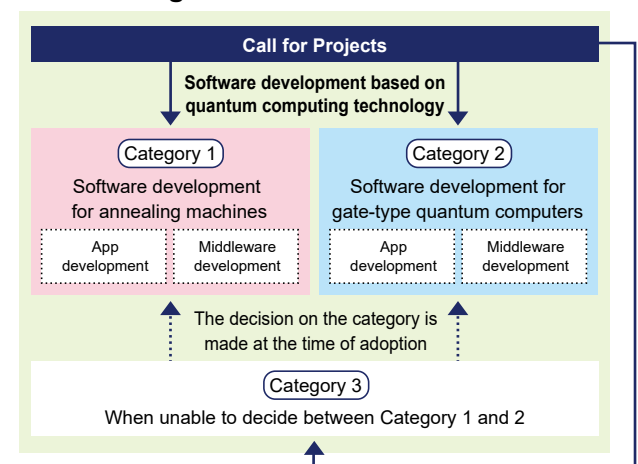
Proposals are examined from the three perspectives of “uncharted,” “social,” and “specific,” and those adopted receive guidance and advice from PMs who are experts in the relevant field and technical advisers who provide technical support, as well as project promotion funds in accordance with

the performance of the project activities. The duration of the fostering period is set at nine months, with an hourly rate of JPY2,000 (per hour/person), and the ceiling for costs per project is JPY3.6 million (FY2020 actual).

Quantum Computing as the Target for FY2020

The FY2020 MITOU Target Program designated “software development based on quantum computing technology” as the target field. Quantum computers are next-generation computers with overwhelming processing power that defies conventional concepts. Although they are moving from theory to practice,

FY2020 Target Field



Raising the interest of many at the Final Presentation Conference of the MITOU Target Program



there is a worldwide shortage of relevant human resources.

In FY2020, project proposals were called for in two categories: “Category 1: Software development for annealing machines” and “Category 2: Software development for gate-type quantum computers.” The PMs conducted a screening based on their unique criteria, and a total of 12 projects were adopted, seven in Category 1 and five in Category 2.

Another distinctive feature of the MITOU Target Program is that, in addition to the “Regular Quota,” there is also an “Applied and Practical Application Quota” in the project application quota. This framework was established due to the fact that the target area is an advanced area that has not yet been put to practical use, and if an applicant wishes to receive support to further develop a project that had been called for in the past, they can apply for the “Applied and Practical Application Quota.”

Projects such as “Snow removal optimization system utilizing an annealing machine” and “Development and implementation of a quantum causal search algorithm for the discovery of novel medical knowledge” were adopted under the regular quota. In the applied and practical quota, there were projects such as “Development of delivery planning optimization technology utilizing an annealing machine” and “Development of image generation and quantum image processing applications in a quantum adversarial generative network.”

MITOU Graduates in Progressive Fields Become the Core of the Community

The achievements of the MITOU Target Program are not limited to the discovery and development of human talent in progressive fields. Another major achievement is the formation of a community, which is vital for the development of new technologies, through the expansion of personal networks among graduates.

Until now, in the area of quantum computing technology, there has been no mechanism to simultaneously foster human resources to work on “annealing machines” and “gate-type quantum computers.” The MITOU Target Program, which focuses on “annealing machines” and “gate-type quantum computers,” serves to promote the collaborative study among the talent of quantum computing technology and helps raise the level of software development by forming a community with graduates at its core.

What to Solve with Software is Important



Shu Tanaka, PM

In developing software for annealing machines, it is not only essential to have knowledge of the annealing machine but also to define clearly what is to be solved with the software. Many of the participants are initially unfamiliar with such aspects, but by asking the right questions at the right time, rather than teaching them, they are able to develop their own skills spontaneously, and the PMs work together to manage the project in such a way that the participants themselves can feel a sense of growth. Since its inception in FY2018, the MITOU Target Program has been fostering software development human resources for different types of computing in parallel, such as annealing machines and gate-type quantum computers, which I believe is a rare initiative worldwide.

FY2021 List of MITOU Target Program Project Managers (PMs)

Annealing Category PMs



Shu Tanaka

Associate Professor, Department of Applied Physics and Physico-Informatics, Faculty of Science and Technology, Keio University



Kotaro Takanashi

Lead Engineer, Recruit Communications Co., Ltd.



Ryo Tamura

National Institute for Materials Science (NIMS)
Senior Researcher, International Center for Materials Nanoarchitectonics (WPI-MANA)
Lecturer, Graduate School of Frontier Sciences, the University of Tokyo

Gate-type Quantum Computer Category PMs



Yuuki Tokunaga

Distinguished Researcher (D.Sc.), NTT Secure Platform Laboratories



Keisuke Fujii

Professor, Graduate School of Engineering Science, Osaka University



Naoki Yamamoto

Chair, Keio University Quantum Computing Center
Professor (Ph.D. in Information Physics and Computing),
Department of Applied Physics and Physico-Informatics,
Faculty of Science and Technology, Keio University

MITOU TOPICS ①

Take a Glimpse into the MITOU World!

Public Events – “MITOU KAIGI” and “Final Presentation Conference”

■ Tap Into the Potential of MITOU Talents at MITOU KAIGI

Due to the nature of the program’s human resource fostering process, it is not easy for anyone other than those involved in the MITOU Programs to get a sense of what is going on, but there are also public events where anyone can get a glimpse of the projects. At the events, presentations are delivered by current creators and MITOU graduates on the innovative projects on which they are working. By attending the event, anyone has the opportunity to experience the world of MITOU.

The MITOU KAIGI is a public event where key players in the IT industry, including MITOU graduates, PMs, and others involved in the program, gather to discuss the innovations being driven by MITOU talents and the new trends that are being generated. MITOU talents who demonstrate outstanding

ability and become leaders in various fields after the program period will take to the stage to present their revolutionary services that will transform the world and their visions of the future.

The MITOU KAIGI is held every year on March 10 in honor of the name MITOU (3 = “mi” and 10 = “tou,” as read in Japanese). At the MITOU KAIGI 2021 taking place on March 10, 2021, a Special Lecture entitled “Avatars and Future Society” by Hiroshi Ishiguro, a leading robotics researcher and MITOU Advanced PM, a Keynote address by MITOU Senior Project Manager Tsuyoshi Natsuno, and a Creators Talk session by MITOU graduates will take place. In addition to enjoying the live streaming in real-time, archived footage of past events are also available for viewing.



Tsuyoshi Natsuno, Senior PM, introduces the appeal of the MITOU Programs



A passionate presentation by a MITOU graduate (Emi Tamaki, MITOU KAIGI 2020)



The event can be attended online

■ Learn About This Year’s MITOU Talent Initiatives at the Final Presentation Conference

Marking the end of the fostering period, each of the three MITOU Programs convene a Final Presentation Conference, known as “Demo Day.” Although other conferences are held during the period, the Final Presentation Conference is open to the public (with the exception of some MITOU Advanced projects, which will be open to the public at a later date).

The Final Presentation Conference is a forum for each project to present how it tackled the theme and achieved results during the program period. Although an outline of the theme is announced at the time of adoption, this event marks the first time that specific details are made public. The results of various projects are presented, including those with the potential to have a substantial social impact and those that have almost reached the point of completion as products. Besides the rich content, one of the highlights is the ingenious presentation of each project so that everyone can understand the results.

The Final Presentation Conference is also live-streamed, and an archive of past events is also available for viewing.



FY2019 MITOU Target Program Final Presentation Conference



FY2019 MITOU IT Program Final Presentation Conference (MITOU2019 Demo Day)

MITOU TOPICS 2

Catch the Latest MITOU News Here!

The MITOU Programs Portal Page, Facebook, Twitter, YouTube

The MITOU Programs hold various events and publishes information throughout the year. The latest information can be obtained through the four channels introduced here.

■ The MITOU Programs Portal Page

→ https://www.ipa.go.jp/jinzai/mitou/portal_index.html



The MITOU Programs portal page of the Information-technology Promotion Agency, Japan (IPA), features information on the MITOU IT Program, MITOU Advanced Program, and MITOU Target Program, including the annual call for applications, adopted projects, development results (outcome reports), and other program information, along with event schedules such as MITOU KAIGI and Final Presentation Conference. For those interested in the MITOU Programs or considering applying, please visit this portal page first.



The MITOU Programs portal page

■ Facebook: IPA MITOU Page

→ <https://www.facebook.com/ipa.mitou/>



The IPA MITOU page on Facebook features the latest information on the MITOU Programs, live-streaming of MITOU KAIGI, and videos of Senior Project Managers providing an overview of the MITOU Programs.



Facebook: IPA MITOU page



Video of Senior PM Natsuno explaining the outline of the public call

■ Twitter: IPA Official Account (@IPAjp)

→ <https://twitter.com/IPAjp>



The IPA account on Twitter features the latest news from the IPA, including up-to-date news from MITOU graduates.



Twitter: IPA Official Account (@IPAjp)



On Twitter, MITOU graduates also provide updates on their recent activities (the screenshot is a retweet about MITOU graduate Daiyuu Nobori's TV appearance)

■ YouTube: IPA Channel

→ <https://www.youtube.com/user/ipajp>



The IPA Channel on YouTube features the latest videos on IPA's activities. Videos on MITOU are collectively included in the playlist "MITOU Programs." Please visit it.



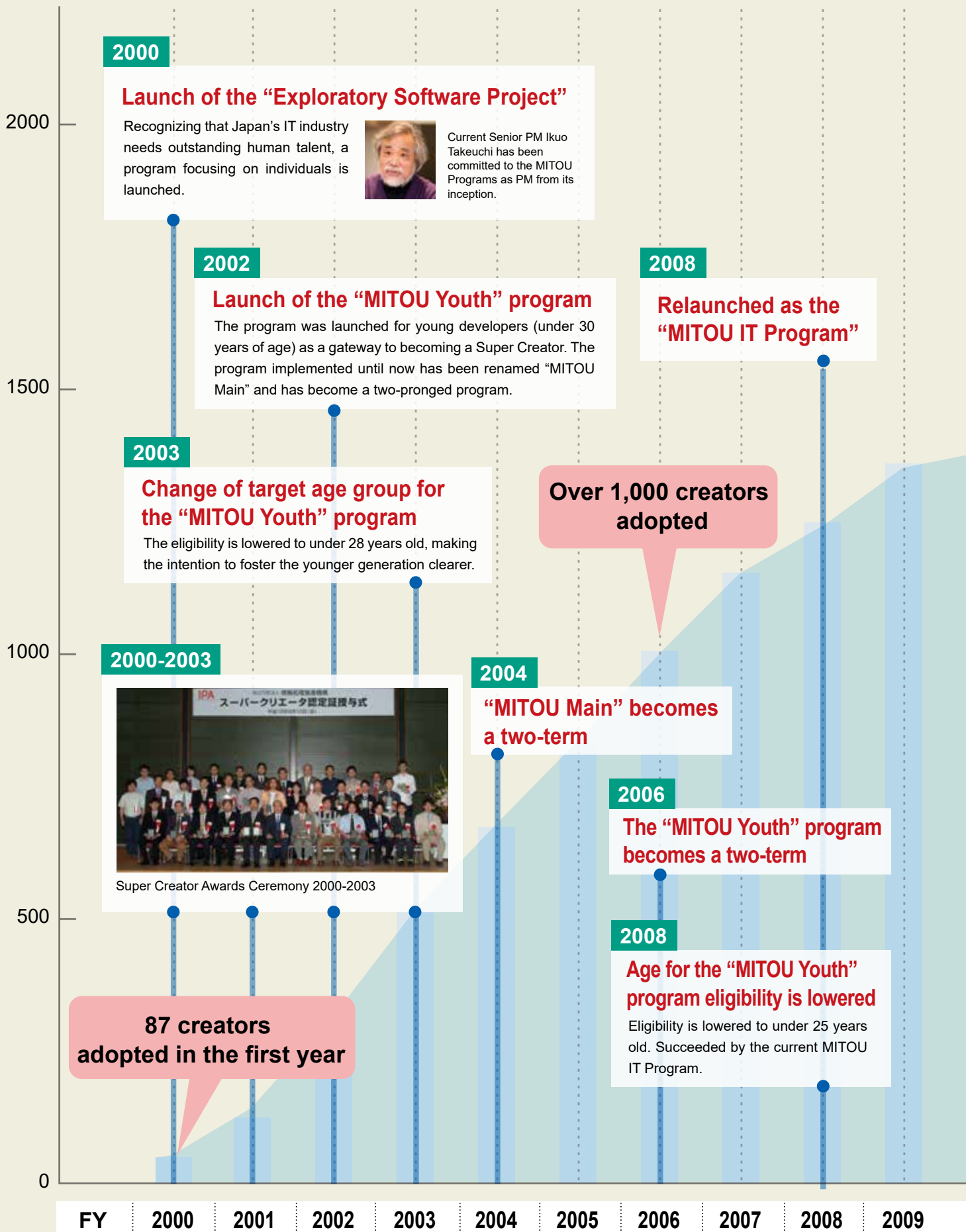
YouTube: IPA Channel



Videos of the Final Presentation Conference of past adopted projects are also available (the screen shows the video of the report on the FY2018 MITOU "Health management system for the elderly using a pet robot as an interface")

The Milestones of the MITOU

The MITOU Programs, launched in 2000.



Programs

Introducing two decades of events

Over 1,900 creators adopted

2015

The first “MITOU KAIGI” is held

A public event was held on March 10 (MITOU Day), with MITOU members and others taking the stage. The event has been held every year on the same day since then.



2018

Launch of the “MITOU Target Program”

In response to the growing need for human resources who can cope with innovative technological fields, the program was launched with the aim of discovering and developing IT talent in progressive fields.

2014

Establishment of the “Mitou Foundation”

Established with the aim of accelerating innovation in Japan, particularly in IT, by providing multifaceted support to geniuses and creative human talent and creating a cross-Japan network, mainly led by MITOU Programs graduates and members.

Mitou Foundation

2017

Creation of the MITOU Programs logo

The design was selected from amongst the nominations received from the general public. The logo incorporates the concepts of “progressive,” “sharp,” the kanji character for “person,” and the initial “M” for MITOU.



2013

Launch of live streaming of the Final Presentation Conference

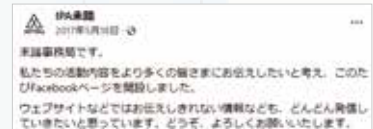
The number of viewers of the Final Presentation Conference increased dramatically after launching online live streaming. The first session was streamed on YouTubeLive and from subsequent years, also on Niconico Live.



2017

Launch of the IPA MITOU Facebook account

Started using social networking to communicate MITOU's activities.



The first post on Facebook

2017

Launch of the “MITOU Advanced Program”

With the ever-growing expectations for the use of IT to solve social issues, the program was launched with the aim of developing human resources who can translate their outstanding ideas and development skills into solutions for business and social issues.

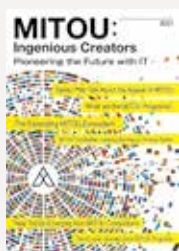
2011

Consolidation of the program

The program is consolidated into the current MITOU IT Program. Ikuo Takeuchi, PM, and Takeshi Natsuno, PM, who supported MITOU to date, are appointed as Senior Project Managers.



2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020



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