Waseda University IT Strategy 2021-2023

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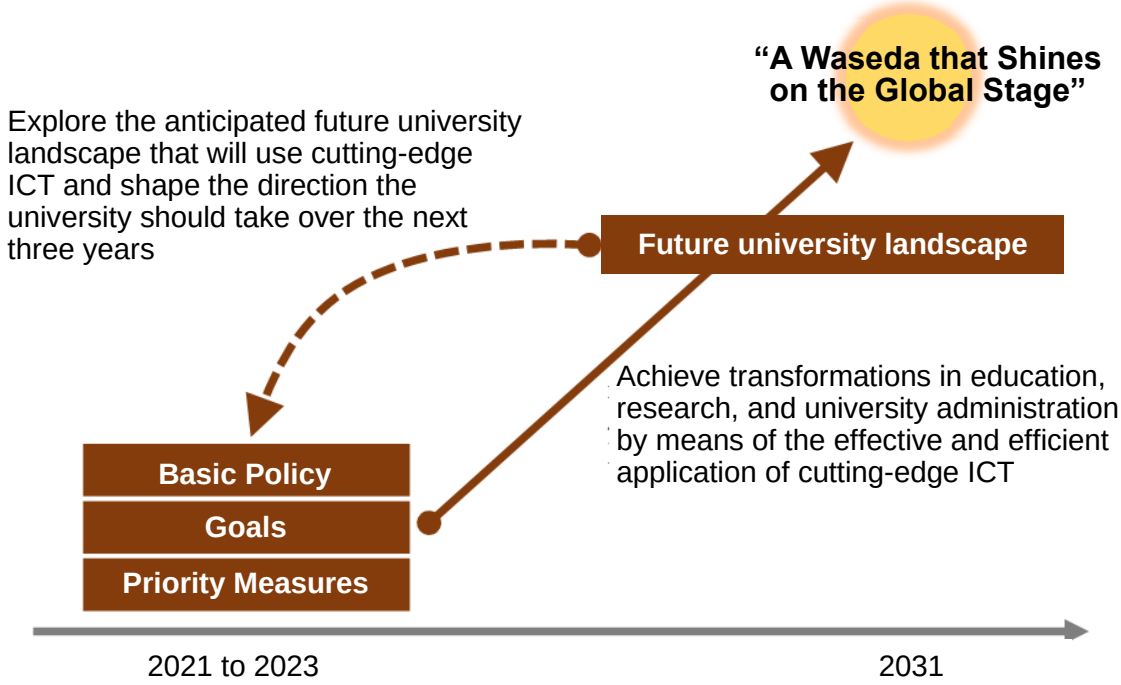
1. Positioning and Objectives of the Waseda University IT Strategy

Waseda University has adopted a new slogan — "A Waseda that Shines on the Global Stage" — to advance our Waseda Vision 150 medium to long term strategic plan, which is being realized through meaningful and radical transformations to the university. We are laying the groundwork to make Waseda a leading global university by means of the Waseda Research vision — conducting world-class research at Waseda, the Waseda Education vision — cultivating *intellectual resilience* and *flexible sensitivity*, and the Waseda Engagement vision — fostering professionals who will contribute to human society. This document details the IT Strategy to be implemented over the academic years 2021 through to 2023 in step with the university's direction. It also describes the basic policy on which the priority program is premised.

Information and communication technology (ICT) is changing at an incredible rate and, with the COVID-19 pandemic, has brought even greater transformations to society, industrial structures, and daily living. Universities are not immune to these rapid shifts, and it is not an exaggeration to say that the competitiveness of a university depends largely on how effectively it deploys ICT. Recognizing this reality, Waseda has been formulating and implementing three-year IT Strategy to address the pace of ICT progress. Over the three-year period from 2015 to 2017, the university encouraged **the early adoption of cloud technology for infrastructure services**, opened the My Waseda portal site, launched the student and faculty email system Waseda Mail, and started providing online storage services. And between 2018 and 2020, we **expanded the application of cloud technology**, **shifted from using custom solutions to packaged solutions**, **promoted the introduction of systems through collaboration between user departments and IT departments**, started provision of university corporate systems, and launched the course support system Waseda Moodle. The execution of the IT Strategy over these two three-year periods has made widespread progress in rolling out and applying cloud-based digital technologies in education, research, and university administration.

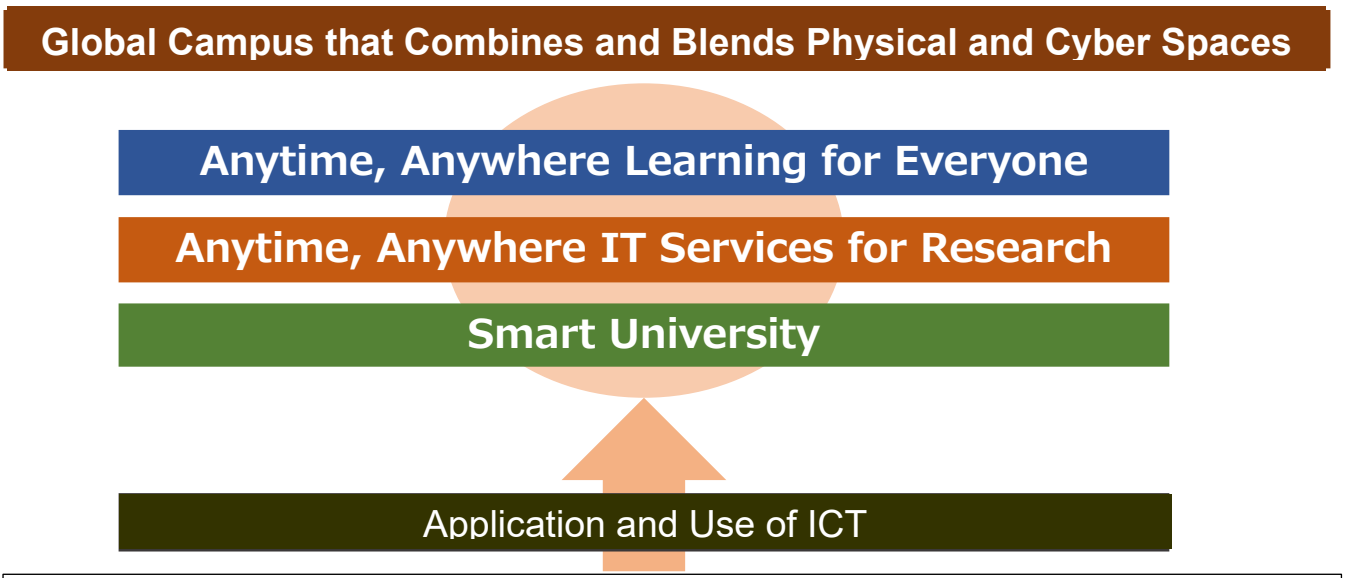


The objectives of the Waseda University IT Strategy are to further the use of ICT systems already deployed in

education, research, and university administration and **to aid transformations in education, research, and university administration through the effective and efficient application of cutting-edge ICT**. In formulating specific measures designed to achieve these objectives, we surveyed technological trends in the ICT field, explored the anticipated future university landscape that will use these new technologies, and set out a basic policy and operational goals to be undertaken over the next three years.

To outline the rest of this document, Section 2 provides an overview of how ICT-centered universities will look 10 years from now; Section 3 spells out the basic policy used to guide the formulation of the Waseda University IT Strategy; and Section 4 presents specific priority measures.

2. Future ICT-Centered University Landscape



- Past Priority ICT Programs
- 2015 to 2017: Encouraged the early adoption of cloud technology for infrastructure services (MyWaseda, email systems, online storage, etc.)
- 2018 to 2020: Switched from custom solutions to packaged solutions, expanded the application of cloud technology from on-premise, introduced systems through collaboration with user departments (university corporate systems, LMS, etc.)

Looking ahead to the next decade, it is clear that ICT will enable the realization of various things that were previously impossible. As for the education and research activities at universities, people around the world will be able to connect seamlessly online, data stored online will be shared securely and instantaneously as needed, and accumulated data will fuel optimal analyses and constant, evidence-based transformations to address various needs. ICT advances are anticipated to provide the foundation for further *quality* improvements in university activities and pave the way for effective and efficient transformations in education, research, and university administration on a global campus that combines and mixes physical and cyber spaces. The future university landscape can be summarized in three concepts: **Anytime, Anywhere Learning for Everyone**; **Anytime, Anywhere IT Services for Research**; and **The Smart University**.

(1) The Education Landscape: Anytime, Anywhere Learning for Everyone

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

Communication networks around the world will be faster and more robust, and virtually every household will have access to high-speed Internet. Universities, too, are certain to **support convenient Internet access** with ultra-low latency and multiple simultaneous connections using 5G and post-5G technologies, which will enable the online sharing of places with the rest of the world. The ability to share places around the world will allow universities to provide places to learn regardless of the students' physical location. Without having to travel to Japan, international students will be able to take classes online as if they were in a campus classroom, earn credits and receive thesis guidance, and have face-to-face discussions with other students in different locations as if sitting right next to each other. These advances will enable universities to routinely **offer global and diverse learning opportunities to their students**.

On campuses, classroom formats will become more varied, including effective combinations of in-person and online learning. Classrooms that can flexibly and seamlessly accommodate a variety of class formats to meet the needs of faculty and students will become the norm, and virtual reality (VR), augmented reality (AR), and mixed reality (MR) technologies will be deployed effectively according to the contents of class. In this way, technology will enable **the provision of realistic, inclusive class environments that fuse the real and online worlds**. In addition, there will be more student lounges, learning commons, and similar spaces. These spaces will be actively utilized as places for real-life interactions and for taking online classes. Students will also be able to freely access from their own smart devices various software applications previously available only in computer rooms. This will allow universities to eliminate computer rooms and provide software

environments equivalent to computer rooms that are accessible at any time, from any place, on any device.

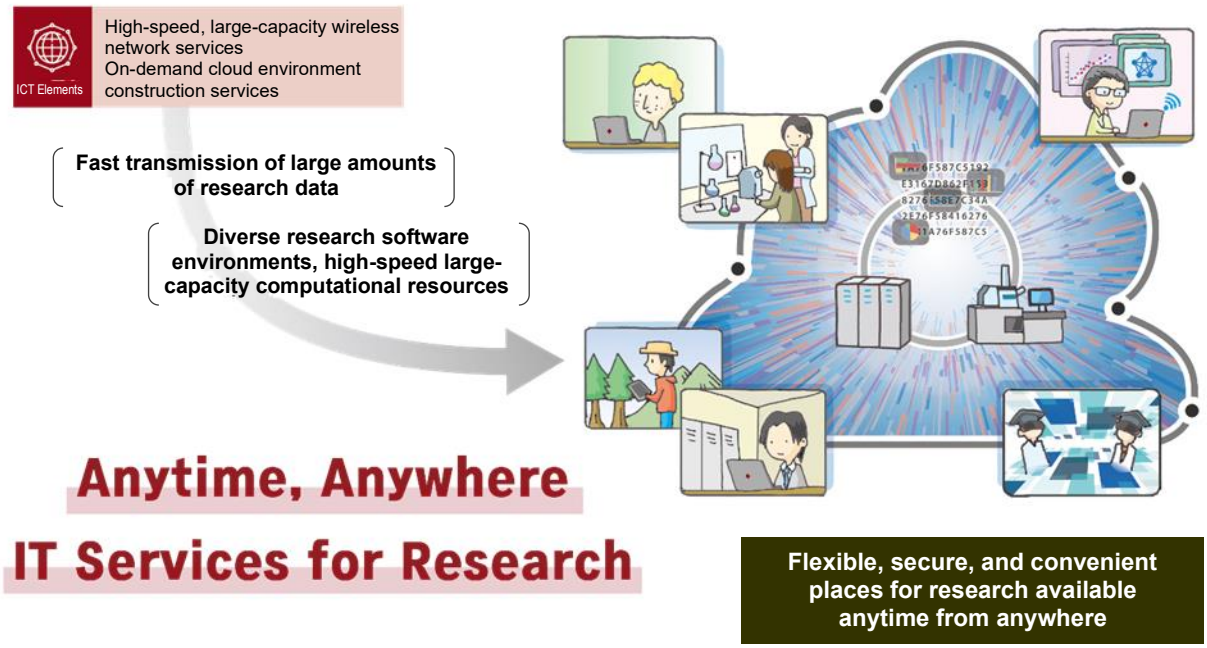
More personalized learning and support

AI, big data, and other advanced ICT are expected to be used in digitizing online activities as well as in analyzing course content to improve curriculums. For example, with the advancement and proliferation of AI designed for education, AI will be able to gauge and analyze such information as the learning histories of individual students. This will enable the university to present students with personalized learning plans and study content, provide support tailored to individual student characteristics, and recommend accurate course selections, learning materials, test questions, and other information based on the student's academic progress, abilities, and interests. AI and other technologies will make it possible to visualize what knowledge a student has acquired through the process of earning a degree to better understand the student's competencies in the context of the wider society in which the student will participate.

Smart digital campuses

Smart campuses are expected to emerge that implement, on the premise of robust privacy protection, AI digital signage, digital wayfinding, biometric authentication for building access, digital attendance management, smart cards, and similar mechanisms to facilitate smooth movement around the campus and optimal facility use.

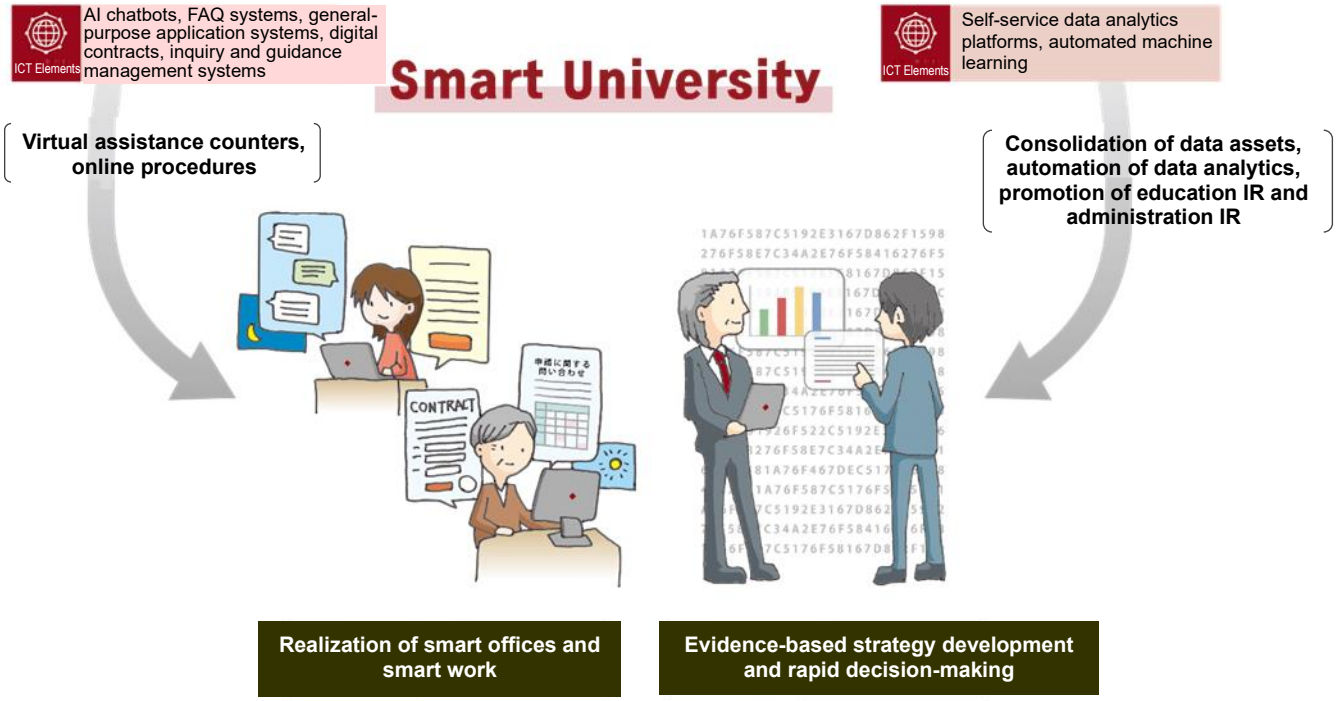
(2) The Research Landscape: Anytime, Anywhere IT Services for Research



Flexible, secure, and convenient places for research available anytime from anywhere

Universities will utilize cloud services to provide research environments that permit researchers to quickly set up access to computational resources and specialized research software applications necessary for research activities. Universities will also be able to link up research environments online, making it easy to offer secure and convenient places for research regardless of the time or location.

(3) The University Administration Landscape: The Smart University



Realization of smart offices and smart work

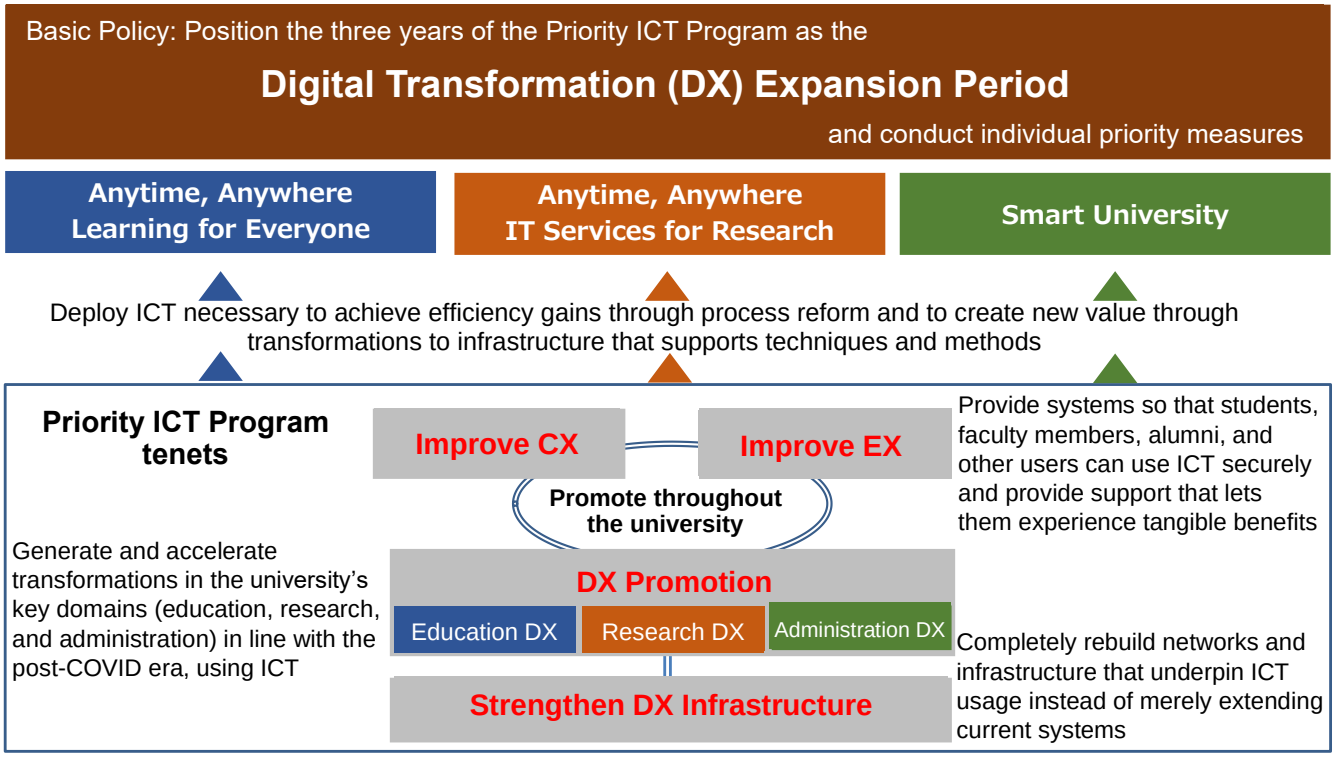
Universities will set up multilingual online student-support services available 24 / 365 through the application of AI and chatbot technology. In-person assistance counters and paper-based applications and procedures will no longer be necessary. By putting all procedures online, students, faculty members, alumni, and others will no longer need to visit the university to complete administrative procedures. With most university operations available online, administrative staff members are expected to be freed from the constraints imposed by work locations.

Evidence-based strategy development and rapid decision-making

Universities are expected to construct data collection infrastructure for real-time access to data on various university systems, which will facilitate analytics that use the latest data at any time. Administrators familiar with operational processes are expected to use AI-based analytic tools to help with advanced decision-making, even if they do not have advanced data analytic skills.

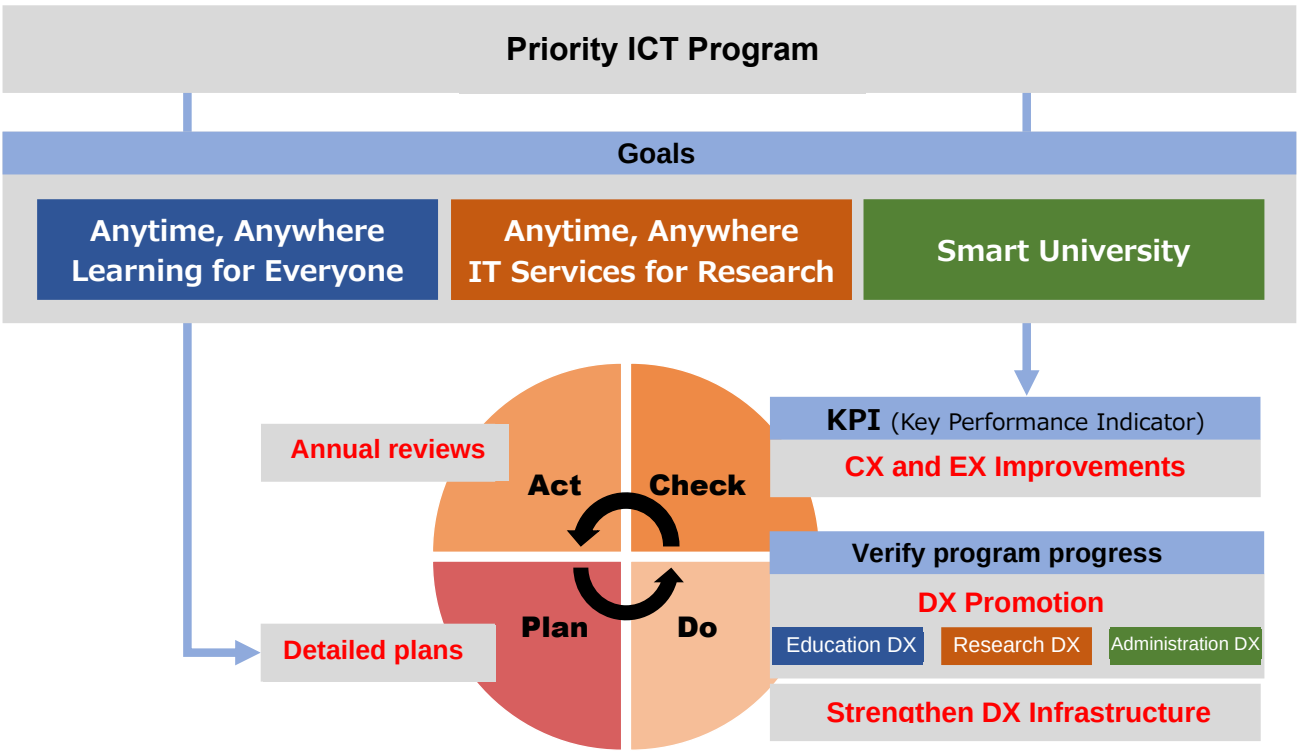
3. Basic Policy for Planning

(1) Basic Policy



Waseda's Priority ICT Program is centered on **promoting digital transformations (DX)** using ICT to generate and accelerate transformations in the university's key domains (education, research, and administration) in view of the future university landscape. Our basic policy is to position the three years of the Priority ICT Program as the **DX expansion period** and to conduct individual priority measures. Before implementing priority measures, we must accurately identify what will be transformed through the use of ICT (for example, greater efficiencies through process reforms or new value creation through transformations to infrastructure that supports techniques and methods) and ensure that we install and deploy the required technologies. Furthermore, to ensure the steady advancement of DX, we will **strengthen DX infrastructure**, which involves rebuilding the underpinning networks and IT infrastructure systems, instead of merely extending present systems. The basic policy also calls for **improving customer experience (CX) and employee experience (EX)** by providing systems that allow students, faculty members, alumni, and other users to use digital technology securely and receive support that allows them to experience tangible benefits.

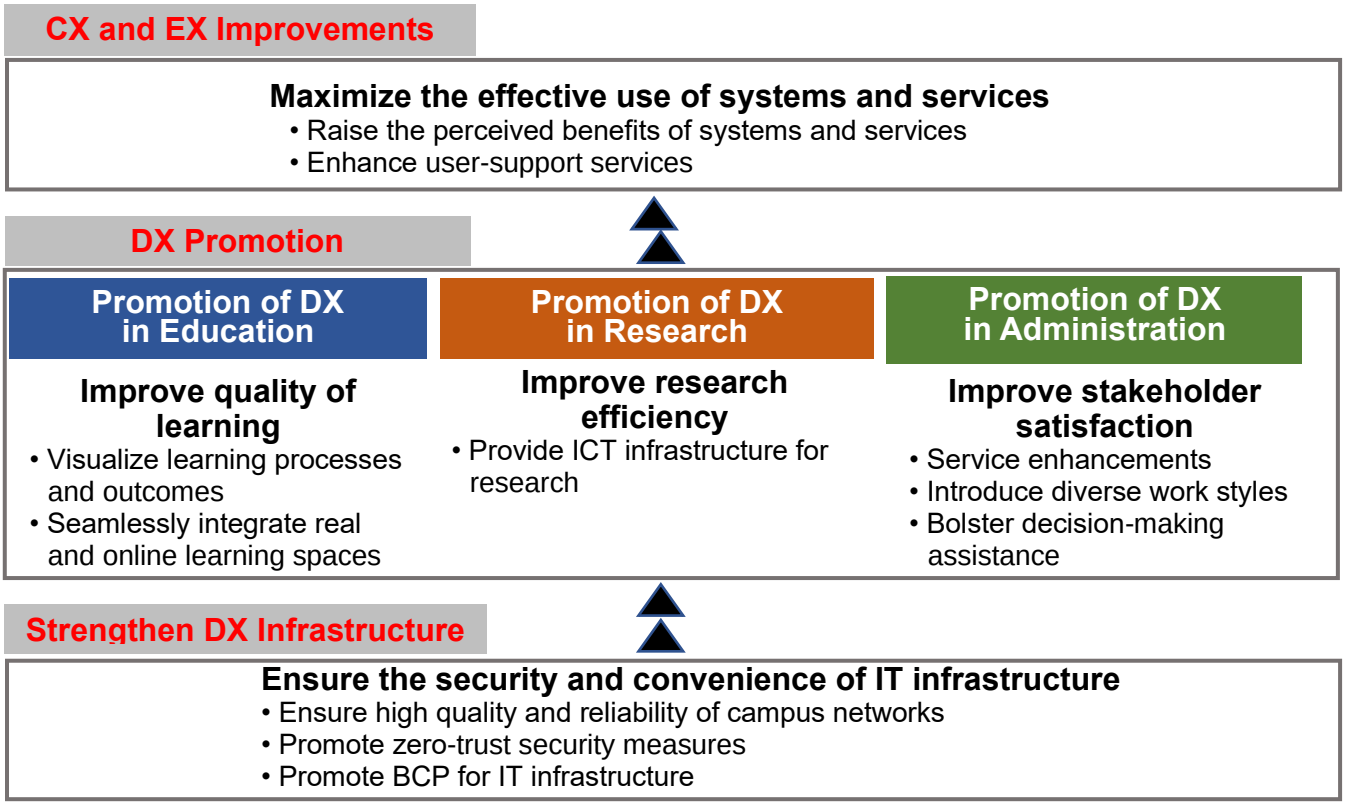
(2) Program Advancement Policy



Waseda has also established a policy to guide the advancement of the Priority ICT Program. This policy positions "Anytime, Anywhere Learning for Everyone, Anytime," "Anywhere IT Services for Research," and "The Smart University" as the program goals — namely, the university we wish to become. It also **sets as key performance indicators (KPIs) how much DX promotion, strengthening DX infrastructure, and other measures contribute to improving CX and EX. These KPIs incorporate both outputs (metrics directly related to program implementation) and outcomes (metrics concerning results and effects)**. The implementation process of each measure includes progress verifications, from the standpoints of the adequacy of ICT investment amounts, compatibility with university operations, and risk clarification. The program advancement policy also includes verifications of KPI achievement and program progress, on an annual basis or at other appropriate times, and maximization of ICT investments by applying PDCA cycles to revise plans as needed.

It should be noted that when advancing priority measures it is necessary to not adhere strictly to initial plans, but to take a global perspective and adapt plans flexibly to address changes around the university and innovations in the ICT field. Doing so will help accelerate the implementation of university operations and programs.

4. Goals to be Achieved and Corresponding Priority Measures



Goal 1: **Promotion of DX in Education**

Improve the quality of learning by providing a diverse and flexible learner-centered digital learning environment

Priority Measure 1: Visualization of learning processes and learning outcomes using learning management systems

(1) Establish systems for analyzing learning histories and visualize learning competencies

(2) Realize personalized education (adaptive learning)

(3) Implement teaching methods that take advantage of digital learning environments

Priority Measure 2: Implementation of inclusive learning environments that seamlessly connect real and online learning spaces

(1) Create classrooms that permit effective combinations of in-person and online classes

(2) Devise lounges, learning commons, and other spaces that encourage learning and interactions across locations

(3) Provide software access conditions premised on Bring Your Own Device (BYOD) policies

Goal 2: Promotion of DX in Research
Improve research efficiency through the provision of ICT infrastructure

Priority Measure 1: Provision of ICT infrastructure that supports research activities

(1) Set up usage conditions for research software and services
(2) Run a trial network specifically for virtual academic research

Goal 3: Promotion of DX in University Administration
Improve stakeholder satisfaction through digitalization and data use

Priority Measure 1: Enhancement of services for students, faculty members, and alumni

(1) Adopt digital / self-serve administrative procedures on the premise of abolishing paper-based forms
(2) Promote process automation and paperless operations with the use of AI and RPA
(3) Update systems and use the opportunity to promote operational structural reforms

Priority Measure 2: Implementation of work styles that suit diverse life phases

(1) Promote new work styles centered on new administrative computers

Priority Measure 3: Enhancement of assistance for fast, evidence-based decision making

(1) Develop infrastructure and systems that consolidate data assets to promote IR for teaching and learning and IR for management

Goal 4: Strengthen DX Infrastructure
Promote digital transformations with the provision of secure and convenient IT infrastructure

Priority Measure 1: Reconstruction of campus networks to ensure high quality and reliability

(1) Enhance campus networks

Priority Measure 2: Promotion of zero-trust security measures to handle diversifying service usage

(1) Bolster authentication infrastructure and measures to counter internal attacks

Priority Measure 3: Promotion of BCP strategies for IT infrastructure to ensure operational continuity

(1) Business continuity planning (BCP) strategies for IT system and service infrastructure
(2) BCP strategies for campus networks

Goal 5: CX and EX Improvements

Maximize the effective use of systems and services by improving user-support services

Priority Measure 1: Improvement of perceived system and service benefits

(1) Improve perceived benefits by promoting the creation and use of online manuals that are linked to AI chatbots

Priority Measure 2: Enhancement of user-support services

(1) Improve user-support services through central management and sharing of support histories and assessing user needs