早稲田大学
情報化重点施策
2024－2026

WASEDA University
IT Strategy
2024-2026

CONTENTS

1. Positioning and Objectives of the Waseda University IT Strategy
2. Future ICT-Centered University Landscape
3. Basic Policy for Planning
4. Goals to be Achieved and Corresponding Priority Measures

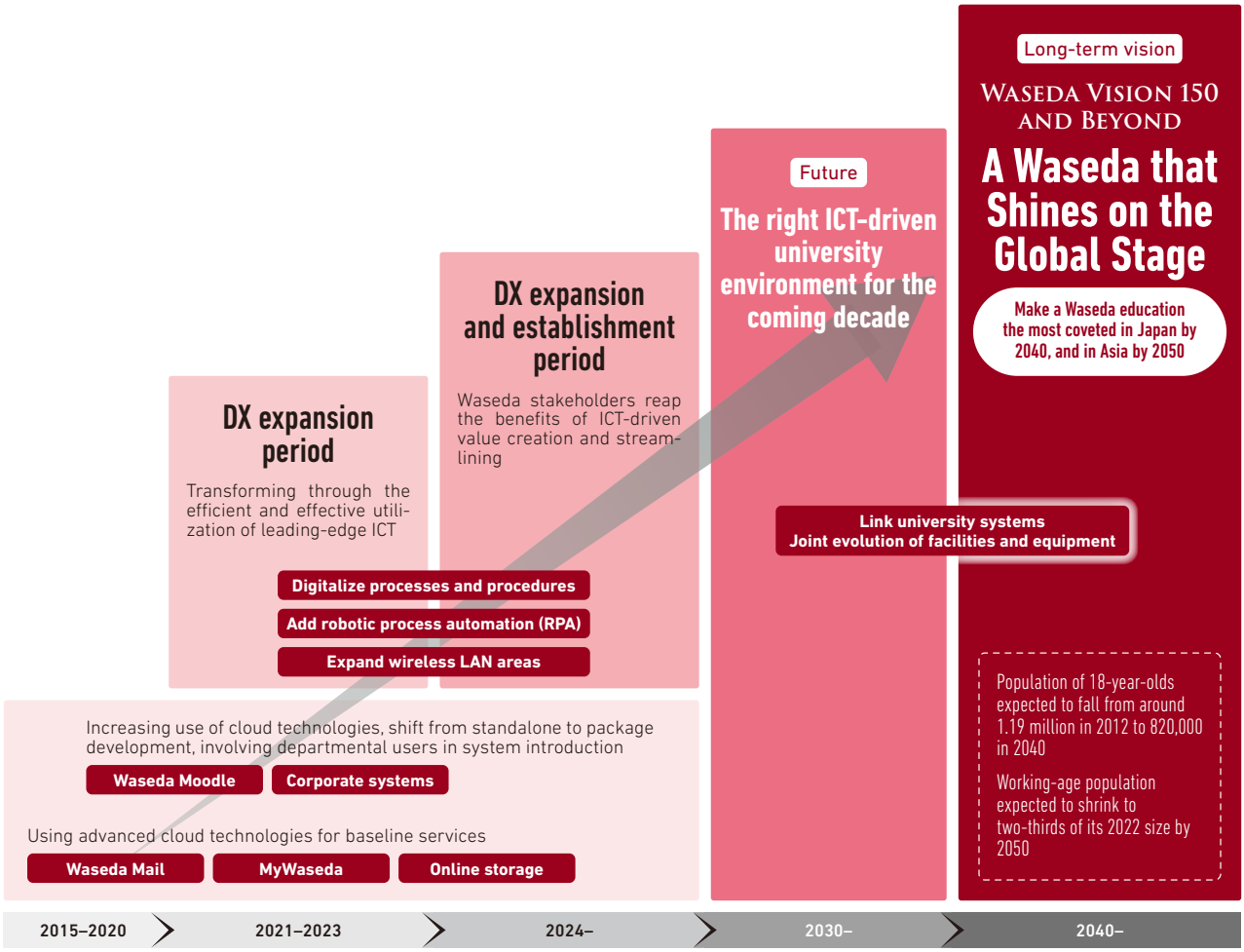
Note: This document contains many specialized terms, particularly those related to information systems and digital technologies.
Explanations are provided at the end for your reference.

1. Positioning and Objectives of the Waseda University IT Strategy

Waseda Vision 150 is the university's mid- to long-term plan, formulated in 2012 in anticipation of the school reaching its 150th anniversary in 2032. We plan to continue with the framework and innovative approaches outlined in this vision while introducing a new slogan, transforming with the goal of becoming "A Waseda that Shines on the Global Stage". In January 2020, we also announced our Waseda Vision 150 and Beyond, which anticipates the state of the world in 2040 or 2050. Waseda has expressed its commitment to crafting research and educational environments that give students the "ability to succeed anywhere", even in these uncertain times, by proactively identifying problems and coming up with evidence-based solutions. We want an education at Waseda to be known as the most effective path for future leaders seeking to make their mark on the global stage. We are currently working on a detailed road-map for making a Waseda education the most coveted learning experience in Japan by 2040, and in Asia by 2050.

With Waseda Vision 150 and Beyond, we add an *inspirational passion for learning* to our existing educational goals of *intellectual resilience* and *flexible sensitivity* to form the three core attributes fostered by a Waseda education. *Intellectual resilience* refers to the ability to take on unresolved problems, while *flexible sensitivity* is the ability to understand a diverse range of value systems. An *inspirational passion for learning* is the ability to drive multidisciplinary teams to greater levels of scholarship. We have also defined three core tenets of our reform activities: (1) Waseda as a *research* institution delivering cutting-edge findings that drive global progress, (2) Waseda as an *educational* institution providing a comprehensive and impactful education in the humanities and sciences, and (3) Waseda as a *contributing* institution that leverages its research and educational excellence to turn out global leaders. This document builds on the university's overall direction, defining the IT strategy we will implement during FY2024–2026 along with the basic policies underlying it.

Information and communications technology (ICT) is evolving at a blinding pace, bringing revolutionary changes to society, industry, and our daily lives—particularly since the pandemic. As Japan's population continues to shrink



and age, it is predicted that the country's working-age population (15–64) will dwindle to two-thirds of 2022 levels by 2050[1], with the number of 18-year-olds falling from around 1.19 million[2] in 2012 to around 820,000[3] in 2040. These decreases are likely to further erode the productive capacity of the nation's workforce along with its ability to compete on the global stage. One of the dominant trends today, whether among countries, industries, or companies, is the more enthusiastic adoption of digitalization and cutting-edge ICT solutions to create new value and streamline operations. If universities are to continue to attract top global talent—competing for even fewer 18-year-olds on an increasingly global playing field—they must work to further enrich their educational and research opportunities, both in terms of content and environment. And we can be certain that digitalization and the effective utilization of ICT will help determine the universitys competitiveness.

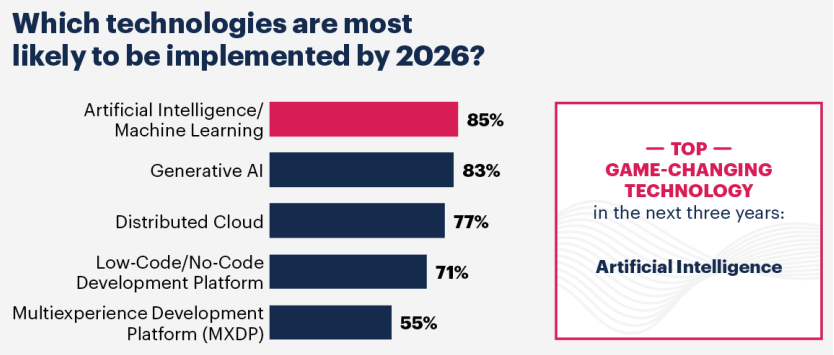
Given these changes, and the need to flexibly respond to the rapid evolution of ICT alongside social transformation and challenges, Waseda's IT strategy has been formulated and executed in three-year increments. The three years between FY2015 and FY2017 focused on the increasing use of advanced cloud technologies for underlying services. During this time, Waseda started offering the MyWasda portal site; the Waseda Mail email system for students, faculty, and staff; online storage capabilities, and more. The next three years (FY2018–FY2020) saw expanded cloud technology use along with a shift from standalone development to the use of packages, the introduction of systems with increasing involvement from user and information departments, and the release of university corporate systems as well as the Waseda Moodle learning support system. We dubbed the three years between FY2021 and FY2023 our "Digital transformation (DX) expansion period", during which we introduced advanced ICT solutions to drive transformation in education and research with a focus on university operations. To support this effort, we made further progress in setting up ICT infrastructure to digitalize various processes and procedures, automate tasks via robotic process automation (RPA), expand wireless LAN environments on campus, and more.

Our IT strategy for FY2024–FY2026 covers what we're calling the "DX expansion and establishment period", during which we will continue our DX efforts in education and research areas that were not completely transformed during the DX expansion period while improving the quality of DX initiatives in areas of university operations where they have already taken hold. As we implement these IT strategy reforms based on the Waseda Vision 150 and Beyond, our goal is to create a university environment where our transformation is readily apparent to a broad range of Waseda stakeholders, thanks to the wise and flexible application of ICT towards greater efficiencies achieved through value creation and optimization.

Section 2 looks ahead to the use of ICT in university contexts in the coming decade, while Section 3 defines the basic policies underlying the formulation of the FY2024–2026 IT strategy. Section 4 provides specifics on the IT strategy for the next three years.

2. Future ICT-Centered University Landscape

The world is different since the pandemic, with a different social structure and an even greater variety of behaviors and value systems taking hold. And we remain mired in a period of disruptive change that promises a future very unlike our past. The changing times demand that institutions of higher education provide sustainable, highly-tailored services that meet the individual needs of diverse stakeholders, which we expect will involve more intensive efforts to leverage the ICT that makes those services possible.



Gartner®, Infographic: 2024 Top Technology Investments and Objectives for Higher Education*4

1 Population Projections for Japan (2023 estimates), National Institute of Population and Social Security Research

2 From the School Basic Survey, Ministry of Education, Culture, Sports, Science and Technology (MEXT)

3 MEXT estimates for the population of 18-year-olds in 2040 based on "Population Projections for Japan (2023 estimates)" by the National Institute of Population and Social Security Research (reference documents from the MEXT Central Council for Education meeting on September 25, 2023)

Gartner®[4] surveyed around 2,500 chief information officers (CIOs) and technology executives at overseas companies and institutions of higher education about the technologies they were most likely to adopt by 2026 (the final year of Waseda's IT strategy). The top responses were AI/machine learning (85%), generative AI (83%), distributed cloud (77%), low-code/no-code development[5] platforms (71%), and multi-experience development platforms[6] (55%), with AI considered the top game-changing technology. These results suggest a more active adoption of various forms of data digitalization to better support individual stakeholders—particularly students, faculty, and staff—at institutions of higher education. The digital data then tends to be used to train AI with the goal of tapping into higher-quality insights. At the same time, it suggests accelerated selection and introduction of the right ICT solutions to link stakeholders to their institutions of higher education for better collaboration and experiences (lived experience and satisfaction resulting from the interactions).

Turning to Japan, the Sixth Science, Technology, and Innovation Basic Plan covering the five-year span between 2021 and 2025 states that Japan needs to work towards creating Society 5.0, described in the plan as "a society that is sustainable and resilient against threats along with unpredictable and uncertain situations, that ensures the safety and security of the people, and where individuals achieve diverse forms of well-being". Society 5.0 is defined as "a human-centered society that balances economic advancement with the resolution of social problems by a system that highly integrates cyberspace and physical space", but what we want to focus on here is the valuing of a "human-centered" society. Here, "human-centered" means that every citizen of Japan and the world is placed at the heart of the decision-making process, that society changes flexibly and dynamically in order to improve, that highly accessible services are provided to every person, and that we are able to start overcoming a host of societal problems.

Although we are unable to predict the future in these uncertain times, when we look ahead to the coming decade in light of these trends at home and abroad, greater human satisfaction and convenience seems to be a shared core value in the selection and adoption of ICT. As ICT becomes woven into all of our daily lives, we enter a future where many things that were once impossible can now be done by anyone, anywhere, at any time. This also means that online spaces will seamlessly connect every person, society, and service in the world, and that the various data collected as a result of this online shift can be stored in a way that it remains under the control of its owner, who can share it safely and instantaneously as needed.

Meanwhile, increasingly sophisticated, safe, and reliable AI technologies are becoming faithful assistants able to accurately support whatever individuals want to do. We are transitioning from a world in which ICT was something we deliberately applied to one where it has been seamlessly and naturally integrated into our daily lives. At some point, it will permeate everything without us even calling it ICT or realizing it exists, helping each person express themselves in a way that is in line with their unique values. We can think of this future world as one in which ICT has become so ubiquitous that we use it every day without even thinking about it—with personal satisfaction and convenience at the center of our values.

In a future like this one, it is likely that universities will also undergo radical, disruptive transformations while still honoring their unique features and strengths in order to carry out their own individual missions. This transformation—the process by which DX expands and takes hold—involves accurately predicting and selecting game-changing ICT solutions while maximizing efficiencies through optimized value creation, driven by reforms that wisely and flexibly leverage ICT. This not only makes the transformation more effective, but should also give the various university stakeholders a very real experience of the impact of that transformation in several areas, from individual learning and research activities to social contribution. The focus here is on student-centered DX, researcher-centered DX[7] and the smart university[8].

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4 Gartner®, Infographic: 2024 Top Technology Investments and Objectives for Higher Education, Robert Yanckello, 24 October 2023

Evidence 2024 Gartner CIO and Technology Executive Survey: This survey was conducted online from 2 May to 27 June 2023 to help CIOs determine how to distribute digital leadership across the enterprise and to identify technology adoption and functional performance trends. Ninety-seven percent of respondents led an information technology function. In total, 2,457 CIOs and technology executives participated, with representation from all geographies, revenue bands, and industry sectors (public and private), including 139 higher education CIOs. Disclaimer: The results of this survey do not represent global findings or the market as a whole, but reflect the sentiments of the respondents and companies surveyed.

5 No-code is a way allowing people without specialized programming knowledge to develop software without source coding. Low-code is a development method involving very little programming code.

6 Platforms for developing applications that support multiple devices (smartphones, tablets, desktops, wearables, etc.)

7 Each student and researcher relies on DX, placing real satisfaction and convenience at the center of their values

8 This initiative is defined as providing satisfying services in line with the individual needs of diverse stakeholders, planning backed by data and evidence, support for university operations and decision-making through work improvements, and the development of a transformational mindset to drive it all. The result is a university that can continue to evolve while flexibly responding to changes.

Future university environment

ICT has become so ubiquitous that we use it every day without even thinking about it —with personal satisfaction and convenience at the center of our values.

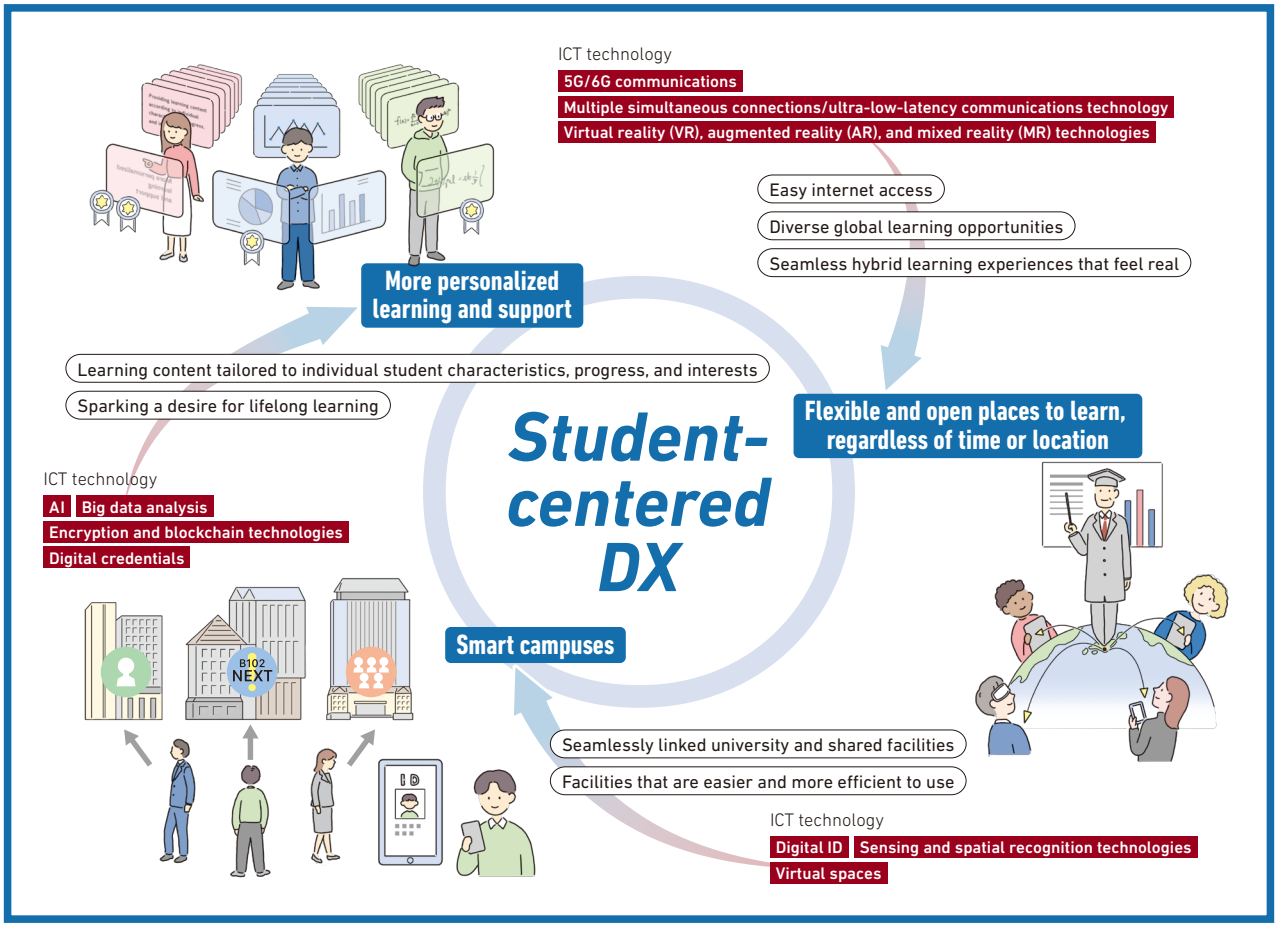
- Personalized learning
- Flexible, open learning environments
- Smart campuses
- Flexible, safe, comfortable research environments
- Evidence-based strategy development
- Timely decision-making
- Smart office work

IT Strategy

Waseda stakeholders reap the benefits of ICT-driven value creation and streamlining

- *Student-centered DX*
- *Researcher-centered DX*
- *Smart University*
- Utilization of ICT

(1) Learning environment (student-centered DX)



More personalized learning and support

Cutting-edge ICT like AI and big data is expected to move beyond the online digitization of learning activities to actually be used in improving in-class analyses, curriculums, and more. Safe, reliable AI has become even more advanced and widespread, with the ability to identify and analyze the learning history of every student and propose an

academic plan and content that matches their individual level of understanding and achievement. This in turn makes it possible to offer course selection information, learning materials, test questions, or other resources tailored to individual student progress or interests, based on the personal characteristics of that student and analyzed/selected with a high degree of accuracy. The student can then more objectively and effectively craft their learning journey, experiencing for themselves the growth in their abilities that comes from having designed and carried out their own academic plan. Plus, having all kinds of academic transcripts, records, and certificates stored and managed digitally makes it possible to analyze, issue, and share proof of what a student has learned—via everything from official course records and diplomas to detailed records from the learning process itself. Applying encryption or blockchain technologies[9] to these digital academic records also completely prevents them from being forged, tampered with, or deleted. Maintaining this high level of value and reliability secures international trust as well, and is likely to motivate people to continue learning throughout their lives.

Flexible and open places to learn, regardless of time or location

Enhanced communications networks both in Japan and abroad have made internet access faster in individual homes. Universities can also provide easy, ultra-low-latency internet access via simultaneous access to 5G/6G networks and more, allowing people all over the world to comfortably share online spaces. The ability to provide shared global spaces to create even better learning environments than what can be created physically. Students can take online classes overseas in a way that makes them feel as if they're sitting right next to their overseas cohorts, or have virtual face-to-face discussions with faraway students as if they're standing right there. Getting research instructions or help with papers from overseas faculty could become an everyday occurrence. The possibilities for diverse global learning opportunities are endless.

On campus, effectively combining in-person interactions with online ones will generate a more diverse array of learning experiences in the classroom. Classrooms capable of flexibly and seamlessly generating a variety of learning formats in line with what faculty and students need will become the standard, while the effective use of increasingly-sophisticated virtual reality (VR), augmented reality (AR), and mixed reality (MR) technologies based on course content will make it possible to offer experiential hybrid classroom simulations that make participants feel as if they're really there.

The hope is that these technologies will not only provide impactful learning experiences, but that they will also more effectively and experientially allow students to retain and consolidate new knowledge and facts. There will also be more student lounges and common learning areas where students can not only engage in face-to-face discussion, but also actively use them to take online classes or participate in online discussions. Finally, students will be able to freely access on their smart devices software that was once only available in computer rooms, allowing the university to provide the same usage environment as these technology rooms any time, anywhere, and on any device.

Smart campuses

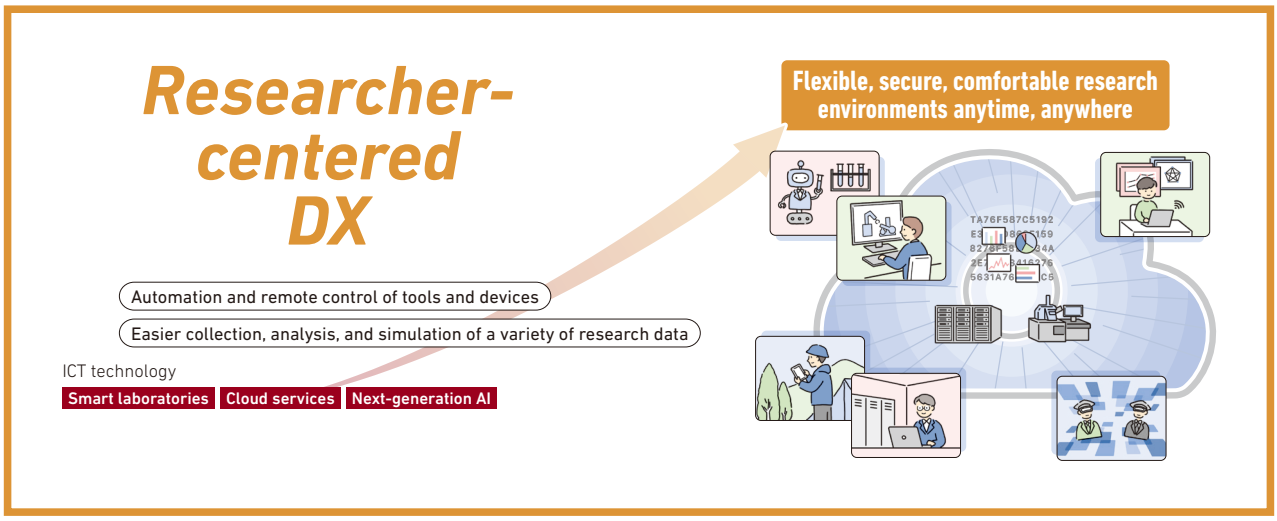
All identification issued by the university, including student, faculty, and staff IDs, will become digital and stored in each individual's smartphone or other personal device. Students, faculty, and staff will use their digital IDs to access a variety of university facilities, equipment, and services, including classrooms, libraries, and research labs. The digital IDs can also be used after graduation or retirement, making it possible to offer our facilities, equipment, and services to a wide range of university stakeholders (students, faculty, staff, graduates/alumni and others) based on their position, reason for access, and how they are involved with the university. As digital IDs become more widespread, the university will be able to link with digital ID systems at other universities in Japan and abroad, facilitating shared and mutual use of university facilities, equipment, and services. The result should be a seamless system for providing access to university equipment and facilities based on where each person is in their life journey, as well as shared use of equipment and facilities beyond a single institution.

The variety of information in physical spaces like university campuses, including people flows and environmental information, can be digitized with the help of sensors[10], spatial recognition, and other sophisticated technologies—and then replicated/analyzed in virtual spaces in real time. The results can be used to make campus life easier as well as help improve the efficiency of its facilities and equipment. Being able to facilitate smooth movement through campus, visually tracking congestion in cafeterias, lounges, and other shared spaces in order to mitigate it, as well as effectively managing facilities and equipment to minimize electricity usage or otherwise support the environment, are some other expected advantages of creating a smart campus.

9 A blockchain is an autonomous, decentralized system that uses a series of encrypted transaction records, called "blocks", that are linked together in a chronological "chain", allowing for decentralized processing and recordkeeping.

10 A generic term for technologies that use a sensor or other detection device to measure and quantify various kinds of information.

(2) Researcher-centered DX



Flexible, secure, comfortable research environments anytime, anywhere

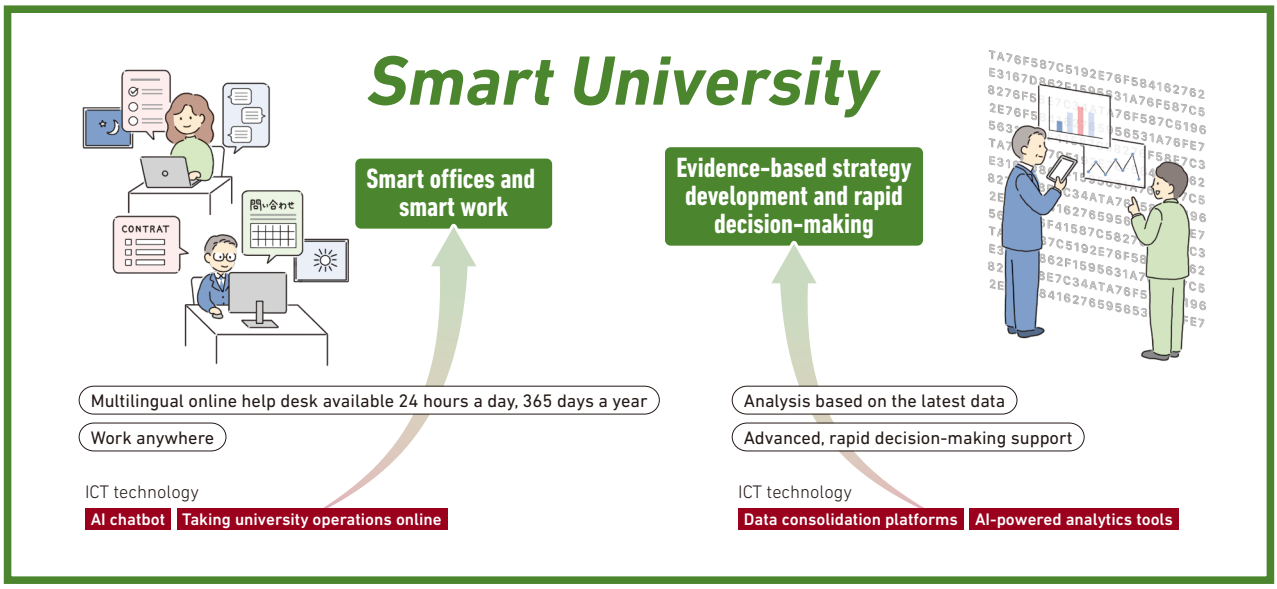
Researchers will be able to access research data platforms via sophisticated academic research networks in a highly secure environment, making it easier for them to collect, save, and manage the many kinds of documents and data that support the research process across all disciplines. These systems will also allow individuals and research teams to securely share research data of a precise scope as well as further advance their use of that data through sophisticated analytics and other techniques that contribute to deeper study. And as the open science trend spreads for different research fields and content, collaborative research that spans different fields, industries, and regions will move forward as well.

As the tools necessary for research use higher-performance, higher-functionality cloud services, researchers will also be able to more quickly conduct more diverse and sophisticated data analytics and simulations. Smart laboratories will become more developed, complete with automated or remotely-operated research equipment that utilizes cutting-edge technologies, including next-generation AI and robotics. Researchers will be able to conduct remote research unrestricted by time or place, further advancing the joint use of research facilities, equipment, and devices across labs and other institutions and making it possible to quickly and efficiently secure the necessary research resources.

With high-speed academic research networks making the utilization of research data, remote study, and the joint use of research equipment possible, everyday research environments will be flexible and no longer bound by time or place. These conditions should drastically increase productivity regardless of the field of study.

At present, the open science and smart laboratory trends are primarily affecting the science and engineering fields, but they are expected to spread to the humanities and social sciences next. As the literature, papers, documentation, and other resources become increasingly digitalized and research is conducted via the extensive use of large-scale digital data—and as this data becomes increasingly open and shared—even for fields that were once primarily carried forward by individuals will now be able to set up collaborative, team-based research frameworks.

(3) University operations (Smart University)



Smart offices and smart work

The use of AI chatbots will make it possible to offer a multilingual help desk that provides online support at any time, any day of the year. In-person operations like visiting a help desk, getting signatures, and processing physical documents will become obsolete as everything goes online, freeing students, faculty, staff, and alumni from having to make a special trip to the university just to consult with someone or complete paperwork. And as most university operations are taken online, there will be no need for administrators or other staff members to remain in their offices at all times. The ability to work anywhere is expected to bring profound changes to their working lives.

Meanwhile, the work done by the academic staff involved in running undergraduate schools and other university departments will also become digitalized through the use of ICT, which should make their tasks more efficient as well. Thanks to secure cloud storage platforms, the information people need to do their jobs will be stored both centrally and safely, while AI chatbots can be used to generate, analyze, or simulate data quickly and at any time. Every part of the organization should therefore be able to do their work more efficiently, which should in turn free up faculty and academic staff to spend more time on their research activities. Moving forward with digital transformation for academic staff involves not only setting up organizations and frameworks, but also requires instilling DX literacy among individual faculty members to build momentum for operational streamlining and improvement initiatives.

Evidence-based strategy development and rapid decision-making

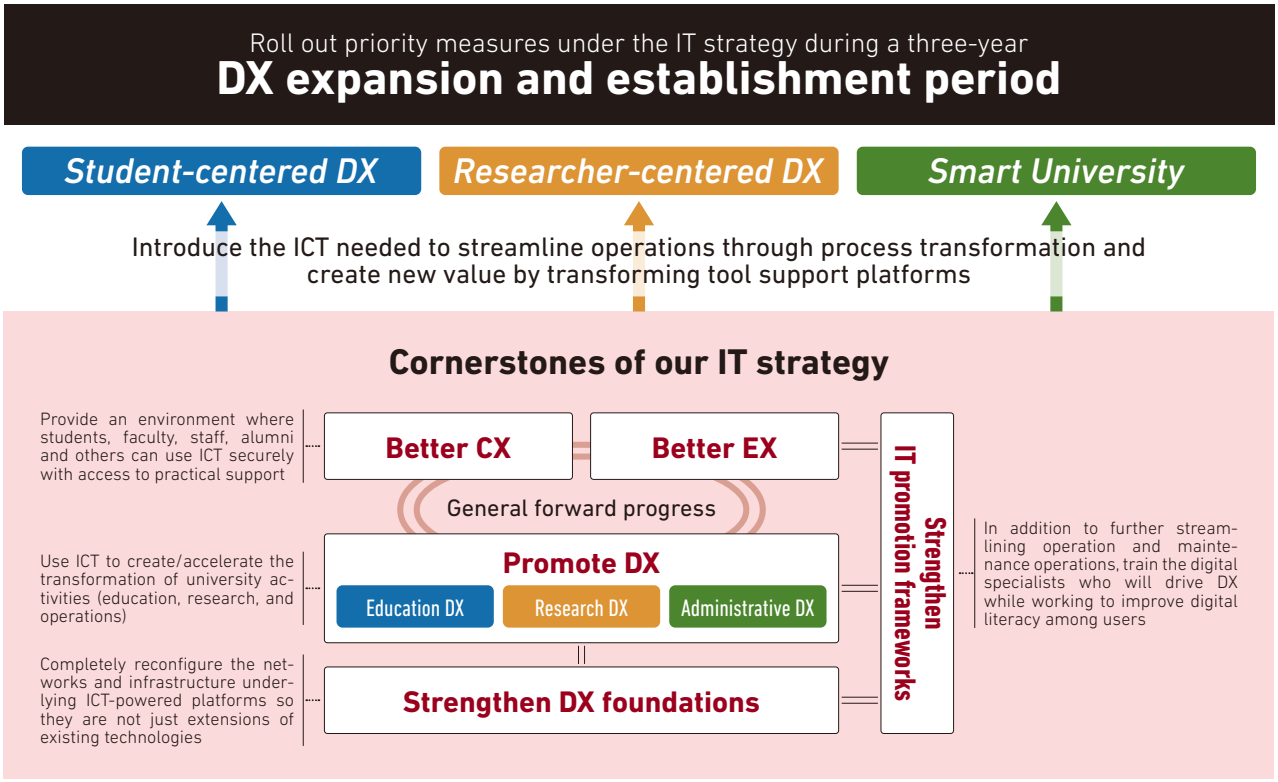
DX will allow us to set up data consolidation platforms that provide real-time access to a variety of university systems information, so that the latest data can be analyzed at any time. The people most familiar with university operations will also be able to use AI to run analytics tools, even if they lack specialized data analysis skills. The result will be advanced, rapid support for decision-making tasks.

3. Basic Policy for Planning

(1) Basic policy

As described in 1. Positioning and Objectives of the Waseda University IT Strategy (P.2), our basic policy under our IT strategy for the three years between FY2024 and FY2026 is to enter a new "DX expansion and establishment period", building on the "DX expansion period" of the previous three years (FY2021–FY2023) by pushing for more digital transformation. We are putting university stakeholders at the center of our implementation of this IT strategy, keeping an eye on what we want to transform (streamlining via process transformation, creating new value by transforming tool support platforms, etc.) as we select and install the necessary technologies. We also need to completely reconfigure the networks and foundational IT systems at the core of our efforts to firmly establish DX (strengthen DX foundations),

rather than simply building on our existing technologies. At the same time, we are working to provide an environment where students, faculty, staff, alumni, and other users can get the effective support they need to securely utilize digital technologies (improve CX[11] and EX[12]).



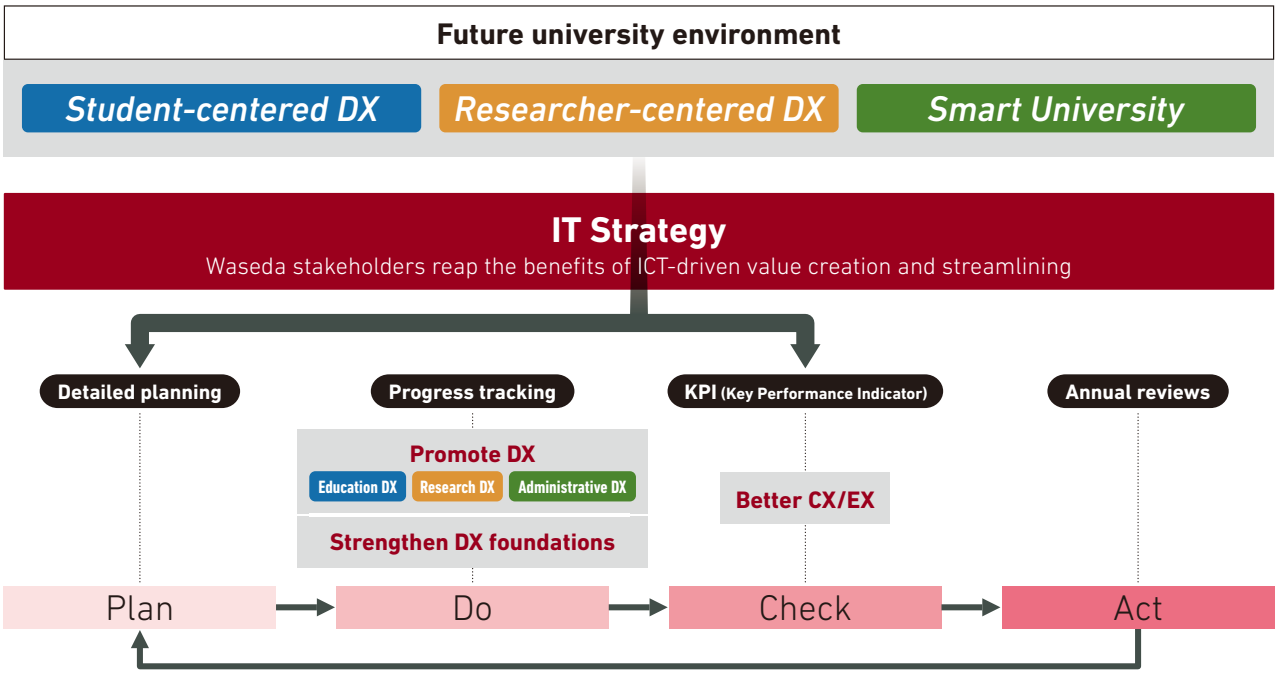
(2) Promotion policy

Waseda has also established a policy to guide its priority measures, with the goal of achieving student-centered DX, researcher-centered DX, and Smart University status. It establishes key performance indicators (KPIs) to track how much DX promotion, strengthening DX infrastructure, and other measures contribute to better CX and EX, incorporating both outputs (metrics directly related to program implementation) and outcomes (metrics concerning results and effects). The implementation process for each measure is also tracked to keep tabs on the adequacy of ICT investment, compatibility with university operations, and identification of risks. The policy also looks at KPI achievement and progress on specific measures, either annually or at other appropriate cadences, with the goal of maximizing ICT return on investment by applying the PDCA cycle to revise plans as needed.

It should be noted that forward progress does not mean being stuck with initial plans, but rather taking a global perspective and flexibly adapting plans to address changes that affect the university along with innovations in the ICT field. It is important to remember the importance of helping to move the university operations and programs forward as well.

11 CX stands for "customer experience" and refers to the set of experiences customers have while interacting with a product or service.

12 EX stands for "employee experience" and refers to the experiences and experiential value that employees gain while working for a company or organization.

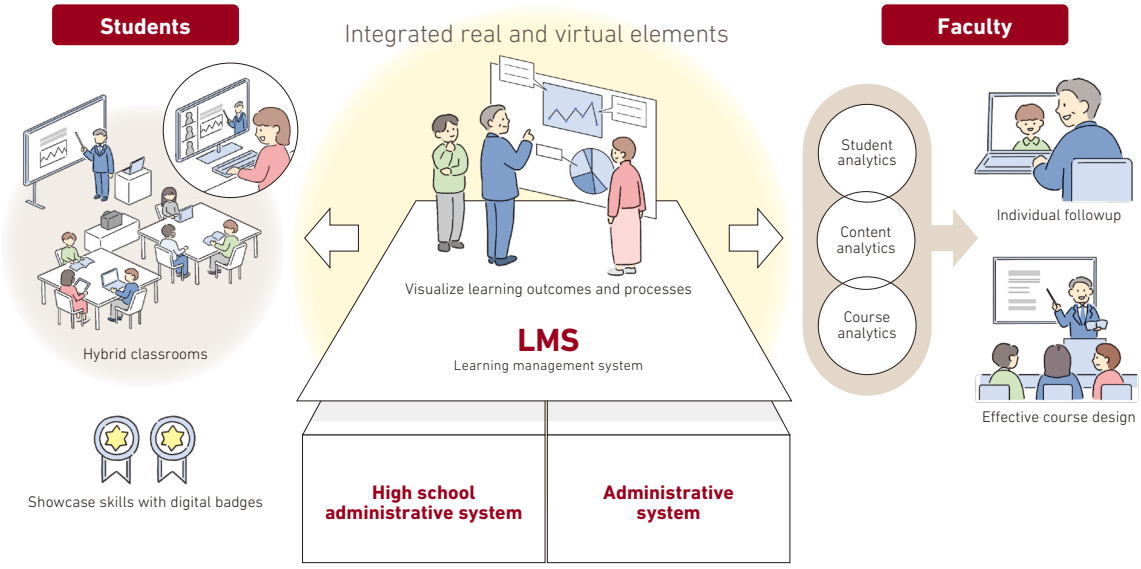


4. Goals to be Achieved and Corresponding Priority Measures

Goal #1

Promote education DX

Delivering higher-quality education by establishing the diverse, flexible learning environments students need



Priority measure #1 | **Create environments for visualizing learning outcomes and processes while promoting more personalized education**

1) Utilize educational data

- Link academic history analytics tools to Waseda Moodle, the university learning management system (LMS), to visually track access to course content, completion of course assignments, and other academic progress. These features will allow faculty to check student understanding and identify bottlenecks so that they can improve

course content. It will also help them quickly identify students at risk of dropping out so that they can follow up with them closely, helping to improve the quality of student learning.

- We continue to look into building a Learning Record Store (LRS)[13] in accordance with international educational standards. Specifically, we are working to incorporate the various data tied to academic history and assessments that is stored in Waseda Moodle into the LRS and conduct deeper analysis (such as analyzing the learning patterns of the highest-performing students or posting effective student study patterns, such as those that make use of AI) with the goal of utilizing cross-cutting educational data that goes beyond individual courses. Finally, we need to continue reviewing the formulation of data usage policies to guide our use of educational data.
- We will publicize the My Portfolio worksheet features (creating radar charts) based on Social Innovation Accelerator Program[14] initiatives at the Waseda Faculty of Social Sciences, with the aim of further improving and popularizing the tool with an eye to university-wide rollout.

2) Personalize education (via adaptive learning)

- We are looking at using visual education data to make education more personalized. More specifically, we are reviewing mechanisms that would allow us to offer educational materials, learning patterns, or advice tailored to individual students' level of understanding and academic progress. Generative AI is one of the tools we are considering in this process.
- In our efforts to achieve diversity, equity, and inclusion (DEI), we are looking at tie-ups with campus organizations when needed; for example, in improving our LMS to incorporate universal design principles or preparing guidelines for addressing the educational needs of diverse student populations.

Priority measure #2 | Create and promote the use of digital transcripts and records

1) Encourage the use of digital certificates

- We aim to push for more digital issuance within our new certificate services as part of our digitalization of academic certificates (macro-credentials). In addition to alerting users about the advantages of quick, convenient digital certificates given their usage and widespread trends in corporate recruiting activities—not to mention the increasing percentage of certificates that are issued digitally in general—we hope to contribute to even better services and more efficient administration tasks by reducing, for example, the number of certificate-issuing machines on campus.

2) Lay the groundwork for digitalizing micro-credentials

- We are working to create a platform that will allow the full-scale implementation of digital badges[15]given the digitalization of academic certificates (micro-credentials). Given the likelihood of utilizing these badges in a wide range of academic programs (including the Smart SE Program[16], which already uses an "open badge" system), we are looking at mechanisms for visualizing the portability, shareability, and outside recognition and evaluation of learning experiences, which should help motivate students and support them in developing their careers.

Priority measure #3 | Create next-generation classroom environments that integrate real and virtual elements, and encourage faculty to use them

1) Set up the classroom equipment needed to enable effective hybrid courses

- During the pandemic, we experimented with setting up "hi-flex" classrooms in which online and in-person students received instruction at the same time. We are now looking at developing next-generation teaching environments based on the equipment we used and our measurements of its effectiveness. The pandemic underlined the value of face-to-face classrooms for their ability to foster two-way communication, particularly with active learning activities involving student discussions or group work. We've made progress in enhancing

13 A Learning Record Store is a database used to collect and analyze students' academic history. It can be mutually accessed across multiple systems.

14 Social Innovation Accelerator Program at the Waseda University Faculty of Social Sciences (waseda.jp)

15 Digital badges are electronic certificates of knowledge, skill, or experience. They are issued according to shared global technical standards and centrally stored in a digital wallet.

16 Smart SE is short for the Smart Systems and Services Innovative Professional Education Program (https://www.waseda.jp/inst/smartse/en/)

our equipment and tools to make those activities more effective, while at the same time simplifying classroom audiovisual equipment. Our goal is to create balanced environments that respond to educational needs while maximizing cost effectiveness.

- As part of our efforts to encourage hybrid learning strategies such as the flipped classroom, we have been looking at introducing functionality for creating effective on-demand classroom videos and the like, while working to set up equipment that can easily record classroom activities.

2) Pilot effective learning environments that integrate real and virtual elements

- We continue to look into mechanisms and environments that can be effectively utilized not only to translate metaverse worlds and other virtual educational and learning environments into online classrooms, but also to integrate them with face-to-face instruction. More specifically, we are working to provide international exchange opportunities that do not require traveling overseas, shared classrooms with other universities and institutions, and support for students who find it difficult to participate in in-person learning. We are also hoping to simulate practical training and hands-on courses in situations where real-world activities would be prohibitively expensive or dangerous, for example.

3) Roll out BYOD[17] initiatives by making all computer rooms virtual, better utilizing space through the elimination of physical terminals

- The purpose of launching the BYOD program with the full startup of the Nishi-Waseda Campus (Faculty of Science and Engineering) in the 2024 academic year was to create seamless, enhanced learning environments available anytime, anywhere. The program also made it possible to reduce the number of terminals on campus, allowing the university to better utilize its physical spaces. Given the success of the Nishi-Waseda Campus program, we are now looking at rolling out the BYOD initiative to other campuses as well.

Priority measure #4 | Reconfigure administrative systems to support education DX

1) Formulate a plan for updating administrative systems

- We are working towards updating our administrative systems, which have served the university for over twenty years now. Particularly when it comes to issues like user interface improvements and mobile compatibility where students and faculty directly interact with the system, we are in the process of reviewing potential updates in the form of easier-to-use package systems. Another priority is the availability and integrity of the management systems used by faculty and staff, and we are looking at mechanisms that will allow us to maintain parts of the current system while seamlessly linking them to the new one. Since updating our administrative systems will have far-reaching impacts on other systems as well, we are reviewing case examples at other universities as we develop an elaborate plan to move ahead with steady, secure steps.

2) Move to more flexible systems that support education and learning

- We want to build an optimized management system for faculty and staff that allows them to flexibly handle things like curriculum revisions, system changes, and operational improvements while being sustainably structured to allow for easy maintenance of those elements. More specifically, the current system relies on a business application built with MS Access for much of its data settings and data processing, but we are looking into an alternative framework that uses a low-code/no-code application, for example, in order to reduce the mounting operational burden of verifications and task handovers as operating systems become increasingly updated.

Priority measure #5 | Create an innovative high school administrative system that accelerates university tie-ins

1) Accelerate innovations in how people work at affiliated junior high and high schools while taking educational activities to the next level

- We are aiming to introduce the new system at the same time we upgrade the administrative systems used at our affiliated Waseda University Senior and Junior High School and Waseda University Honjo Senior High School to make them easier for faculty and staff to use as well as help take educational activities to the next level. We effectively promoting administrative DX under the GIGA school concept in the hopes of making it possible for

17 BYOD stands for "bring your own device", and refers to initiatives that have individuals use their own portable devices.

faculty and staff to carry out educational activities and educational support tasks anytime, anywhere without having to rely on certain equipment. We are also hoping to reduce the burden of administrative tasks to create better working conditions. Finally, we are coordinating, analyzing, and utilizing administrative and learning data to make comprehensive improvements that optimize instruction for individual learners, support faculty development, and further strengthen collaboration between high schools and the university.

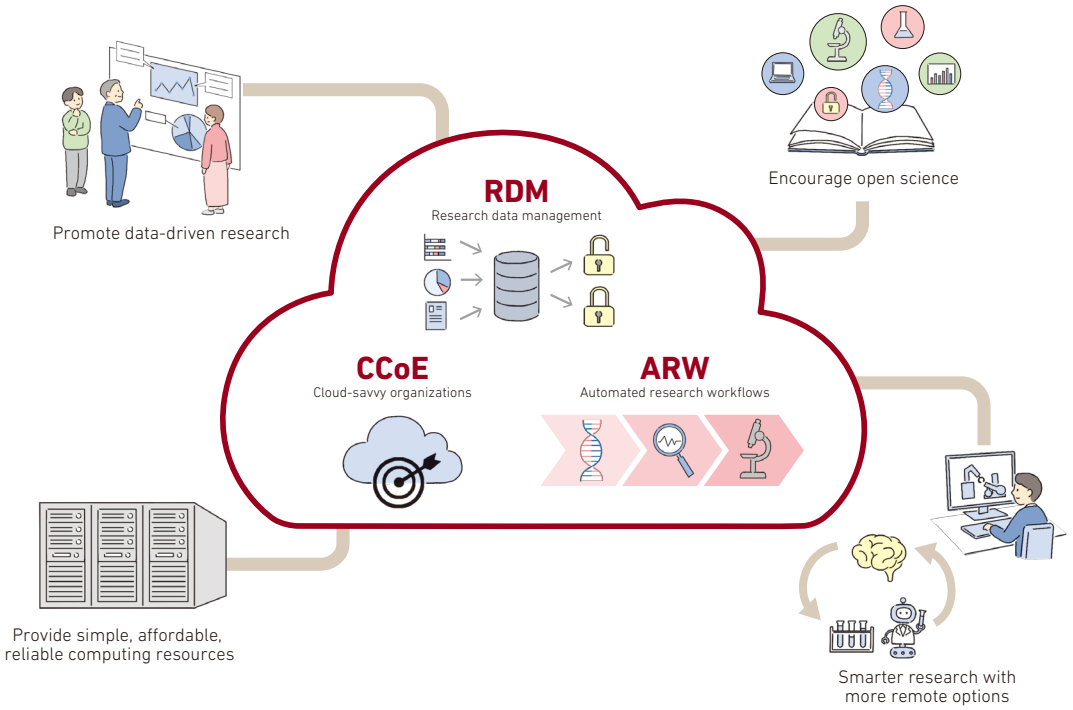
2) Foster the cultivation of an integrated education for comprehensive learning

- We are enhancing the linkages between academic university data and the administrative data at our affiliated junior and senior high schools in order to make end-to-end analysis of learning data possible across junior high school, high school, university, and graduate school. In studying the creation of a Learning Record Store (item 1 under the 1. Utilize education data priority measure), we are considering extending application to our affiliated junior and senior high schools as well to help foster comprehensive learning through integrated education.

Goal #2

Promote research DX

Set up ICT to power stronger research



Priority measure #1

Build ICT infrastructure to support research activities

1) Build ICT infrastructure to manage and utilize research data

- With the open science movement gaining momentum, there is increasing interest in using research outcomes and data in business applications—making managing and utilizing that data more important than ever. The national government is also setting numerical targets for data policy formulation rates, data management plans (DMPs), and introduction rates for frameworks that assign metadata. As of 2023, Waseda university has formulated a research data policy and introduced research data management frameworks for certain research under the Core Facilities Project[18], adopting a consistent data-sharing method via BOX. We have also finished installing metadata format download features in our research support system. That said, we have encountered some challenges in rolling out our research data management system throughout the university. We need to reduce the workload associated with collecting and storing data, and creating a DMP and metadata, for example, as well as operate and manage metadata entries into JAIRO Cloud, the Waseda University repository. Given these challenges, we are looking at repairing our peripheral systems to introduce research data management systems, tie the system into our existing data storage locations, and make incidental tasks more efficient in

18 Core Facility Building Support Program by the Japan Science and Technology Agency (jst.go.jp)

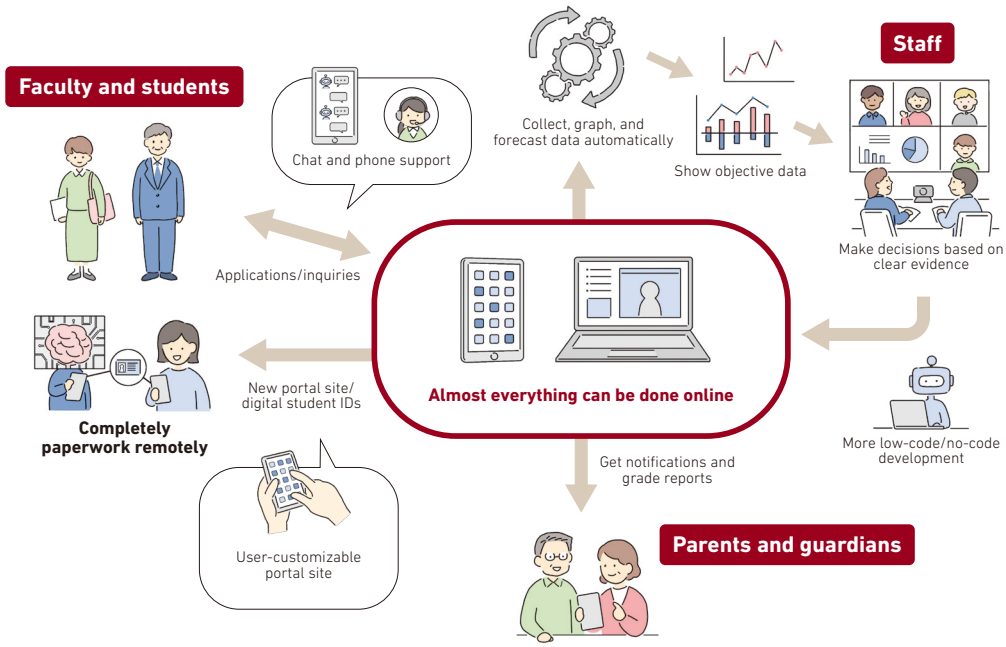
preparation for university-wide rollout. With our Core Facilities Project, we are looking at a policy to share, take remote, and automate testing equipment, including automated research workflows (ARW)[19], for future rollout. Our consideration of these measures will be done in collaboration with the Research Promotion Division, the Waseda University Library, and other relevant bodies.

2) Develop cloud environments for research

- The more widespread use of cloud services, along with the ability to flag cloud usage fees as direct research expenses under MEXT competitive research funds, has increased the use of cloud computing resources for research activities—a trend that is only expected to accelerate. In one example, the university currently has more than 300 accounts tied a certain public cloud service, generating more than USD 400,000 in charges over a 12-month period. This is wasteful for several reasons, including the need to sign support contracts for each of the accounts (direct costs) and the excess workload (indirect costs) generated by individual purchasing of those services. For these reasons, we are aiming to reduce usage costs and streamline processing by contracting for a usage environment that delivers centralized cloud computing resources via a single university organization called a Cloud Center of Excellence, or CCoE[20]. Once the CCoE is established and has verified the effectiveness of a specific cloud service, we will look at rolling out to other cloud services as well.

Goal #3 Administrative DX promotion

Support evidence-based university administration by promoting digitalization, automation, and data utilization



Priority measure #1 Run the university based on evidence and analysis

1) Provide analytical platforms and promote data utilization

- We've already made progress with building IR systems and introducing BI tools that can run both sophisticated and self-service analytics, but we're looking to take things a step further with initiatives that allow us to better leverage the results of those analyses.
- We are considering frameworks to visualize KPIs that will allow us to meet faculty and department targets, and want to set up a dashboard that can use charts and graphs to clearly present various data collected at the university along with analysis results.
- We then want to go beyond visualizing the data to introduce systems that can use generative AI and other tools to forecast data as well.

19 Automated research workflows integrate computer calculations, laboratory automation, and artificial intelligence tools

20 A Cloud Center of Excellence is a team of experts that creates, communicates, and systematizes cloud best practices, frameworks, and governance to drive the evolution of increasingly cloud-based technologies

- We're working with the Center for Higher Education Studies (CHES) to share Good Practices, hold workshops on analytical methods and how to use the tools, and otherwise implement measures to encourage more widespread adoption of the new technologies.
- Our goal is to build systems and set up data for data visualization in a way that allows for evidence-based decision-making not only in teaching fields, but also in management and research areas as well.
- One of the reasons data visualization was stalled in the past was our inability to properly or readily access the data we needed to conduct the analyses. Now, we are setting up a datamart[21] that will allow for careful study of the data items needed for analysis with an eye to converting it to more appropriate data structures.

Priority measure #2 | Push for even more digitalization and streamlining of university operations and procedures

1) Use AI to streamline operations

- We are putting together guidelines for the use of generative AI in administrative tasks to ensure the protection of personal information as well as the confidentiality of university information, thus laying the groundwork for the safe use of AI technologies.
- We are also creating mechanisms that will use AI to automatically solve task-related problems. We'll also use AI to streamline certain parts of administrative work, such as composing minutes, drafting answers to inquiries based on past response data, helping to prepare meeting materials, and so on. Our goals is to improve the quality of work by allowing people to focus on the more creative aspects of what they do.
- We continue to look at introducing predicative AI tools and frameworks that use data to come up with strategic business proposals. Our goal is to support more accurate decision-making in the planning and policy research stages by referencing AI-generated forecasts.

2) Eliminate the need for in-person processing by digitalizing various applications and approval flows

- As we keep pushing for more standardized work and paperless procedures (digitalizing forms and approval flows that require signatures), we are preparing for a future in which everything can be completed online, eliminating in-person processing entirely. This system will free both students and faculty of the need to visit university offices in order to complete paperwork.
- We are also accelerating administrative DX by building mechanisms for sharing Good Practices from various sites as well as information between users, making it possible for everyone to support each other.

3) Streamline operations with the introduction of digital student IDs

- With student IDs, we're not only replacing the current card-based system, but also looking into other features and installation formats that will reflect technological trends and student needs while further benefiting the university in terms of educational outcomes, cost performance, and so on. We are also looking for ways that digitalization can end the issuance of IC cards and otherwise simplify administrative workstreams. Challenges to digitalization include the need to issue commuter tickets and student discount cards as well as potential issues with personal identification and facility access, to name a few. However, we are working to overcome them while providing new added value with pilot programs and studies of leading examples at other organizations.

4) Push for even more digitalization and automation of administrative tasks

- We are creating frameworks that encourage no-code/low-code development among administrative staff along with ways to share these insights throughout the university. In the future, we hope to train all full-time staff to a certain skillset so that they are able to implement work improvement initiatives on their own.
- In addition to supporting workplace-led digitalization and automation efforts, we are working to establish mechanisms for handling predictable inquiries and information-sharing along with easier-to-use environments and tools.
- We are also looking to develop a stronger work improvement mindset among all university staff while boosting IT skills to enhance their daily productivity. To support these efforts, we're collaborating with staff work transformation promotion projects, collecting feedback on workplace needs, and supporting systematic digitalization and automation initiatives.

21 Datamarts are databases focused on a subject that targets the needs of a specific user group

Priority measure #3 | ## Update system infrastructure

1) Look into next-generation portal sites

- We're currently looking to upgrade the MyWaseda portal site. Our goal with the next-generation system is to make the information and functions users want (including push notifications) faster and easier to use while providing a user interface that offers personal customization features for stress-free access via smartphone or other devices.
- We also want to make it possible to link the portal to general-purpose applications that support student life as well as user-created applications, to make accessing information and submitting applications more convenient, and to optimize communications features.

2) Appeal to parents with targeted information services

- We're looking at introducing web-based services that allow parents and guardians to view student course and grade information as well as tuition information and other relevant data. We also want to release university statistics (number of students, donation information, research activities, and more) visualized with BI tools to parents and other stakeholders to boost their engagement[22] with student support measures carried out in collaboration with the university.
- We also hope to use these communications with parents and guardians to better promote study abroad programs as well as volunteering and other extracurricular activities, using outreach to enhance a broad range of student learning opportunities.

3) Look into syllabus and course registration systems tailored to students' future plans

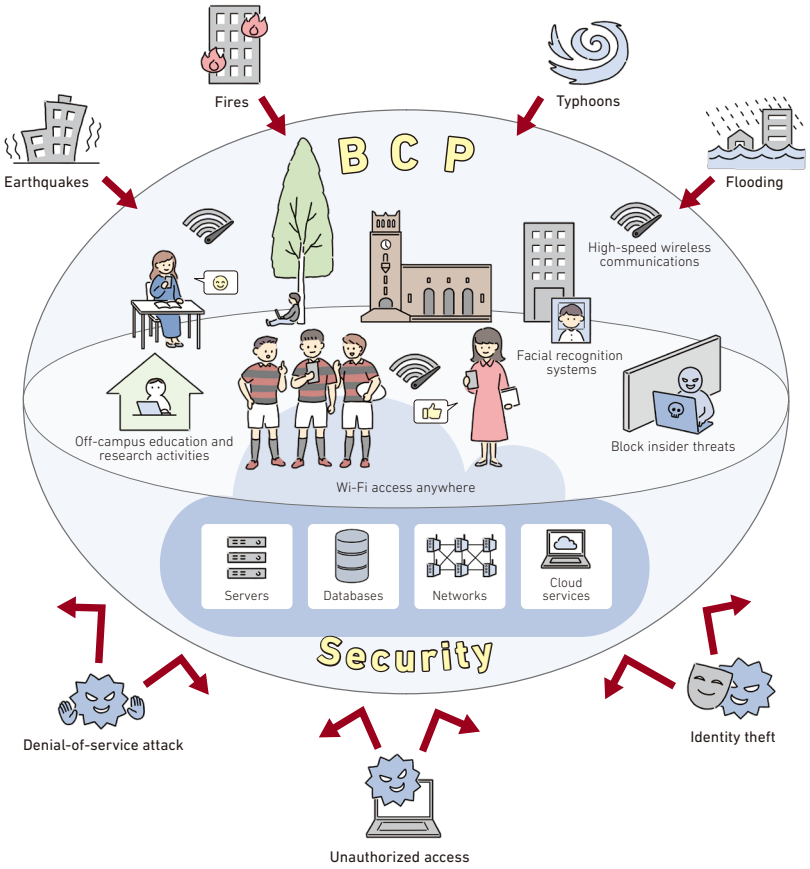
- We are looking into features that will support students in developing their career plans. Our goal here is to create a framework, enhanced by AI and other tools, that offers suggestions for coursework or extracurricular activities that match the career plans students develop for themselves, visually showing the relevancy of specific curriculum policies, courses and curricula.
- We are also looking at installing into MyPortfolio a system that will help apply PDCA cycles to student learning, offering analytics to pinpoint potential interests and good fit based on coursework and other academic data.
- With next-generation online syllabuses, our goal is to support the development of student course and career plans with a system that offers more flexible editing features based on the current challenges and needs of faculty and students.

22 Engaged employees have a good understanding of company goals and strategy, and are independently motivated to contribute their efforts

Goal #4

Strengthen DX foundations

Offer reliable, easy-to-use IT infrastructure to support DX promotion



BCP: Business Continuity Plan

Priority measure #1

Build high-quality campus networks

1) Enhanced wireless networks and faster communication speeds

- Waseda's internet communications load has nearly doubled since before the pandemic as education, research, and university administration become increasingly systematized and expanded use of cloud services continues. Meanwhile, the digitalization of all kinds of university activities continues to accelerate, with stakeholders demanding easy access to the information and services they need without being limited by the need to be on campus. Network usage is only expected to increase. Networks are essential for all kinds of university activities, and the quality of on-campus networks is a critical aspect of university infrastructure that greatly determines a school's competitiveness. Given the recent explosion in demand, our steady enhancement of campus networks has not kept pace with skyrocketing need, leaving some of our buildings without sufficient connection speeds and certain areas of campus without wireless networks access. It is here that we are looking to make further improvements. Under this priority measure, we will be upgrading to Wi-Fi 6 systems with wireless access points (APs), the increase in which will expand areas of wireless connectivity in classrooms, lounges, and other shared learning spaces as well as in university offices. We are also taking steps to improve wireless connectivity (including revisiting equipment rollout methods) in research labs, club meeting rooms, and other areas that are currently without sufficient coverage[23]. Further, in order to maximize the impact of upgraded and increased APs, we are expanding and accelerating communications capacity by reviewing and upgrading our network devices and fiber optic configurations. This should allow us to provide all the communications speed and coverage users need as we build the infrastructure to support smooth classroom operations and management as well as research activities.

23 Here, coverage refers to areas with available Wi-Fi

2) Achieve high availability for campus networks

- With information environments becoming increasingly important, there is a need to secure even higher availability and reliability for the campus networks that impact university education, research, and administration. Waseda's campus networks still suffer from structural weaknesses where breakdowns affecting certain devices can have wide-ranging effects, causing operational issues. To address this issue, we are reviewing the scope of impact that each device has on the campus network, steadily making critical devices redundant as we work towards creating redundant network pathways throughout the system. We are also reducing failure rates and making the devices that make up our networks easier to maintain by selecting more reliable products. We are also conducting failure drills to shorten recovery times and otherwise increase network availability.

Priority measure #2 | Promote BCP measures for IT infrastructure to keep the university running

1) Business continuity plan[24] measures for campus networks

- We are also looking at ways to move more device configurations and functions from data centers (DCs) to more disaster-resistant structures and the cloud, so that we are no longer compromised by our current situation where critical network devices are concentrated in specific buildings. We are also considering mechanisms that will minimize the impact of usage failure should a disaster or other event render specific buildings or devices unusable as a result of widespread system damage. One way to do this would be creating redundancies by placing network devices whose failure would have university-wide impacts in multiple buildings, or by decentralizing cloud, DC, and similar facility locations. We are also looking at ways to maintain independent network functionality at each campus through the use of a SINET virtual university LAN[25]system. Finally, we are putting together disaster recovery (DR)[26] procedures to prepare for failure incidents.

2) IT infrastructure business continuity plan measures for systems and services

- We are revisiting the idea of teaming up with relevant on-campus locations to review the BCP priorities (low, medium, high, none) defined for each system.
- Although systems that use outdated server versions are being backed up just like our other systems, these servers cannot be restarted in a DR environment—meaning that any recovery efforts would be prolonged due to the need to review our infrastructure from the ground up. Our goal is to shorten recovering times during a disaster by replacing our systems with those that utilize the latest technology.
- We are actively moving towards introducing software-as-a-service (SaaS) as part of our system replacement efforts. Utilizing cloud-based services will allow us to move forward with our BCP while providing more flexible functionality along with scalability.
- We are actively moving forward with introducing platform-as-a-service (PaaS) and infrastructure-as-a-service (IaaS) to replace our in-house systems in areas ill-suited to SaaS solutions. We are also working on selecting and verifying the right cloud service model, moving ahead with our BCP as we look to modernize our system and simplify operations.
- We are preparing for disaster damage that would render campus offices unusable by researching ways to temporarily move both servicers and PC environments to public cloud systems. We are leveraging desktop virtualization[27], VPN, and other technologies to create environments that give users remote access under DR conditions.
- We are also conducting BCP drills in anticipation of situations where a disaster in the capital, ransomware, or similar emergency would render systems unavailable. We are selecting specific systems for training and using their backups to restore them and make their services available.

Priority measure #3 | Promote zero-trust security measures to handle increasingly diverse service usage

1) Protect user information

- We continue to take steps to improve security using multifactor authentication. We are implementing educational and training programs designed to increase the percentage of faculty members adopting multifactor authentication. We are also introducing new multifactor authentication features for students and alumni to

24 Business continuity plans ensure that companies and organizations keep running during disasters or other emergencies

25 Science Information NETwork 6 (SINET6) virtual university LAN

26 Disaster recovery refers to preventative measures that minimize recovery time and/or damage to critical technological infrastructure and systems following a natural or man-made disaster

27 Here, desktop virtualization refers to making staff PC environments run on a cloud server

protect user information from unauthorized access.

- There has been a sharp increase in cyberattacks involving unauthorized logins that breach multifactor authentication barriers since September 2022. Attackers use phishing sites to collect IDs, passwords, one-time passwords, and other information, or may use phishing emails to penetrate multifactor authentication systems. To combat these measures, we are looking into FIDO2 and other standards for multifactor passwordless authentication.
- There are multiple issues with emailing password-protected zip files separate from their passwords as a security measure (known as PPAP in Japan) Waseda has already introduced cloud storage solutions, but PPAP practices continue. For this reason, we are moving to abolish PPAP by introducing measures such as automatically uploading attached files into cloud storage.

2) Protect networks

- Because communications within academic and research networks do not pass through a firewall, a campus PC infected with malware runs the risk of spreading that malware through internal communications. We are looking at introducing macrosegmentation to address this issue. One approach would be to assign a global IP address and VLAN (private IP) to each research lab or building/floor, for example, to control (in principle, prohibit) VLAN-to-VLAN communications. This would make it possible to limit any malware infections to specific VLANs.

3) Protect resources

- We are in the process of migrating the servers managed by the IT Strategies Section to public and private clouds, making it difficult to ensure security through perimeter defenses alone. From a resource protection standpoint, because security patch application rules are currently different for each system, we will be formulating a set of uniform rules while steadily expanding our target servers. Because application procedures and the length of time that services can be shut down differ for each operating system and target system, we're working to group them accordingly and develop operational rules for each.

4) Integrated management of security product logs

- We're also formulating a log management approach for existing security products and enable centralized management so we can accurately identify security incidents and respond to them appropriately. Our goal is to maintain higher security standards in the event of situations like those below.
  - · Intrusion prevention event: Run a statistical analysis to help improve security configurations
  - · Intrusion detection event: Review details and respond quickly (investigate/recover)
- We are working to strengthen insider attack protections, detecting and blocking suspicious communications using the security products we've already installed to analyze network communications and traffic. To reduce the impact of false detections on users, our operations process calls for a manual review of detected anomalies before blocking communications. We're also working to reduce operational workload by gradually moving to automatic blocks as our operations track record is developed.

Priority measure #4 | Restructure integrated authentication systems to handle diverse needs

1) Put together a replacement plan for integrated authorization and user management systems

- As the maintenance services for software and middleware on our current platforms come to an end, we are listing up our current issues and developing a replacement plan that will simplify things on both the infrastructure and work operations side. Our key areas of focus are as follows.
  - (1) Integrate our multiple LDAP servers and on-premises AD servers to create a shared university AD
  - (2) Enable flexible, low-cost SP management operations that include enterprise application registration through Azure AD and are not limited to Shibboleth SP.
  - (3) Create an infrastructure that allows peripheral systems to flexibly and securely access required user information without being limited to one-way provisioning[28] from integrated authentication systems
  - (4) Cut back on unique administrative operations (those that require manual work) by reviewing data structures in consideration of user lifecycles and changes in user classifications (i.e., student, alumni, faculty, staff).
- The purpose of replacing our systems is not only to reduce costs and achieve more optimized configurations,

28 Here, provisioning refers to automatically supplying user ID information across different services

but also to lay the groundwork for a smarter, more digitalized campus, making initiatives like introducing on-campus facial recognition or digitalizing student, faculty, and staff IDs. We are developing our replacement plans, therefore, with these future activities in mind.

2) Address next-generation single-sign-on trends through GakuNin

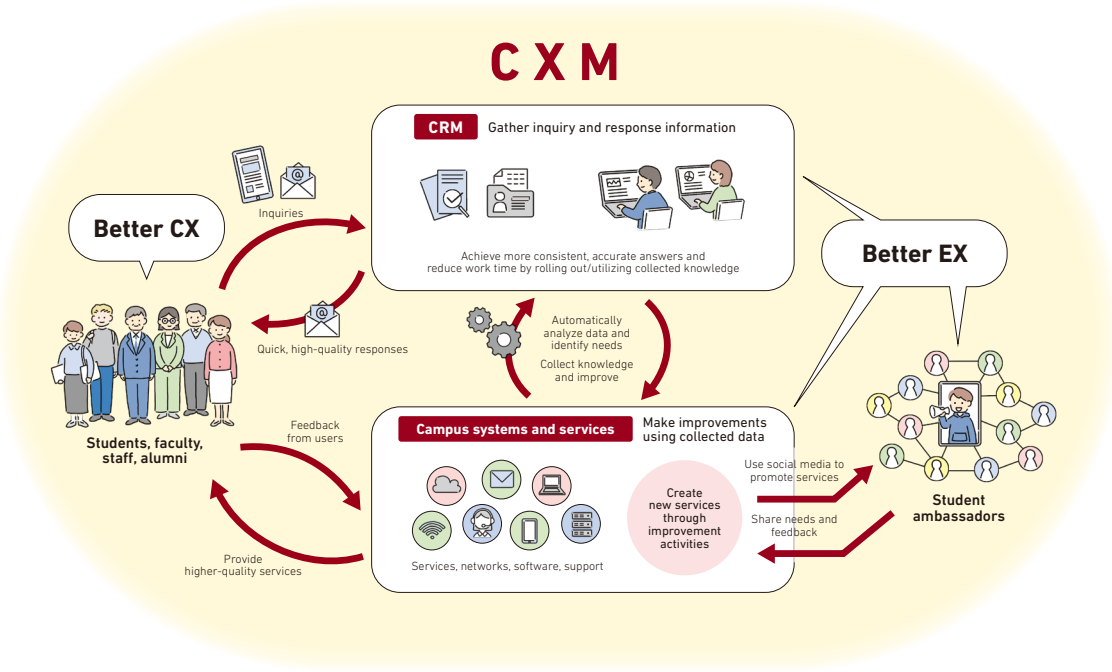
- We are currently looking at introducing next-generation single-sign-on permits through the Academic Access Management Federation in Japan (*GakuNin*). Waseda is participating in the GakuNin program as the basis for building its single-sign-on academic authentication system, moving ahead with the necessary measures in response to e next-generation trends. We are also taking the necessary steps in anticipation of adopting the GakuNin RDM research data management service in the future.

3) Address trends outlined in the Digital Agency Roadmap on the Utilization of Data in Education

- As an institution of higher education, it is likely that Waseda will need to take certain measures in response to formulation of the Roadmap on the Utilization of Data in Education. We are currently collecting information and making the necessary preparations while carefully monitoring government agency developments.
- Because our affiliated schools are legally separate entities, we currently only assign Waseda system IDs once students are admitted to the university. Once the requirements of the Roadmap on the Utilization of Data in Education are in full force, however, we will likely need to have a seamless ID management system in place that integrates the ID systems from our affiliates as well.

Goal #5 Better CX/EX

Improve user support services and maximize the benefits of using systems and services



CXM stands for Customer Experience Management, a general term for improving the quality of provided services and increasing customer satisfaction by analyzing customer needs and providing added value.

CRM stands for customer relationship management, which involves centrally managing customer information while streamlining and optimizing operations to improve the quality of provided services along with customer satisfaction.

CX stands for customer experience, a general term for activities whose purpose is to boost customer satisfaction and engagement.

EX stands for employee experience, a general term for activities whose purpose is to boost employee satisfaction and engagement.

Priority measure #1 | Showcase systems and services more effectively

1) Visually track usage and effectively utilize needs analysis results

- We are introducing customer experience management (CXM)[29] systems to analyze data on past inquiry handling at various university service desks, results from surveys on information usage environments, and other sources to visualize student, faculty, and staff usage conditions as well as analyze their needs. Our goal is to use this data to establish a series of lifecycles tied to service improvements.
- We will then link this data to our shared customer relationship management (CRM)[30] system, reflecting our analysis results (which will go beyond ICT-related environments to include student/faculty responses at faculty offices, for example) in systems and services and otherwise sharing them for the purpose of improving user satisfaction by providing them with the right services, guidance, and support.

2) Use student ambassadors to effectively increase awareness of services and spread information

- We are looking into creating a framework that (1) makes student ambassadors part of the organization to run effective publicity campaigns to raise awareness about systems and services, and (2) boosts the effectiveness of system implementation. We plan to leverage social media and other avenues to send push notifications, effectively raising awareness about services while efficiently spreading beneficial information, information on outages, and so on with the goal of better promoting the new university technologies.

Priority measure #2 | Enhance user support services

1) Improve the IT Service Navi, roll out CRM throughout the university, and rebuild IT service branch offices

- We plan to link the successor site to IT Service Navi to the shared CRM to provide an environment where users can quickly and easily access the information they need while centralizing inquiry tools/forms to collect responses and data, thereby increasing the percentage of problems that users can solve on their own. We will also measure the effectiveness of the resolutions given to daily inquiries in terms of the number of steps, time required, quality of solutions, and so on, using those assessments to make the appropriate improvements with the aim of providing better user support services.
- In anticipation of rolling the CRM out university-wide, we plan to create use cases for campus rollouts and measure their effects based on the results of pilot IT help desk/IT service introductions with the goal of sharing knowledge on inquiry handling and other processes. In the future, we will set up a one-stop service support system for students, faculty, and staff by centralizing faculty offices and other physical contact points along with other online service desks. We will also offer services that make use of the knowledge, need databases, and analysis results collected in the CRM to improve the quality of our response services and help increase user satisfaction.
- We will also present an AI chatbot as an initial tool for responding to user inquiries, increasing the percentage of problems that users are able to resolve on their own with the goal of shortening response time and greatly reducing the number of inquiries that the university handles directly. Users solving more problems on their own should also allow us to cut back on full-time IT services staff for remote campuses and elsewhere, reducing operational costs while maintaining user satisfaction.

Priority measure #3 | Look into ways of stimulating communication among stakeholders

1) Consider social media-based communication tools

- We are also considering using social media as part of a framework to promote interactive communication among students, faculty, and staff. Closing the gaps among stakeholders should foster a sense of unity as we aim to provide environments and frameworks equipped with communication tools that make it impossible for any student to feel left out in their experience of university life.
- Waseda already has many tools to facilitate communication, but we want to improve them in several ways. For prospective students, we can heighten their anticipation by showcasing the best features of Waseda through the metaverse or other channels; for current students, we can boost satisfaction by using chat or other tools to

29 Customer experience management is a general term for improving the quality of provided services and increasing customer satisfaction by analyzing customer needs and providing added value

30 Customer relationship management involves centrally managing customer information while streamlining and optimizing operations to improve the quality of provided services along with customer satisfaction

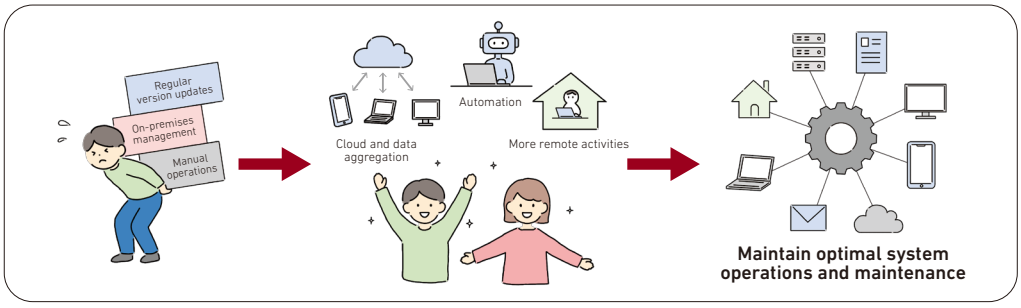
create enhanced opportunities for interaction and giving them a better university experience while ensuring good psychological health; for parents and guardians, we can set up chat tools or dedicated portal sites that allow them to exchange meaningful information for better peace of mind.

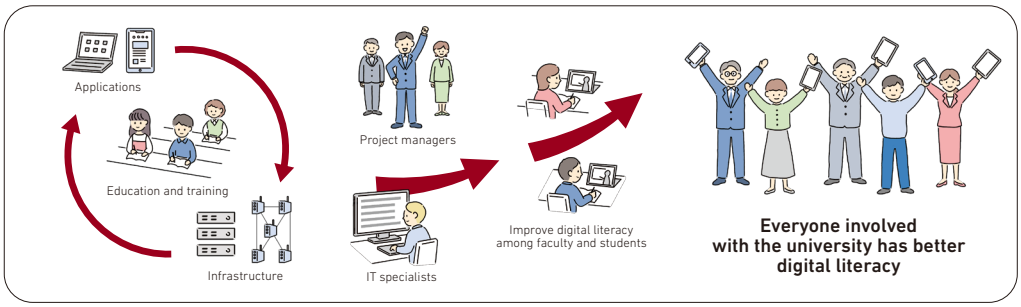
- We will begin a pilot program, teaming up with faculty to start as we identify the current issues facing communication among stakeholders and look into prototypes for overcoming those challenges. Based on the results of the pilot program, we will look into rolling out our solutions across the university.
- We also hope that by offering the new chat tools as a way to share files with available users, we will get closer to abolishing email attachments and the PPAP method as people become accustomed to using the chat instead.

Goal #6

Strengthen IT promotion frameworks

Build a sustainable framework by streamlining operations and maintenance while systematically developing digital talent





Priority measure #1

More efficient operations and maintenance and operational cost-cutting

1) Reduce hardware and accelerate the shift to cloud services

- The university has made great progress in moving to the cloud through past policies of moving from independent development to package utilization and from on-premises adoption to prioritizing the cloud. Going forward, we will continue this shift by consolidating and optimizing network equipment, eliminating classroom PCs (as we promote BYOD), and otherwise reducing hardware procurement in favor of service utilization.
- The purpose of this is not simply to cut operational costs, but to automate system operations as a precursor to promoting greater service utilization and switching to a cost structure that provides added value to users (in other words, increasing the percentage of the budget that contributes added value).

2) Move to more remote, automated operations systems

- We have succeeded in taking some of our operational systems remote already with network-based tasks, and we intend to go further by looking at the possibility of making all IT help desk and IT service operations remote as well. This should reduce costs while speeding up operational and maintenance response times.
- As we push for more remote operations, we are also looking for ways to further optimize our current systems and services by eliminating redundancies, cutting out unnecessary features, and other reductions.
- We also plan to utilize AI in our maintenance and operations tasks with a steady rollout plan that starts with areas in which it can make the greatest impact. The goal is to streamline operations and increase operational accuracy through automation.

3) Look at consolidating, standardizing, and linking university ICT infrastructure

- We are also studying and reviewing the various ICT infrastructure essential to university operations to see whether we can expect lower costs, greater operational efficiency, and/or greater utilization impact by consolidating, standardizing, and sharing them with other universities.
- Our first step is to set up a system for collecting and sharing information so we can find out how the systems and services that Waseda uses are used at other universities and how those services might be linked together.

4) Make use of subsidies for capital investment

- We have already begun preparations to have the current Academic Affairs Division and Research Promotion Division provide information to trigger MEXT subsidies, but we're also setting up a framework that will allow the IT Strategies Division to actively collect information that allows it to quickly respond to subsidy programs to fund its IT strategy.
- We are laying the necessary groundwork by continually collecting information relevant to subsidies issued by MEXT along with estimated budget requests and the like, as well as analyzing these details. Finally, we are strengthening our collaborations with related campus entities, including the Academic Affairs Division and the Research Promotion Division, while simultaneously looking into sources of outside funding beyond MEXT.

Priority measure #2 | Develop digital talent

1) Systematize development plans for IT staff

- We are creating and piloting a personnel development plan to systematically teach the four key elements required of IT systems staff members: IT skills, administrative knowledge, expertise on existing systems, and management skills. Our plan is to not only teach IT skills on the job, but also to systematically utilize outside training tailored to individual proficiency.
- By having several training patterns available for new assignments based on the person's background and type of work experience, we can offer individually-optimized training that shores up weak areas while further leveraging strengths—ultimately allowing diverse talent to play an active role in the field of IT promotion. We are also taking post-transfer career development into account with a plan that extends beyond a person's assignment to the IT Strategies Section.
- As part of the new system, we will set up training coordinators in the IT Strategies Section along with mentors and/or trainers for new members. The goal is to be able to continually respond to the latest technological trends and social conditions by measuring results every semester and adding in any necessary improvements.

2) Create career paths that will accelerate IT promotion

- We are looking at career paths that go beyond traditional role allocations to incorporate division of duties tailored to each phase of the systems development process (development, operations and maintenance, management, and so on). The goal is to set up an environment that allows people to focus on planning or management while strengthening organizational capabilities. More specifically, we will have new assignees focus on operations and maintenance for their first one or two years in order to gain a good understanding of the broad range of systems the university uses. After that, we are looking at gradually building their experience in the building, planning, and procurement phases.
- We want to make daily work relevant to individual career paths by setting up multiple routes through the organization based on individual work experience and background, taking past performance into account so that team changes among application, infrastructure, and other fields are effective from the standpoint of personnel development while also allowing for strategic positioning in light of our IT promotion goals.
- We want to use the Open Badge program to visualize work experience in IT Strategies Section systems and services as well as outside qualifications (such as the Information-Technology Engineers Examination), motivating employees to develop their knowledge and skills. We will also conduct pilot programs to develop a track record that we can eventually use for rollouts to other campus locations.

3) Build an IT knowledge base

- We plan to build a knowledge base system for sharing the work knowledge and expertise that each lead has recorded and passed on to others.
- We are also looking at introducing new tools to replace Word, Excel, OneNote, and other programs currently in use.

Priority measure #3 | ## Improve digital literacy among users

1) Formulate DX literacy standards (Waseda University version) for staff members

- To further promote DX at Waseda, we need to increase people' openness to change throughout the organization. Individual staff members in particular need to acquire the basic knowledge and skills involved in digital transformation. The Ministry of Economy, Trade and Industry (METI) and the Information-technology Promotion Agency (IPA) have established digital skill standards that we have used to define a set of Waseda University Standards that will serve as skills that all administrative staff need to have (the skill level corresponds to the Information Technology Passport Examination offered by the IPA). We are also working to provide appropriate means by which our employees can gain those skills.
- In addition, we are looking at frameworks that will allow us to set up proprietary content and encourage sharing of campus best practices while making use of the DX training content provided through *e-JINZAI for Universities* (adopted by the Personnel Division) as well as outside training and online materials.

2) Offer DX literacy-related FD content for faculty

- We will also need to provide faculty with ways to acquire DX literacy so that we can promote and achieve both educational and research DX at Waseda. We are working with the Academic Affairs Division and the Center for Higher Education Studies (CHES) to provide DX literacy content as part of existing faculty development (FD) and student development (SD) initiatives at the university.