

Data Collection Survey on the Promotion of the Information and Communication Technology / Digital Industry and Startups in Mongolia

Final Report

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Japan International Cooperation Agency (JICA)

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Abbreviations

ADB	Asian Development Bank
API	Application Programming Interface
APCICT	Asia-Pacific Information and Communication Technology Training Center
CKAN	Comprehensive Knowledge Archive Network
CSV	Comma Separated Values
CVC	Corporate Venture Capital
DCON	Deep Learning Contest
DX	Digital Transformation
EAKPF	Republic of Korea e-Asia and Knowledge Partnership Fund
EBRD	European Bank for Reconstruction and Development
EDB	Economic Development Board
ESB	Enterprise Service Bus
GAFAM	Google, Amazon, Facebook, Apple, Microsoft
GovTech	Government Technology
HTML	Hyper Text Markup Language
ICT	Information and Communication Technology
IDA	International Development Association
IMDA	Infocomm Media Development Authority Singapore
IOM	International Organization for Migration
ITC	International Trade Centre
JPEG	Joint Photographic Experts Group
JUGAMO	Japanese University Graduated Association of Mongolia
JSON	JavaScript Object Notation
KML	Knowledge Markup Language
KSF	Key Success Factors
MDDIC	Ministry of Digital Development, Innovation and Communications
MFST	Mongolian Foundation for Science and Technology
MJEED	Mongolia-Japan Higher Engineering Education Development Project
MNC	Multinational Company

MOJC	Mongolia-Japan Center for Human Resources Development
MUST	Mongolian University of Science and Technology
NES	National Export Strategy for Prioritized Non-Mining Sectors
NGO	Non-Governmental Organization
NUM	National University of Mongolia
OWL	Web Ontology Language
PDF	Portable Document Format
PDPC	Personal Data Protection Commission Singapore
PoC	Proof of Concept
PP	Pilot Project
RDF	Resource Description Framework
SHP	Shapefile
SNDGG	Smart Nation Digital Government Group
SU	Start-Up
UB	Ulaanbaatar
UFE	University of Finance and Economics
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNDP	United Nations Development Programme
VC	Venture Capital
WG	Working Group
XML	Extensible Markup Language
MNCCI	Mongolian National Chamber of Commerce and Industry
CxO	Chief Officer in a specific field (e.g., CEO, EFO)
TAM	Total Addressable Market

Chapter 1 Overview of the Study

1. Background, Objectives, and Scope of the Study

Mongolia, a resource-rich country with abundant mineral resources, aims to move away from its dependence on a single industry. To this end, the long-term development plan "Vision 2050," adopted by the State Great Khural in May 2020, outlines a goal to foster technology-based innovation by 2030. In line with this vision, efforts such as promoting e-Government through the use of open data and the establishment of the Ministry of Digital Development, Innovation and Communications (hereinafter MDDIC) are rapidly advancing. Furthermore, the utilization of open data, the enhancement of Information and Communication Technology (hereinafter ICT) and digital industries, and support for startups (hereinafter "SUs") are expected to become key drivers of Mongolia's future industrial development.

However, these areas are still emerging in Mongolia, and fundamental, comprehensive information remains limited compared to other sectors. Therefore, in order to consider future cooperation strategies, a study was conducted with the following objectives.

<Objectives of this study>

- To promote the ICT, digital industries, and startups in Mongolia, we organized the necessary foundational information and verified support approaches through pilot projects, subsequently summarizing the outcomes and lessons learned.
- We compiled recommendations for the strategy of the MDDIC of Mongolia.
- We developed proposals for a comprehensive and long-term support program by JICA that leveraged Japan's strengths.
- In preparing these recommendations, we clarified the roles and responsibilities of all relevant stakeholders through practical initiatives, aiming to propose a highly feasible support program.

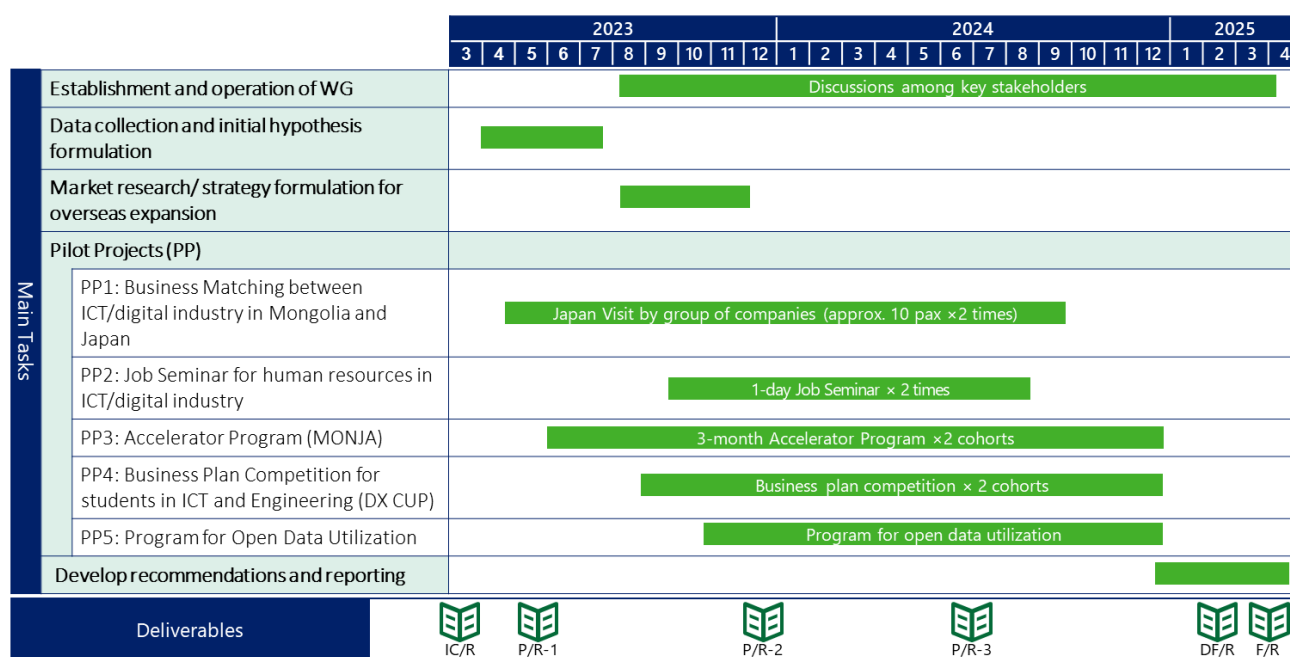
The specific details of the study are as follows:

1. Establishment and operation of the Working Group
2. Information gathering and formulation of initial hypotheses
3. Market research, strategy development, and creation of promotional tools for overseas expansion
4. Implementation and analysis of Pilot Projects (hereinafter PP) 1 to 5
5. Preparation of reporting materials and implementation of the reporting session

2. Process of the Study

This project was carried out in accordance with the following flowchart.

From the very beginning of the project and during its initial stages, information was gathered to formulate initial hypotheses regarding the support approach, while potential members were identified and approached to facilitate the early establishment of a Working Group (hereinafter WG). In addition, since determining the methods and timing for implementing the five pilot projects was particularly important, the objectives, interrelationships, and operational issues of each PP were clarified, and the approach for proceeding with each PP was decided accordingly. In parallel with the PP, market research, strategy development, and the creation of promotional tools for Mongolia's overseas expansion were carried out. The team provided input to the WG and appropriately reflected discussions within the WG in these activities. Finally, the findings from the research, as well as the outcomes and lessons learned from the PP, were compiled into a set of proposals and recommendations.



*ICR=Inception Report, P/R=Progress Report, DF/R=Draft Final Report, F/R=Final Report

Figure 1 Flowchart of the study process

Chapter 2 Progress in the Establishment and Operation of the Working Group

1. Operational Policy of the Working Group

The WG was established to serve as a platform for broad discussions on strategies for promoting the ICT and digital industries, as well as SU ecosystem in Mongolia. Additionally, it was positioned as a hub to connect key stakeholders from the public, private, and academic sectors who contribute to the ecosystem.

In terms of operations, the WG was designed to function primarily with its members taking the lead in discussions. Meanwhile, the JICA Study Team acted as the secretariat, supporting operational aspects such as meeting preparations and minutes drafting. The team also provided discussion frameworks and input information on various themes to facilitate active and productive discussions.

The WG meetings were scheduled to take place quarterly, in principle. Under the ownership of the MDDIC, efforts were made to accommodate language preferences and meeting formats to encourage active participation and exchange of opinions among attendees. Furthermore, in consideration of community building, a dedicated social media group (on Viber) was created.

Over the course of six WG sessions, the JICA Study Team led both planning and operations while collaborating closely with the MDDIC and IT Park, an organization under the ministry responsible for implementing startup support initiatives. However, challenges emerged in encouraging greater ownership on the Mongolian side. These challenges included the heavy workload of the MDDIC representative chairing the meetings, limited staff resources, and a limited prior experience in managing such meetings. Particularly after the restructuring following the 2024 general election, responsibilities related to innovation within the ministry became concentrated on specific individuals, making it increasingly difficult to coordinate and prepare for WG meetings collaboratively.

Regarding the social media group, approximately 30 members who had participated in WG sessions were registered under the management of the JICA Study Team. The group was used to disseminate WG meeting announcements and event notifications on pilot projects. Additionally, IT Park shared information on relevant events through this platform. It is expected that, even after the conclusion of this survey, the group will continue to function as a community for stakeholders involved in the ICT, digital industries, and SU ecosystems.

To further enhance engagement, prior to the 4th and 5th WG meetings, a pre-meeting survey was conducted on the designated themes. The results were utilized during the meetings. Additionally, group discussions on specific topics were incorporated alongside presentations, which not only stimulated active debates but also efficiently captured insights and opinions from the Mongolian side.

Objective and Positioning	• To broadly discuss strategies for promoting the ICT, digital industries, and startup ecosystem in Mongolia • Positioned as a hub connecting key players from industry, government, and academia who constitute the ecosystem
Members	• A broader range of stakeholders from industry, government, and academia are participate • Chairperson to be a representative from MDDIC
Agenda	To be set for each meeting in accordance with the above objective
Mode	In Person (Meeting room at MDDIC/IT Park) and Online
Language	Mongolian/Japanese (Simultaneous Interpretation)
Duration	Approximately 2 hours
Meeting Preparation and Operation	[Before the meeting] • Prior to each meeting, the agenda and meeting procedures are coordinated between JICA, the survey team, and the chairperson. This process will also include handling requests for presentations to members as needed. • The study team handle tasks such as sending meeting invitations to participants, confirming attendance, and preparing necessary materials [During the meeting] • The chairperson will facilitate the overall proceedings of the meeting • Depending on the theme of the meeting, presentations by members may also be included. • As required, the survey team I provides information and inputs, such as sharing precedents from other countries or reporting on the progress of pilot projects [After the meeting] • The survey team prepares a summary of the meeting proceedings and shares it with the members.
Others	• From the perspective of community building, a social media group is established facilitate communication regarding WG meetings, as well as to promote information sharing and exchange of opinions on topics related to the WG discussions

Figure 2 Operational Policy of the Working Group

2. Members of the Working Group

As mentioned earlier, the WG serves not only as a platform for broad strategic discussions but also as a hub connecting key stakeholders. Therefore, selecting members from diverse categories is crucial. To support community building for Mongolia's ICT, digital industries, and SU ecosystem, members were carefully chosen from various fields, including public, private, and academic sectors, as well as areas related to human resources, technology, and funding. Specifically, candidates were identified and approached from categories such as government agencies, startups, accelerators/incubators, private companies, investors, academic institutions, and NGOs. Aside from the chairing organizations, namely MDDIC and IT Park, membership was not fixed. Instead, participants were invited flexibly for each session based on the purpose and agenda of the meeting. As outlined in Section 4, the meetings successfully engaged a wide range of stakeholders, including government agencies, startups, and private companies, fostering active discussions. Additionally, several participants involved in past JICA initiatives, such as MONJA and DXCUP, as well as pilot projects under this program, were included. These stakeholders contributed to the formation of an overarching community for Mongolia's ICT/digital industry. However, despite efforts to invite international organizations, donors, and media representatives initially envisioned as participants, they did not attend the sessions. Instead, discussions were held with these entities before and after the meetings to exchange views and share the outcomes of WG discussions.

Table 1 Member of the Working Group

Category	Member
Government agency	Ministry of Digital Development, Innovation and Communication, Ministry of Education, General Authority for Land administration, geodesy and cartography
Startup	AND Global, ASAP Care, Binary Systems, Dig IT, Erxes, Fibo Cloud, Gerege Systems, Honmono Comics, Integrity DX, Intec, Intelmind, Nasha Tech, Powered, Tapatrip, USP Lab, Woovoo Technology
Accelerator/Incubator	IT Park, Exponential Zaisan Partners, KITE Mongolia, M Stars, Socratus Studio
Private company (Investor)	Golomt Bank, Grape City Mongolia, Mobicom Corporation, Unitel Group
Academic institution	National University of Mongolia, Mongolian University of Science and Technology
NGO	DX Mongolia, People in Need

3. Agenda and Discussion in Working Group

In line with the objectives of establishing the WG, discussions were conducted in sequence to gather opinions for strategy and support plan formulation. Specifically, during the first meeting, participants shared their understanding of the purpose and direction of the WG. In the second meeting, discussions focused on identifying priority areas within the broader scope of ICT/digital industry, and startup promotion. Themes such as international expansion strategies and ICT/digital talent development were identified as key priorities.

From the third meeting to the fifth meeting, discussions centered on these identified priority areas and specific topics emphasized by the Mongolian government. During the sixth meeting, the JICA Study Team presented to the draft of strategies for the Mongolian government and support measures by JICA. These were based on insights from the discussions held in previous meetings and the outcomes of pilot projects.

Details of each meeting's agenda and discussion outcomes are summarized in Section 4, "Overview of Each WG Meeting".

Table 2 Agenda of the Working Group

# (Meeting Date)	Main Agenda
#1 (July 3, 2023)	- Confirmation of the objectives of WG meeting - Introduction of WG members - Current status of ICT/digital industry in Mongolia
#2 (September 27, 2023)	- The ongoing efforts to promote ICT/digital industry and startups in Mongolia - Case studies of benchmarking countries, insights and implications for Mongolia
#3 (December 12, 2023)	Strategies for overseas expansion by ICT/digital industry and startups in Mongolia -1
#4 (April 24, 2024)	- Strategies for overseas expansion by ICT/digital industry and startups in Mongolia -2 - Open data utilization and e-government
#5 (October 21, 2024)	Human resource development in ICT/digital industry in Mongolia
#6 (April 3, 2025)	Draft strategies for the promotion of ICT Industry and Startups in Mongolia

4. Overview of each Working Group meeting

The overview of each WG meeting is summarized as below.

<1st Meeting>

Date	10:00-11:00 (Mongolia Time) / 11:00 -12:00 (Japan Time) on July 3, 2023
Venue	Online (Zoom Meeting)
Participants	MDDIC, AND Global, ASAP Care, USP Lab, Woovoo Technology LLC, Golomt Bank, M Stars, DX Mongolia
Agenda	1. Opening remarks (MDDIC) 2. Opening remarks (JICA Mongolia Office) 3. Introduction of participants 4. Explanation of outline of survey project (JICA survey team) 5. Q&A and discussion 6. Confirmation of timing and agenda of next meeting 7. Closing remarks (MDDIC)
Summary of Discussion	[Survey Project] • Regarding the benchmarking of other countries, it would be beneficial to examine not only successful cases but also examples from countries that are undergoing trial-and-error processes. • As for Japan Mission, it might also be effective for Japanese investors to visit Mongolia to gain a firsthand understanding of the local conditions [Operation of WG] • The survey team should consider establishing a mechanism for sharing information on the progress of the project during periods when the WG is not convened -> An SNS group was established. • A broader range of members involved in ICT/digital industry in Mongolia and startups should be invited.

Figure 3 Overview of 1st WG Meeting

During the first meeting, following introductions by the attendees, the JICA Study Team provided an overview of the objectives of the study, the details of each pilot project, and the associated timeline. This was followed by a discussion to align participants' understanding of the purpose and intended direction of establishing the WG. Feedback from participants included several valuable suggestions. For instance, regarding the benchmarking survey methodology, it was recommended to include examples not only of successful cases but also of countries undergoing trial-and-error processes, as these could provide practical insights for Mongolia. Additionally, with respect to the planned Japan Mission for Japan-Mongolia business matching, participants suggested that, beyond Mongolian companies visiting Japan, it would be beneficial for potential Japanese partner companies and investors to visit Mongolia to gain a deeper understanding of the startup ecosystem and the current state of the ICT industry in Mongolia.

Regarding the operational aspects of the WG, participants proposed that progress updates on activities conducted during the interim period between meetings should be shared in a timely manner. They also suggested broadening the scope of participants to include a wider range of stakeholders from Mongolia's ICT industry and academic institutions.

This meeting proved to be valuable as it brought together key ICT stakeholders, including startup founders and younger generations, to foster networking and align perspectives on the path forward. However, challenges were observed regarding the Mongolian side's ownership of the process. Specifically, MDDIC had limited manpower capable of leading the preparation and operation of the meeting, resulting in the JICA Study Team taking the lead in both pre-meeting preparations and operational tasks. This highlighted a gap in ownership from the Mongolian side. Furthermore, as noted by some participants, the number of attendees was limited to approximately 10.

<2nd Meeting>

Date	September 26, 2023
Venue	Hybrid (IT Park and Zoom meeting)
Participants	MDDIC, Ministry of Education/USP Lab, NUM, Nasha Tech LLC, Tapatrip, GrapeCity Mongolia LLC, Gerege Systems LLC, Woovoo Technology LLC, Startup Marketing Space (SMS), DX Mongolia
Agenda	1. Opening remarks (JICA Mongolia Office) 2. Efforts by the Government of Mongolia for the promotion of ICT/digital industry (MDDIC) 3. Current status of startup ecosystem and efforts by IT Park (IT Park) 4. Case studies of benchmarking countries, insights and implications for Mongolia (JICA survey team) 5. Q&A and discussion 6. Feedback on Japan Mission for business matching between Mongolia and Japan (Gerege Systems) 7. Current status of other pilot projects 8. Closing remarks IT Park (IT Park)
Summary of Discussion	• Insights from the benchmarking study highlight the critical importance of collaboration among industry, government, and academia for promoting ICT and digital industries. We agree with this perspective and propose establishing such a platform in Mongolia as well. • Mongolia currently lacks a long-term and sustainable human resource development policy, which the MDDIC should consider addressing as a formal policy initiative. It would be challenging for the private sector alone to lead the creation of an ICT talent pool. If the WG involves stakeholders who are actively developing educational programs and facilitates discussions with them, this could result in a more meaningful and impactful initiative. • It is a significant initiative for the government to lay the groundwork for SU to expand internationally. To attract investment in startups, it is crucial for the government to provide guarantees and establish government-backed funds. • The positioning of the WG and the roadmap for its future activities should be revisited,.

Figure 4 Overview of 2nd WG Meeting

Based on the lessons learned from the first meeting, the second meeting was organized with more comprehensive preparation. The JICA Study Team worked closely with MDDIC during the planning phase to expand the scope of participants, inviting a broader range of stakeholders involved in Mongolia's ICT/digital industry, and startup support initiatives. The agenda was also designed to encourage greater ownership from the Mongolian side and actively involve private sector participants. This included presentations by MDDIC and IT Park on the Mongolian government's initiatives to promote ICT/digital industry, as well as startup support measures. Additionally, feedback was gathered from Mongolian startups that had participated in the first Japan Mission.

The JICA Study Team presented insights based on the benchmarking study of other countries (refer to Chapter 6), highlighting strategies that Mongolia could adopt. During the discussion, participants expressed agreement on the importance of collaboration between the public, private, and academic sectors, citing examples such as the case of Estonia. They emphasized the need for the government to take the lead in establishing long-term ICT talent development policies. Moreover, participants suggested that the government should provide guarantees and establish funding mechanisms to attract investment, laying the groundwork for Mongolian ICT companies, including startups, to expand internationally.

The second meeting showed notable improvements compared to the first, particularly in terms of fostering ownership on the Mongolian side and increasing the number of participants. However, challenges remained in the area of meeting operations. The JICA Study Team, which played a primary role in facilitating the meeting, participated online. This led to occasional issues with the transmission of interpreter audio, causing moments of communication difficulty between online participants and those attending in person in Mongolia.

Additionally, there were still some challenges in stimulating more active discussions among participants.

<3rd Meeting>

Date	December 12, 2023
Venue	Hybrid (IT Park and Zoom meeting)
Participants	MDDIC, IT Park, Ministry of Education/USP Lab, NUM, GrapeCity Mongolia LLC, Gerege Systems LLC, Mobicom Corporation, KITE Accelerator, Woovoo Technology LLC, Exponential Zaisan Partners, exes Inc, Golomt Bank
Agenda	1. Revisit to the objectives of WG and roadmap (JICA survey team) 2. Framework of strategies for overseas expansion of ICT/digital industry and startups in Mongolia (JICA survey team) 3. Current status of ICT industry in Mongolia and efforts by the Government of Mongolia (IT Park) 4. Q&A and discussion 5. Progress of other pilot projects (JICA survey team)
Summary of Discussion	• When initiating efforts to promote the ICT industry, it is essential to first define what “digital economy” entails. As stated in the presentation by IT Park, setting clear objectives, such as increasing the ICT sector’s share of GDP to 5%, is important. • To advance the overseas expansion of the ICT industry, it would be efficient to proceed with activities after clarifying the extent of support provided by the Mongolian government and the specific ways in which Japan can assist the initiative. • What strengths to leverage when venturing abroad is a key factor that determines the success of overseas expansion. For instance, And Global has excelled in AI credit scoring and achieved success internationally. Startups in Mongolia could potentially position solutions tailored for nomadic communities or mining development as their distinctive technologies and competitive strengths. • For Mongolian ICT companies, Central Asia is a promising region for expansion. It is essential for the Mongolian government to take a unified approach, such as organizing official business missions. In this regard, support from JICA would also be highly desirable. • It would be nice to create a detailed roadmap outlining the specific steps required to establish business collaboration between Mongolian and Japanese companies. The roadmap should also evaluate the suitability of various collaboration methods, particularly those best suited for partnerships with Japanese companies.

Figure 5 Overview of 3rd WG Meeting

Building on the discussions from the first and second meetings, the third meeting focused on the critical theme of international expansion strategies for Mongolia’s ICT/digital industry. This theme was chosen in light of the challenge posed by the small size of the domestic market.

To maintain Mongolian ownership of the process, the JICA Study Team engaged in detailed pre-meeting consultations with MDDIC. Additionally, IT Park was involved to address MDDIC’s limited personnel resources and to further expand outreach to private sector stakeholders. To address the communication challenges identified during the second meeting and ensure smooth operations, the hybrid format (combining in-person and online participation) was maintained, but the JICA Study Team participated in person at the venue in Mongolia.

During the discussions, participants underscored the importance of clearly defining Mongolia’s unique strengths as it seeks to expand its ICT/digital industry internationally. It was noted that, historically, only a small number of Mongolian companies have pursued international expansion, often working independently without broader support. In this context, participants expressed strong expectations for the Mongolian government to take a leading role by organizing business missions to target countries, such as those in Central Asia. There was also significant interest in JICA’s potential role as a donor in supporting these efforts. Additionally, regarding collaboration between Mongolian and Japanese companies, participants suggested the creation of a roadmap outlining various forms of potential partnerships.

From an operational perspective, the decision for the JICA Study Team to participate in person helped ensure smoother meeting facilitation and fostered more active discussions, addressing some of the challenges from previous sessions. However, issues such as audio problems at the venue and difficulties in communication between in-person and online participants through interpreters persisted. These operational challenges remain areas for improvement in future meetings.

<4th Meeting>

Date	April 24, 2024
Venue	Hybrid (IT Park and Zoom meeting)
Participants	MDDIC, IT Park, Ministry of Education/USP Lab, GrapeCity Mongolia LLC, Gerege Systems LLC, Mobicom Corporation, Exponential Zaisan Partners, Nasha Tech LLC, Fibo Cloud, Honmono Comics LLC, Intec LLC, Intelmind, KITE Mongolia, Powered LLC, One Day Job
Agenda	1. Introduction of Draft Law on ICT Industry Promotion (MDDIC) 2. [Theme1] Overseas expansion strategy for Mongolian ICT/Digital industry and startups ① USA Official Visit - Collaboration with Silkroad Innovation Hub (IT Park) Feedback on visiting USA (Powered LLC) ② Further discussion on overseas expansion strategy for Mongolian ICT/Digital industry (JICA survey team) ③ Group discussion 3. [Theme 2] Open data utilization in Mongolia ① Framework for discussion on open data utilization (JICA survey team) ② Group discussion
Summary of Discussion	[Overseas expansion strategy] • In addition to the current approach of individual companies pursuing overseas expansion, it is crucial to adopt a unified effort as "Team Mongolia," integrating both public and private sectors. Furthermore, effective branding that leverages Mongolia's unique strengths will be essential in this endeavor. • To lay the foundation for a unified approach and effective branding, it may be worth considering the development of a comprehensive platform that integrates various types of data. For instance, establishing a platform that includes the profile of Mongolia's leading ICT companies and incorporates portfolio data from various firms could be a valuable step forward. Through interactions facilitated by such a platform, companies could complement each other's shortcomings and benefit from mentorship and support, further enhancing collaboration and growth. • Survey results indicate that Japan is a popular target for expansion; however, the Japanese market poses unique challenges, such as the slow pace of decision-making within companies. It may be effective to provide hands-on support to companies aiming to enter the Japanese market by having Mongolian companies that have successfully established themselves in Japan act as mentors. This approach could help guide new entrants through the complexities of the market and increase their chances of success. [Open data utilization] • Enhancing convenience is crucial for promoting the effective utilization of data. While the National Data Center provides a platform for obtaining data from various government ministries and agencies, practical use reveals significant inefficiencies. For instance, it often takes several days to access the requested data, and if a user wishes to apply for additional data after an initial request, they are required to wait at least 45 days between applications. From the perspective of users, these restrictions create considerable inconvenience and hinder efficient data utilization.

Figure 6 Overview of 4th WG Meeting

The fourth meeting continued the discussions from the third meeting, focusing on deepening the dialogue around international expansion strategies for Mongolia's ICT/digital industry and startups. Additionally, the meeting was divided into two sessions, with the second session dedicated to discussions on the utilization of open data.

To prepare for the meeting, a pre-event survey was conducted as outlined in Section 5.1(4). This survey aimed to identify the challenges Mongolian companies face in international expansion, gathering input not only from meeting participants but also from a broader range of stakeholders. The survey results were used to structure the discussions and stimulate active exchange of ideas during the meeting. Furthermore, the format was diversified beyond traditional Q&A sessions following presentations by the JICA Study Team or speakers. Group discussions were introduced in order to ensure that input was collected from all participants, rather than just a few specific individuals.

During the meeting, MDDIC first shared updates on legislative amendments aimed at promoting the ICT industry. This was followed by a session on international expansion strategies, where IT Park and participating companies presented the outcomes of a recent visit to the United States as part of the Silkroad Innovation Hub collaboration effort. The JICA Study Team then shared the pre-event survey results, which served as the basis for group discussions. Key points raised during the discussions included the need for a unified effort involving both public and private sectors, rather than isolated initiatives by individual companies. Participants also emphasized the importance of branding Mongolia as a cohesive entity and proposed the establishment of a platform to facilitate collaboration and information exchange between companies as a foundational step.

In the session on open data utilization, the JICA Study Team introduced examples of pioneering open data usage in countries like Japan and the UK, providing a framework for the discussion. Participants then examined the current state and challenges of open data utilization in Mongolia. While the Mongolian government has made certain data accessible through platforms, many participants highlighted the need for improving accessibility and increasing the volume of available data to encourage more active usage.

From an operational perspective, measures were taken to address previous issues related to audio communication. Interpretation equipment was provided to onsite participants, significantly enhancing communication and ensuring smoother interactions compared to earlier meetings.

<5th Meeting>

Date	October 21, 2024
Venue	Hybrid (IT Park and Zoom meeting)
Participants	MDDIC, IT Park, Ministry of Education/USP Lab, DX Mongolia, Exponential Zaisan Partners, Nasha Tech LLC, Unitel Group, Binary Systems
Agenda	1. Opening remarks (MDDIC) 2. Human resource development in ICT/digital industry in Mongolia ① Framework of discussion on human resource development in ICT/digital industry in Mongolia (JICA survey team) ② Current efforts for human resource development in ICT/digital industry by the Government of Mongolia (Ministry of Education/USP Lab) ③ Group discussion ④ Q&A 3. Current Status of Pilot Projects (JICA survey team) 4. Closing remarks (JICA Mongolia Office)
Summary of Discussion	[Current status of human resource development in ICT/digital industry in Mongolia] • Statistics indicate that Mongolia will require 39,000 engineers over the next five years. To meet this demand, it is essential to increase the number of institutions providing education in the ICT field and expand the student population. Rather than focusing on short-term efforts, a sustainable, long-term project is necessary. Achieving this will require the formation of a consortium that brings together industry, government, and academia to collaboratively address this critical need. • Talented individuals are often concentrated in a few large corporations or choose to work abroad, leaving many companies, including startups, struggling with a shortage of skilled personnel. One potential solution is for companies to reconsider their hiring criteria, such as making a university degree a non-mandatory requirement. Additionally, the government could design incentives to retain top-performing students in Mongolia. • Initiatives such as the job seminars conducted under this project are effective from the perspective of enabling companies to secure talent more efficiently. However, since Mongolia does not have a tradition of mass recruitment, it is crucial to establish such practices through sustained and continuous efforts. • Moreover, Mongolia faces a shortage of teachers qualified to provide ICT education. Given Japan's declining birthrate, which has led to a surplus of teachers, dispatching Japanese teachers to Mongolia could address this shortage in a mutually beneficial way for both countries. • Additionally, the number of schools actively engaged in ICT education in Mongolia remains limited. To encourage more students to develop an interest in the ICT field, IT Park should take a leading role in conducting awareness campaigns and promoting the importance of ICT education across the country.

Figure 7 Overview of 5th WG Meeting

The fifth meeting marked the first session held under Mongolia's new administration following the general election in July 2024. With the restructuring of MDDIC's organization and personnel, the leadership of the WG transitioned to the newly appointed Director. To ensure continuity, the JICA Study Team provided an overview of the project, the objectives of the WG, and a summary of the discussions held up to the fourth meeting before proceeding with the meeting. The main theme of this meeting was set as "Human Resource Development in Mongolia's ICT/digital industry."

During the meeting, the JICA Study Team presented a discussion framework based on prior data collection and the results of the ICT and Digital Talent Job Seminar conducted as a pilot project (refer to Section 7.2). This included insights from surveys conducted during the seminar. Additionally, Mr. Buyanjargal, a former Advisor to the education minister, introduced initiatives by the Mongolian government for human resource development. He emphasized the need to cultivate talent with practical skills aligned with industry requirements, advocating for long-term efforts such as curriculum development in collaboration with private

companies and the establishment of public-private-academic consortia. Building on this, participants were prompted with questions regarding challenges and potential solutions for ICT/digital talent development. Key feedback from participants highlighted the presence of highly skilled ICT professionals in Mongolia, but noted two major challenges: (1) these talents are often concentrated within a few large corporations, and (2) many seek better employment opportunities abroad, leading to a brain drain. Consequently, many companies face a shortage of skilled personnel. Proposed solutions included revising hiring criteria by Mongolian firms, such as removing the requirement for a university degree, and designing incentives to retain top talent within the country. Participants also suggested that IT Park take the lead in expanding the talent pool by conducting training and awareness campaigns. Additionally, there were calls for Japan's support, such as dispatching instructors to address the shortage of teachers in ICT fields in Mongolia.

Operational challenges for the meeting arose primarily due to the restructuring within MDDIC. The newly appointed chair was heavily occupied, making it difficult to coordinate adequately in advance, which left room for improvement in terms of Mongolian ownership of the process. On the operational front, while interpretation equipment continued to facilitate smoother communication, issues with the sound system at the IT Park venue disrupted parts of the meeting, presenting another area for improvement in future sessions.

<6th Meeting>

Date	April 3, 2025
Venue	Hybrid (IT Park and Zoom meeting)
Participants	MDDIC, IT Park, Ministry of Education, General Authority for Land administration, geodesy and cartography, Integrity DX, Exponential Zaisan Partners, Nasha Tech LLC, KITE Mongolia, Intelmind
Agenda	1. Opening remarks (MDDIC) 2. Latest updates on regulatory framework for ICT industry and startups in Mongolia (IT Park) 3. Draft strategies for the promotion of ICT/digital Industry and startups in Mongolia (JICA survey team) 4. Q&A and discussion 5. Current Status of Pilot Projects (JICA survey team) 6. Closing remarks (JICA Mongolia Office)
Summary of Discussion	[Draft strategies for the promotion of ICT/digital Industry and startups in Mongolia] • The strategies and support proposals outlined in this study accurately reflect the current state of Mongolia's ICT industry and startup ecosystem, demonstrating a high level of practicality. The key challenge now lies in how effectively Mongolia can implement these measures. • In advancing the overseas expansion and branding of Mongolian ICT companies and startups, Japan's J-Startup initiative serves as a valuable point of reference. Assuming Mongolia is to adopt a similar system, it would be beneficial to know more about considerations in the case of Japan. • Regarding the startup ecosystem, Mongolia faces a significant hurdle due to the small domestic market, which provides limited incentives for investment in the ICT industry and startups. This issue is further compounded by the lack of overseas investors, highlighting the need for strategies to attract foreign investment and foster a more robust ecosystem. • When it comes to human resource development, it is crucial to implement initiatives that spark interest in IT from an early age, such as introducing IT-related classes before university-level education. • While there is broad agreement on the importance of forming a consortium that brings together industry, government, and academia to advance these initiatives, the key to success lies in determining who will take the lead in making this framework operational. Ideally, industry associations should spearhead such efforts; however, given the current lack of such structures in Mongolia, it seems inevitable that the government, including organizations like MDDIC, will need to take the lead in driving these efforts forward. • Within the consortium, it is essential to establish clear role divisions. The government should focus on policy formulation, while the implementation of these policies should be entrusted to the private sector. • Regarding the proposed support measures, some of these are already under consideration by entities such as IT Park. Therefore, it is important to collaborate and align closely with these existing initiatives.

Figure 8 Overview of 6th WG Meeting

As the final meeting under this survey initiative, the sixth meeting was positioned to summarize the discussions from the previous five meetings and gather feedback on proposed strategies and support measures. During the meeting, IT Park provided an update on the legal framework related to Mongolia's ICT industry. They specifically highlighted ongoing discussions within the Mongolian government regarding tax reforms under the ICT Industry Promotion Law. It was shared that the National Council had been organized and was

rapidly advancing deliberations on amendments to laws concerning value-added tax, corporate tax, and property tax. Following this, the JICA Study Team reviewed the progress of the study and the discussions from previous WG meetings, presented its proposed strategies and support measures, and highlighted key points for which input from the Mongolian side was sought. This was followed by a Q&A session and further discussions.

Participants expressed their agreement with the strategic direction of supporting companies aiming for international expansion while increasing the number of potential high-growth firms. Regarding specific measures, there was strong interest in the establishment of public-private funds to address the lack of financial resources available to startups within the ecosystem in Mongolia. Participants also showed keen interest in Japan's J-Startup program as a reference for branding Mongolian enterprises. Questions were raised about the mechanisms of J-Startup and considerations for its potential adaptation to Mongolia. Based on Japan's experience, the JICA Study Team explained that inter-ministerial collaboration, such as expanding opportunities for certified companies to participate in public procurement, would be crucial if similar initiatives were implemented in Mongolia.

A significant focus of the discussions was on establishing a public-private-academic consortium for ICT talent development and determining who should lead and manage such a framework. Private sector representatives noted that, as is common in countries like Vietnam, industry associations are ideally positioned to take the lead. However, Mongolia currently lacks an organization that comprehensively represents the ICT/digital industry. As an interim solution, participants expressed expectations for the Mongolian government, particularly MDDIC, to take leadership on policy-related aspects. Others suggested a division of roles, where the government leads policy development while consortium operations are delegated to the private sector to ensure effectiveness.:

One challenge for this meeting was the need to address changes in MDDIC's organizational structure, which required additional explanations and coordination to ensure continuity. On the operational front, lessons learned from previous meetings were applied. In addition to thorough pre-meeting coordination with MDDIC, preparations were conducted in collaboration with IT Park and JICA Mongolia Office. As a result, logistical issues such as interpretation and audio equipment, which was previously identified as challenges, were addressed effectively, allowing the meeting to proceed smoothly overall.

5. Recommendations for the Continued Operation of the Working Group

As mentioned above, throughout the survey period, six WG meetings were held alongside data collection and pilot project implementation. Based on the outcomes of these meetings, the following key points are proposed for the continued and sustainable development of the WG. In particular, IT Park is expected to play a central role in operations moving forward. Additionally, to enhance ownership among both organizers and participants, it is recommended to introduce a subcommittee format with specific goals for each group's activities.

Table 3 Key Points for the Continuation and Development of the Working Group

	Aspect	Results from the Survey	Recommendations for Future Development
Success Points	Engagement and Capacity Building of MDDIC and IT Park	MDDIC and IT Park were actively involved, contributing to organizational capacity building. Their support extended beyond venue provision to presenting government initiatives and engaging Mongolian participants, including startups.	Continued close collaboration with MDDIC is necessary, while IT Park is expected to take on a more central role in the ongoing operation of the WG.
	Stimulating Active Discussions	Measures such as pre-meeting surveys, sufficient time allocation for discussions, and the introduction of group discussions led to lively exchanges.	Continuing these practices is expected to sustain active discussions in future meetings.
	Ensuring Smooth Meeting Operations	Careful coordination with stakeholders and thorough venue preparations ensured smooth meeting operations overall.	Maintaining these practices will help ensure smooth operations in future meetings.
Areas for Improvement	Enhancing Ownership and Initiative on the Mongolian Side	Due to organizational changes within MDDIC, the JICA Study Team primarily led both preparation and operations. While participants actively engaged in discussions and some took on presenter roles, overall ownership and initiative could be further improved.	Operational leadership should shift toward IT Park, in collaboration with MDDIC's organizational improvements. For participants, introducing subcommittee formats with specific themes, goals, and timelines can enhance ownership and initiative.
	Securing Diverse Participants	Efforts were made to involve stakeholders from government, academia, and private sectors, but actual participants were predominantly from government agencies and private companies (especially startups). Participation from academic institutions, international organizations, and media was limited, and attendance became somewhat limited to specific participants.	Subcommittee formats focusing on specific themes can attract participants with relevant interests, improving diversity and participation rates. For international organizations, measures such as using English or providing interpretation services for subcommittees could address language barriers.
	Community building	Networking at the venue was actively conducted. While an SNS group was created for WG members, interactions among Mongolian participants and between members were limited.	To foster relationships among participants, subcommittee formats can deepen discussions. Additionally, joint activities like overseas missions for market promotion (including Japan) can contribute to community building.

Chapter 3 Overview and Analysis of Challenges in Mongolia's ICT and Digital Industry

1. Background of Mongolia's Industrial Structure

The industrial structure of Mongolia is heavily reliant on the mining sector, which accounts for approximately 25% of its GDP and about 80% of its exports consist of mineral resources. The mining industry is highly susceptible to fluctuations in international market conditions and resource prices. While there is a need for other industries to emerge as pillars driving the country's economic growth, the growth of value-added industries such as manufacturing and wholesale/retail sectors remains limited, resulting in an industrial structure that is overly dependent on mineral resources.

Table 4 GDP Amount and Proportion by Industry Sector in Mongolia

Industry Sector	GDP Amount (billion MNT)	Proportion
Mining and Quarrying	12,402.5 (532.5 billion JPY¹)	23.0%
Agriculture, Forestry, Fishing and Hunting	7,015.7 (301.2 billion JPY)	13.0%
Taxes (net of subsidies)	5,753.3 (247.0 billion JPY)	10.7%
Wholesale, Retail, and Vehicle Repair	5,677.9 (243.8 billion JPY)	10.5%
Manufacturing	3,832.7 (164.5 billion JPY)	7.1%
Financial and Insurance Activities	2,556.9 (109.7 billion JPY)	4.7%
Transportation and Storage	2,510.9 (107.8 billion JPY)	4.7%
Real Estate Activities	2,452.0 (105.2 billion JPY)	4.6%
Public Administration and Defense	2,356.9 (101.2 billion JPY)	4.4%
Education Services	2,182.3 (93.7 billion JPY)	4.1%
Construction	1,783.8 (76.6 billion JPY)	3.3%
Human Health and Social Work Activities	1,232.4 (52.9 billion JPY)	2.3%
Information and Communication	1,064.9 (45.7 billion JPY)	2.0%
Electricity, Gas, Steam, Air Conditioning Supply	760.5 (32.6 billion JPY)	1.4%
Professional, Scientific and Technical Activities	739.6 (31.7 billion JPY)	1.4%
Accommodation and Food Service Activities	533.7 (22.9 billion JPY)	1.0%
Administrative and Support Service Activities	334.1 (14.3 billion JPY)	0.6%
Water Supply and Waste Management	236.6 (10.1 billion JPY)	0.4%
Other Services	218.1 (9.3 billion JPY)	0.4%
Arts, Entertainment and Recreation	206.6 (8.8 billion JPY)	0.4%
Total	53,851.5 (2,312.3 billion JPY)	100.0%

Source: National Statistics Office of Mongolia (2023 Data)

¹ Calculated using the exchange rate as of March 21, 2025: 1 MNT = 0.04294 JPY. All subsequent calculations use the same rate.

Table 5 Export Value and Share by Product in Mongolia

Product Group	Export Amount (1,000 USD ²)	Proportion
Mineral Products	10,543,269 (1,574.2 billion JPY)	84.1%
Natural and Artificial Stones, Precious Metals, Jewelry	1,135,443 (169.5 billion JPY)	9.1%
Textiles and Textile Products	486,156 (72.6 billion JPY)	3.9%
Plant-Based Products	99,743 (14.9 billion JPY)	0.8%
Base Metals and Base Metal Products	98,870 (14.8 billion JPY)	0.8%
Animal and Animal-Based Products	65,257 (9.7 billion JPY)	0.5%
Vehicles, Aircraft, Vessels, and Spare Parts	32,884 (4.9 billion JPY)	0.3%
Machinery, Equipment, Electrical Products, etc.	25,962 (3.9 billion JPY)	0.2%
Food Products	23,710 (3.5 billion JPY)	0.2%
Plastic and Rubber Products	11,167 (1.7 billion JPY)	0.1%
Leather Products	5,239 (0.79 billion JPY)	0.0%
Industrial-Related Goods	3,246 (0.49 billion JPY)	0.0%
Animal and Vegetable Oils	2,616 (0.39 billion JPY)	0.0%
Footwear, Hats, Umbrellas, etc.	2,183 (0.33 billion JPY)	0.0%
Optical and Medical Instruments	1,426 (0.21 billion JPY)	0.0%
Chemical Products	673 (0.1 billion JPY)	0.0%
Cellulose and Paper Products	359 (0.05 billion JPY)	0.0%
Wood and Wood Products	257 (0.04 billion JPY)	0.0%
Stone, Plaster, Cement Products	110 (0.02 billion JPY)	0.0%
Other	19 (0.003 billion JPY)	0.0%
Total	12,538,589 (1,872.1 billion JPY)	100.0%

Source: National Statistics Office of Mongolia (Data as of 2023)

2. Long-Term Vision and Major Policies of the Government in Mongolia

1) Promotion of ICT and Digital Industry

(a) Government's Long-Term Vision and Key Policies

Vision 2050 (Long-Term National Development Plan)

In 2008, the Government of Mongolia formulated the "Millennium Development Goals-based Comprehensive National Development Strategy of Mongolia," which outlined development objectives and policies aimed at advancing the nation's economy, society, science and technology, and culture over a 14-year period. Subsequently, in 2016, the government developed Vision 2030 (Mongolia Sustainable Development Vision 2030), which set forth goals such as raising the per capita GNI to achieve upper-middle-income status, maintaining an average annual economic growth rate of 6.6% or higher, and reducing income inequality to ensure that 80% of the population belongs to the middle-income or upper-middle-income class. In 2020, the Government of Mongolia introduced a new long-term development plan, Vision 2050, which established nine fundamental principles and 47 specific goals.

² Calculated using the exchange rate as of March 21, 2025: 1 USD = 149.31 JPY. All subsequent calculations use the same rate.



SHARED NATIONAL VALUES

GOAL1. Educate the entire population with “the mother tongue, the history and the heritage” based on solid facts and thoroughly studied through modern scientific methodology and develop shared values that will be the pillar to build a nation-state with a deep sense of national similarities/differences and resilience.



HUMAN DEVELOPMENT

GOAL2. Groom a healthy, socially active Mongolian through creation of an enabling environment where everyone leads a happy life enjoying social protection as an assurance of quality life and having an access to quality education-the foundation for the country’s development and a secure family life



THE QUALITY OF LIFE AND MIDDLE CLASS

GOAL3. Sustainably increase family income by promoting employment, cultivate active and creative families with adequate housing, develop middle class able to run competitive micro, small, and medium businesses in an enabling investment environment and capable of sustaining their families; and supported with satisfying living conditions.



ECONOMY

GOAL4. Become a nation with sustainable economic growth beneficial to all, predominant middle class and substantially reduced poverty, a solid economic development policy base and self-sufficient in meeting domestic needs, increased export, enhanced capacity in investment and savings, and multi-pillared economy.



GOVERNANCE

GOAL5. Build smart and sustainable governance ensuring human development, mature civil service with optimal administrative and organizational structure, fully functional and people-centered state e-services, enhance cooperation between state, private sector and civil society in all areas, ensure full respect for human rights, fair justice and corruption-free country



GREEN DEVELOPMENT

GOAL6. Promote an environmentally friendly green development, maintain balance of ecosystem, ensure an environmental sustainability, create conditions for present and future generations to reap its benefits, and improve the quality of human life.



SAFE AND SECURE SOCIETY

GOAL7. Ensure human and societal security through strengthening national defense capacity, protecting human rights and freedoms, preserving social order and safety of the living environment of citizens and reducing disaster risks.



REGIONAL AND LOCAL DEVELOPMENT

GOAL8. Pursue a competitive and relatively well-balanced regional and local development, aligned into the regional economic integration, through respect for national culture, sustainable settlements, preserved nature and eco-balance to be inherited by future generations, and the coherent green production with combined economic diversification and specialization.



ULAANBAATAR AND SATELLITE CITIES

GOAL9. Develop a comfortable, environmentally friendly, people-centered and smart city.

Source: Government of Mongolia, "Vision 2050"

Figure 9 9 Core Principles in Vision 2050

This section focuses on Fundamental Principle 4: Economy and Fundamental Principle 5: Governance, both of which are related to the ICT sector. In Fundamental Principle 4: Economy, six key goals are outlined. These include economic diversification, transitioning to an export-oriented economy, development of the financial system, enhancement of global competitiveness, and creation of a stable economic environment and increase the middle-income population.

Table 6 Six Objectives of Core Principle 4. Economy in Vision 2050

No.	Objectives
4.1.	Promote macroeconomic stability and transform the middle class into a predominant group.
4.2.	Create an export-oriented economy through promoting the development of priority sectors.
4.3.	Develop a multi-pillar and inclusive financial system connected to the international financial markets.
4.4.	Join the economic and trade integration in the region.
4.5.	Develop internationally competitive micro, small and medium enterprises and increase employment.
4.6.	Establish an internationally recognized wealth fund to support the objectives of economic diversification, innovation, human development, new technology and green growth.

Source: Government of Mongolia, "Vision 2050" (2020), Presentation materials by Bayarsaikhan Banzragch, Ph.D., Former Chairman of the National Development Agency of Mongolia / Counsellor, Director for the Economy, Trade and Industry at Embassy of Mongolia to Japan, "Long-Term Vision 2050 and Expectations for Japan, as Explained by the Former Chairman of the National Development Agency of Mongolia" (2021).

To achieve the six objectives mentioned above, priority sectors have been identified, such as "Mining," "Agriculture," "Energy (including renewable energy)," "Tourism," "Transport and Logistics," as well as "IT and Creative Manufacturing." However, while specific numerical targets up to 2050 are outlined in Vision 2050 for sectors such as Mining (No.35 in the table below), Manufacturing (No.36 in the table below), Transport and Warehousing (No.37 in the table below), and Agriculture (No.38 and 39 in the table below), no specific numerical targets are mentioned for the ICT sector (see table below).

Table 7 Specific Numerical Targets for Vision 2050 Fundamental Principle 4: Economy

FOUR. ECONOMY						
No	Indicators	Measuring unit	Base level	Target level		
				2025	2030	2050
31	Gross domestic product (GDP)	Billion USD	13.1	23.9	47.6	209
32	Annual GDP growth	Percent (%)	7.2	6	6	6
33	Inflation	Percent (%)	8.1	6	6	2
34	GDP per capita	In USD	4009	6520	12054	38359
35	Percentage of mining sector in GDP	Percent (%)	24.3	30.6	31.4	25.3
36	Percentage of manufacturing industry in GDP	Percent (%)	10.9	12	14.6	27.4
37	Percentage of transportation and warehouse sector in GDP	Percent (%)	4.6	5.1	4.8	11.6
38	Percentage of industrially processed meat in the total meat consumption of the population	Percent (%)	31.7	50	70	100
39	Percentage of industrially processed milk in the total milk consumption	Percent (%)	14.9	30	50	70
40	Percentage of domestically supplied key types of fuels that meet Euro 5 standard	Percent (%)	8	70	100	100
41	Export	Million USD	7011.8	14020	29660	139870
42	Number of foreign tourists received	Million person	0.6	1	2	6
43	Evaluation of basic indicators of the business environment study	Unit	3.03	3.5	4.03	5.23

Source: Government of Mongolia (2020), "Vision 2050"

In Core Principle 5: Governance, Objective 5.3 aims to "develop an effective and efficient e-governance to promote human development." As a specific numerical target, the goal is to improve the United Nations E-Government Development Index from 0.5824 in 2020 to 0.6358 by 2025, 0.8 by 2030, and 0.9 by 2050. This indicator, along with related indicators (such as the Electronic Service Index and the Electronic Participation Index) and their target values, are also presented in the following section on Digital Nation.

Table 8 Vision2050 Core Principle 5. Specific Numerical Targets Related to Governance

FIVE. Governance						
No	Indicator	Measuring unit	Base level	Target level		
				2025	2030	2050
48	E-government development index	Unit	0.5824	0.6358	0.8	0.9

Source: Government of Mongolia (2020), "Vision 2050"

In addition, the Government of Mongolia established the "e-Mongolia" platform in 2020 to centralize administrative services online. The goal is to digitize 90% of administrative procedures by 2024³.

³ [ADB \(2022\) \[Technical Assistance Report Mongolia:e-Government and Digital Transformation\]](#)

Digital Nation

The Government of Mongolia has positioned the information and communication sector as one of the main pillars of the economy. In 2020, it announced the "Digital Nation" initiative, presenting a five-year target (2022–2027) aimed at realizing a digital state. The mission of the Digital Nation initiative is to "integrate advanced communication and information technology across all facets of Mongolian society and the economy, and develop a digital nation based on knowledge and intelligence." The initiative outlines the following six goals. However, based on publicly available information, it is unclear whether a mid-term evaluation of the progress towards achieving the Digital Nation has been conducted.

1. Digital Infrastructure

Ensuring that the essential infrastructure is accessible to accommodate the expanding demands of communications and information technologies.

2. Digital Government

Creating an unbureaucratic, effective, and transparent digital government by integrating innovation, communication, and information technology into all facets of society and the economy while boosting output and efficiency.

3. Cybersecurity

Creating a national security system for the internet, broadening public knowledge and comprehension of civil, private, and public information security, and guaranteeing the accuracy, privacy, and accessibility of information.

4. Digital Literacy Capacity

Improving public digital literacy levels, closing the digital divide, and developing innovative citizens capable of contributing to the advancement of all socioeconomic sectors based on communication and information technology.

5. Innovation, Production

Encouraging the growth of the technology sector while fostering innovation and production by implementing modern technology-based systems including blockchain, big data, artificial intelligence, and information technology.

6. Support the development of other sectors through communication and information technology

Increase competition, productivity, and efficiency by introducing communication and information technology products and services into all spheres of society and the economy.

Source: "Digital Nation" approval guidelines (2022 – 2027)

Table 9 Strategic objective indicators of Digital Nation

№	Criteria	Units of measurement	Baseline	Targets, 2027
One. Digital Infrastructure				
1	The volume of information flowing between Asia and Europe on the high-speed network	G bit/sec	780 (As of 2022)	Will increase 5 times
2	Capacity of soums and settlements	M bit/sec	155 (As of 2022)	1024
3	The level of household access to broadband Internet	Percentage	33 (As of 2022)	70
4	The percentage of the population that uses the Internet	Percentage	90 (As of 2022)	95
5	Telecommunication Infrastructure Index (TII)	Index indicators	0.6135 (As of 2022)	0.71
6	The level of network coverage based on 5th generation mobile communication technology to reach the entire population of Mongolia	Percentage	0 (As of 2022)	70
7	Increase the infrastructure for the postal service's capacity and accessibility, as well as the volume and frequency of mail deliveries per person.	Number of direct deliveries per person	1 (As of 2022)	2
Two. Digital Government				
8	e-Government Development Index (EGDI)	Index indicators	0.6497 (As of 2020)	0.74
9	Electronic service index (OSI)	Index indicators	0.5294 (As of 2020)	0.72
10	Electronic participation index (EPI)	Index indicators	0.6071 (As of 2020)	0.7
Three. Cybersecurity				
11	Cyber Security Survey Techniques and Operations Index	Index indicators	6.02 (As of 2021)	9.2
12	Cyber Security Poll Collaboration Index	index indicators	6.82 (As of 2021)	9.76
Four. Digital literacy capacity				
13	Citizens' digital literacy capacity	Percentage	43.8 (As of 2021)	50
14	Human Capital Index (HCI)	Index indicators	0.8063 (As of 2020)	0.85
Five. Innovation, production				
16	High technology, telecommunications products and production growth	Percentage	1 (As of 2020)	3
17	ICT revenue growth rate	Percentage	12 (As of 2020)	25
18	Growth rate of investment in information and communication sector	Percentage	12 (As of 2020)	25
Six. Support the development of other sectors through communication and information technology				
19	E-commerce index	Index indicators	58 (As of 2019)	62
20	Digital Competitiveness Readiness Index	Index indicators	40.6 (As of 2020)	42.4

Source: MDDIC, "Digital Nation Approval Guidelines (2022 - 2027)"

Education Sector Mid-Term Development Plan 2021-2030

In 2020, under the support of the Asian Development Bank (hereinafter ADB), the Ministry of Education of Mongolia developed the Education Sector Mid-Term Development Plan 2021–2030. This plan is based on the following six comprehensive principles:

1. Provide equal opportunity to all citizens to access education services
2. Strengthen and support shared responsibility and accountability among stakeholders

3. Strengthen sustainable and professional management in the sector
4. Ensure vertical and horizontal linkages of education policies
5. Utilize smart and digital technology at all education levels
6. Promote green development in learning environment and materials

The plan aims to improve citizens' access to equal educational services by providing computers to all teachers and establishing smart schools and smart classrooms. In this way, ICT and digital technology are treated as tools to be utilized for achieving efficient and equitable access to education.

Furthermore, the plan emphasizes the importance of acquiring digital skills and ICT knowledge alongside foreign language and communication skills in education. Although the ICT-related goals set in the plan are not necessarily quantitative indicators, they focus on enhancing students' capabilities, including ICT skills, and aim to update evaluation criteria and curricula, as outlined in the table below. On the other hand, specific target values regarding the skills or number of ICT personnel are not indicated. Additionally, based on publicly available information, it is unclear whether progress evaluations for the plan have been conducted.

Table 10 Education Sector Mid-Term Development Plan 2021-2030

Objective	Indicator	Baseline	Target Value (2025)	Target Value (2030)
Program 3.1.2: Revision of primary and secondary student learning assessment				
Output 3.1.2.2: Update student learning assessment policy based on PISA (Programme for International Student Assessment) 2021 results and reflect student creative thinking, ICT skills and mathematical literacy in the assessment, and engage more rural school teachers	Student assessment policy amended	Policy approved in 2019	Amended Policy	Policy reviewed
Output 3.1.2.3: Deliver teacher trainings and assessment experts to develop items focusing on student creative thinking, ICT skills and mathematical literacy; and engage more rural school teachers	% of Mathematics teachers trained, by location	NA	100%	-
	% of science teachers trained, by location	NA	100%	-
Output 3.1.2.4: Update EEC (Education Evaluation Center) Item bank reflecting the above skills in mathematics and science subject items	items in math test bank reflecting creative thinking, ICT skills and mathematical literacy	NA	400	700
	Number of new items in science test bank reflecting creative thinking, ICT skills and mathematical literacy	NA	600	900
Program 3.1.3: Curriculum policy review and reform program				
Output 3.1.3.1 : Update primary and secondary curriculum focusing on student creative thinking, ICT skills and mathematical literacy and on the results and recommendations of national education quality evaluation, related policies and Child Comprehensive Development research	Curriculum Management Cycle (CMC) Procedure approved	NA	Procedures approved	Minister decree on CMC Procedures

Source: Ministry of Education (2020), "Education Sector Mid-Term Development Plan 2021-2030"

(b) Policy Formulation and Implementation Framework (Governance Structure and Presence of Development Partners)

Implementation Framework

In 2004, the Information and Communications Technology Authority (ICTA) was established as the agency responsible for ICT development policy. The agency was renamed the Information Communication Technology and Post Authority (ICTPA) in 2008 and later renamed the Information Technology, Post and Telecommunication Authority (ITPTA) in 2012. In connection with the introduction of the Digital Nation initiative in 2020, ITPTA was dissolved, and the Ministry of Digital Development and Communications was

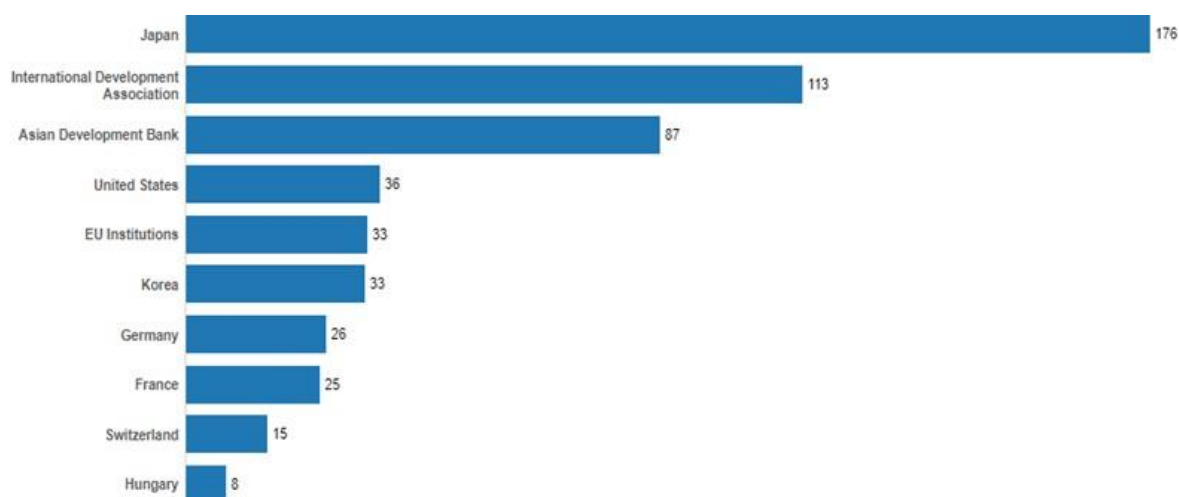
established in January 2022. Subsequently, in 2024, it was renamed the Ministry of Digital Development, Innovation and Communications (MDDIC). Currently, the MDDIC is responsible for policies related to digital development and communications, including the promotion of the Digital Nation initiative.

In terms of the utilization of ICT and digital technologies across various industries, initiatives are being advanced through collaboration between MDDIC and other ministries. For instance, under the direction of the MDDIC, individual ministries have been tasked with creating digital transformation plans⁴. Additionally, in December 2023, the MDDIC instructed all ministries to establish a division responsible for promoting digitalization. Following these directives, ministries have been actively working to advance digitalization. For example, the Ministry of Health designated the Center for Health Development as the division responsible for promoting digitalization in the health sector⁵. Furthermore, after digitalization initiatives are implemented within individual ministries, efforts toward data integration are also being pursued. For instance, in the case of data integration among hospitals under the jurisdiction of the Ministry of Health, collected patient data is planned to be integrated into the e-Mongolia platform⁶, as further detailed in Chapter 3, Section 3. (1).

From a human resource perspective, overall human development falls under the jurisdiction of the Ministry of Education. The Education Sector Mid-Term Development Plan 2021–2030 mentions updates to educational curricula, including improvements in ICT skills. However, it does not set specific target values regarding the skills or numbers of ICT and digital personnel, nor does it define the level of ICT literacy among citizens. Regarding the development of ICT and digital personnel, it is considered essential for the MDDIC and the Ministry of Education to collaborate in setting goals and formulating specific training plans. Notably, initiatives involving cooperation between the two ministries have already been observed. For example, the large-scale ICT industry event, ICT Expo, held in Ulaanbaatar in June 2023, was organized by the MDDIC, with the Ministry of Education participating as a supporter in event operations.

Development Partners

Among OECD member countries, the top 10 donors to Mongolia (average for 2020-2021) are shown in the table below. Japan is the largest donor country to Mongolia, providing support amounting to USD 176 million per year (approximately JPY 26.3 billion per year, based on the 2020-2021 average). The United States ranks second among bilateral donors, with USD 36 million per year (approximately JPY 5.4 billion per year), followed by South Korea in third place with USD 33 million per year (approximately JPY 4.9 billion per year). However, the total ODA amount of Japan is significantly higher compared to the other donors.



Source: OECD website, "Aid at a Glance Charts, Interactive Summary Charts by Aid (ODA) Recipients" (accessed February 2024)

Figure 10 Top 10 Donors of Total ODA to Mongolia (2020-2021 Average, Million USD)

The ADB, ranked as the third-largest donor in terms of ODA, is providing capacity development technical

⁴ Interview with the Information Development Division, Ministry of Construction and Urban Development of Mongolia(21 February 2024)

⁵ Interview with the Center for Healthcare Development in Ministry of Health (7 March 2024)

⁶ Interview with E-Mongolia Academy (23 April 2024)

assistance aimed at achieving e-Government (project name: e-Government and Digital Transformation). This is being carried out in accordance with its partnership strategy with Mongolia for 2021–2024, with the MDDIC serving as its counterpart⁷. Furthermore, the aforementioned Education Sector Mid-Term Development Plan 2021–2030, under the jurisdiction of the Ministry of Education, was also formulated with support from the ADB⁸.

In April 2022, United Nations Development Programme (hereinafter UNDP) entered into a strategic partnership with the MDDIC to accelerate and promote the implementation of the Digital Nation strategy. Additionally, the World Bank has been supporting the Mongolian government's new project, Smart Government II, since 2022. The Smart Government II project aims to improve Mongolia's legal and regulatory environment to build trust and enhance cybersecurity in the use of digital technologies⁹.

Table 11 Main Development Partners and Support Contents in ICT and Digital Industry Promotion

Development Partners	Support Contents
ADB	e-Government and Digital Transformation (Technical assistance)
ADB	Supporting the Implementation of Education Sector Medium-Term Development Plan (Technical assistance)
UNDP	Signing of a Strategic Partnership for the Implementation of the Digital Nation Strategy
World Bank	Promotion of the Smart Government II Project
Estonia e-Governance Academy (Non-Profit Organization)	Promotion of e-Government
United Nations Asian and Pacific Training Centre for Information and Communication Technology for Development (APCICT)	Cooperation in the Promotion of e-Government and Human Resource Development / Provision of Training to Enhance Government Officials' Basic Understanding and Skills in Information and Communication Technology
ITC	Formulation of an Export Strategy

Source: Summarized by JICA Study Team based on MDDIC, “Digital Nation” Approval Guidelines, and various publicly available information.

In addition to the above, the Digital Nation strategy mentions plans to sign MoU with the United Nations Office for Outer Space Affairs (hereinafter UNOOSA) and NASA in the field of space exploration. Furthermore, the Mongolian government is establishing partnerships with major global ICT companies such as Google, Meta (formerly Facebook), Amazon, and Microsoft. For example, Google is collaborating with the MDDIC to promote the “Grow with Google Mongolia Project”, which aims to train 1,000 ICT professionals. As of June 2024, 350 individuals have participated in the training. The participants range widely in age, from 18 to 65 years old, and come from diverse backgrounds. The program covers a variety of topics, including data analytics, UX design, cybersecurity, and digital marketing, as well as offering instruction in English and soft skills. Notably, the training is fully funded by scholarships¹⁰. Regarding other companies, Meta is collaborating with the Mongolian government to promote the responsible use of social media and to establish a legal framework for conducting business. Amazon, on the other hand, is supporting the development of advanced technologies such as AI and cloud computing in partnership with the government¹¹.

2) Startup Ecosystem Development

(a) Government's Long-Term Vision and Key Policies

As mentioned above, the Government of Mongolia has implemented "Vision 2050" as its long-term development strategy, outlining nine key policy pillars. Startups and entrepreneurship are referenced across several of these pillars, with the most prominent references found under “The Quality of Life and Middle

⁷ ADB (2022) 「Technical Assistance Report Mongolia:e-Government and Digital Transformation」

⁸ Ministry of Education (2020) 「Education Sector Mid-Term Development Plan 2021-2030」

⁹ World Bank (2022) 「Mongolia: New Project Helps the Government Go Digital and Grow the Economy」

¹⁰ Mongolian National News Agency (26 June 2024) , news.mn (5 April 2024)

¹¹ MDDIC (2022) “Digital Nation” approval guidelines

Class.” However, the stated goals remain largely qualitative in nature, with quantitative targets limited only to indicators related to women’s entrepreneurship.

Qualitative Goals (Selected Highlights)

- **3.3.13.** Formulate and implement a national program on "Youth Entrepreneurship."
- **3.3.14.** Take comprehensive measures to equip young people engaged in start-up businesses with the necessary knowledge and skills to grow and scale their ventures, and to enhance related infrastructure.
- **3.3.15.** Introduce modern forms of financing tailored to start-ups and establish an effective financial system.
- **4.3.4.** Establish start-up capital funds and train professional investors to support financing for start-up businesses.
- **7.4.26.** Create a dedicated investment fund to support innovation in the sector and invest in start-ups, along with establishing a legal framework for its operation.

Quantitative target

Indicator	Base	Target		
		2025	2030	2050
Entrepreneurship indicators ¹²	67.8	70.0	72.5	82.5

Other key policies and initiatives related to SU promotion are summarized as below.

Policies and Initiatives	Start Year	Content
Science and Technology Fund (STF)	1993	• A national fund to contribute to the sustainable development of Mongolia by providing funds to raise Mongolia's research and development level to global standards • The types of research activities that can be funded by the STF are determined by the Ministry of Education and Science • Through 2018 and 2021, a total of 1,520 research projects were funded with a total of 24 billion MNT (approximately 910 million yen).
Investment Law	2013	• When a factory for products including nano and innovation technologies is constructed, the tariff on imported technologies and equipment is exempted during the construction period, and the value-added tax is reduced to 0%. • Non-tax incentives for investors, such as incentives for financing innovation projects and guarantees for financing the production of innovation products for export, are provided
Innovation Act	2014 (Revised in 2019)	• stipulates government obligations and activities related to innovation • There are tax incentives for startups, but the definition of startup is narrow and the target is very limited
Vision 2050	2020	• Establish ICT and innovation as one of the priority areas and aim to support and increase the contribution of this area to the economy • Ecosystem development through financing methods and support programs for startups and chemical technology development • Develop human resources by providing support programs and opportunities for entrepreneurs and researchers
ICT Industry Promotion Act	2024	• Describe the authority and responsibility of the national and local governments in promoting the ICT industry • It stipulates that the role of the government is to establish a virtual zone to support the ICT industry and to provide tax and non-tax support (Provision of subsidies for patent registration and certification of international quality and standards at the time of export) to companies registered in the virtual zone

Source: Compiled by the JICA Study Team based on various publicly available information
Figure 11 Key Policies and Initiatives Related to SU Promotion

(b)Policy Formulation and Implementation Framework (Governance Structure and Presence of Development Partners)

Implementation Framework

The primary entity responsible for promoting SU and innovation has been designated as the Ministry of Economy and Development. Until 2022, the Ministry of Education served as the lead organization; however, a government resolution has since shifted the responsibility to the Ministry of Economy and Development. In practice, the Ministry of Economy and Development, the Ministry of Education, and the MDDIC are all involved in their respective areas of jurisdiction. However, there is currently no evidence of concrete collaboration among these ministries.

¹² World Bank https://wbi.worldbank.org/en/data/exploretopics/wbi_rb World Bank's annual index of women's entrepreneurship and business management

Development partner

The main areas of support provided by international donors for the development of the SU ecosystem are as follows:

Table 12 Major development partners and support for SU Ecosystem

Development Partners	Support Contents
JICA	Provision of acceleration program MONJA Conducted Ecosystem Survey (MONGOLIAN STARTUP ECOSYSTEM)
EBRD	Provision of the EBRD Star Venture program
ADB	ADB Ventures has formed a partnership with KITE ¹³
UNDP	Conducted a baseline survey on Mongolian entrepreneurs as part of the “Activated 2030” initiative.
World Bank	“Entrepreneurship-Focused Socioemotional Skills for the most Vulnerable Youth in Rural Mongolia Project(2020-2025)” : Provision of socioemotional skills and entrepreneurship education to 6,000 young people from 25 of Mongolia's poorest rural communities

Source: Compiled by the JICA Study Team based on various public information

3) Utilization of Open Data

(a) Government's Long-term Vision and Major Policies

The Mongolian government, through the Cabinet Secretariat, defines open data as "public data for development and progress." Based on the results of this survey, it appears that the Mongolian government currently lacks a clear strategy for the utilization of open data, including a approach policy, action plan, and long-term vision. The absence of a clearly defined overall direction and ultimate goals for open data implies that relevant stakeholders have not yet formulated appropriate action plans to achieve specific targets. Additionally, action plans related to information disclosure aimed at enhancing government transparency have been established up to the fourth iteration as part of the multilateral initiative "Open Government Partnership," under the "Mongolia National Action Plan for Open Government." These efforts are being continuously pursued within Mongolia. However, the utilization of open data has scarcely been addressed, and it is believed that policy frameworks for the secondary use or commercial use of open data are not yet in place.

(b) Policy Formulation and Implementation Framework (Governance Structure, Presence of Development Partners)

The Mongolian government, in collaboration with its development partner, the International Development Association (IDA), which is part of the World Bank Group, implemented the Smart Government Project from 2015 to 2022. This project aimed to enhance the accessibility, transparency, and efficiency of public services in Mongolia through the use of ICT. As part of this initiative, the promotion of open data was positioned as a key objective to encourage the public release of data held by the Mongolian government and related entities, and to facilitate its secondary use, including commercial use by third parties. Consequently, the first government-led open data portal was established.

¹³ Mongolian accelerator. <https://kiteaccelerator.com/>



Figure 12 Overview of the Smart Government Project

On this portal, datasets related to the fields of transportation, food, agriculture, industry, welfare, labor, education, culture, and science from 37 domestic ministries have been published on the government website as "data for development" since 2020. The data sources include entities such as the National Statistics Office of Mongolia, and the formats supported are XML, XLSX, CSV, and JSON, adhering to the 5 Star Open Data standards that indicate the level of open data disclosure. Additionally, the portal was built using the Comprehensive Knowledge Archive Network (CKAN), an open-source software used for data catalog sites, which is also adopted by local governments in Japan. However, issues such as the difficulty in finding useful data, the quality of metadata, and the limited formats of publication have been pointed out in the country's quality evaluation results by the Open Data Inventory. Moving forward, it is necessary to develop a higher-convenient open data portal to promote utilization by the private sector and individuals. Although currently the portal supports only the Mongolian language, considering that domestic companies familiar with the country's needs are expected to be the main users of the data from the perspective of open data utilization, multilingual support such as English is not considered as high priority.

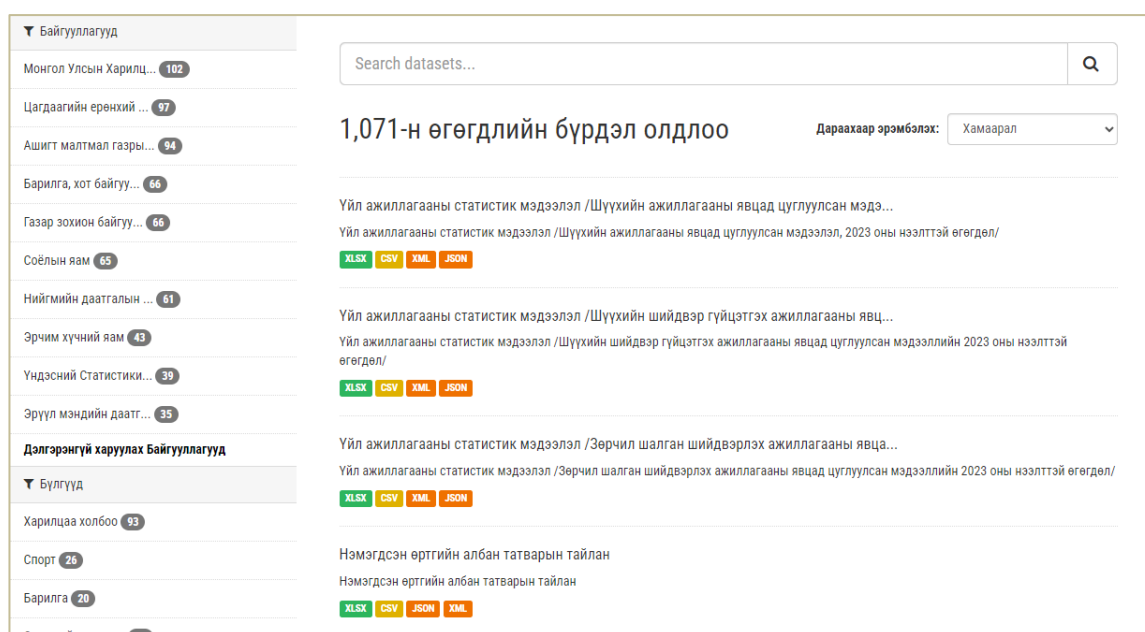


Figure 13 User Interface Image of the Mongolian Open Data Portal

Furthermore, as a result of interviews with the MDDIC, it was found that in addition to the aforementioned open data portal, there are several other open data portals in Mongolia, such as 1212.mn and Shilen. Below, we have organized the details and distinctions of these portals to the extent that we understand.

Currently, there is no movement towards integrating the multiple open data portals in Mongolia. Instead, the government is encouraging competition among ministries to increase the total amount of open data. In Japan, for example, there is a comprehensive gateway site for government statistical data called e-Stat, which is highly convenient for users. Therefore, it is expected that in the future, as a certain amount of data is accumulated across the various open data portals, there will be a move towards integration to enhance user convenience.

Table 13 List of Open Data Portals in Mongolia

Name of the Portal	Link of Website	Overview
OPEN DATA GOV.MN	https://opendata.gov.mn/	An open data portal established as part of the Smart Government Project, a joint initiative with the World Bank. It supports only the Mongolian language. (2020)
1212.mn	https://www.1212.mn/en	A statistical data catalog operated by the National Statistics Office of Mongolia. It publicly provides over 700 statistical datasets, including national census data managed by the office, in open formats (Excel/CSV/Text/JSON) that are available for secondary use by the general public. The portal supports both Mongolian and English languages, and the datasets are licensed under the CC-BY license, allowing for secondary use for commercial purposes.
Shilen.gov.com	https://shilen.gov.mn/	Established in 2023. Managed by the MDDIC. Supports only the Mongolian language.
1313.mn	https://1313.mn/	Managed by the Center for Health Development in the Ministry of Health. Supports only the Mongolian language.

At the municipal level, since 2015, the Information Technology Department of Ulaanbaatar has been independently working on building an open data platform based on Hadoop technology (Ulaanbaatar Big and Open Data Project). It is reported that datasets, including approximately 60 big data sets, have been published by 10 administrative agencies in the city.

The table below lists the names of government and administrative agencies related to open data in Mongolia and their respective initiatives.

Table 14 Major Government and Administrative Agencies Related to Open Data and Their Initiatives

Name of the organization	Role	Results
CITA (Communication and Information Technology Authority of Mongolia)	- Drafting policies related to open data, data protection laws, and national programs for e-government - Agency directly under the Cabinet Office	Administration and management of "The Guidance on Developing State Open Data Systems, and use of the System"
NDC (National Data Center)	Development of the National Data Exchange Platform	Development of systems such as "Khur" and "Speed"
NSO (National Statistics Office)	- Implementation of open data initiative - Handling of government open data - Independent Administrative Agency	Developed 1212.mn, an API data exchange platform (open data portal)
PCSP (Government Agency for Policy Coordination on State Property)	- Collaboration between the Open Government Partnership and the Open Data Initiative - Leading national open data initiative	Operates the website http://opendata.tender.gov.mn , which publishes API for bidding information in the national electronic procurement system
GSR (General Authority for State Registration)	Stipulating The National Registration Package Law (2018)	Developed a public registry information portal such as corporations, addresses, and real estate

(c) Data-Related Regulations (including personal data protection, data utilization, UAF system, etc.)

The trends in the development of legal regulations concerning the utilization of open data in the country are summarized as follows. Except for the most recent Article 12.6 of 2023, all laws pertain to information disclosure aimed at improving government transparency. These laws concerning the transparency of information and the right to access information promote opportunities for the dissemination of open data. However, there had been little progress in establishing laws specifically for the utilization of open data until recently. On the other hand, as noted in Chapter 5, Section 4.(1), several legal frameworks promoting the utilization of open data have been established since 2022, indicating a growing awareness and momentum within the government towards the establishment of open data.

Table 15 List of Legal Regulations Concerning Data Utilization in Mongolia

Regulation	Year of Enactment
Law on Information Transparency and the Right to Information	2011
The Glass Account Law (Mandating the reporting and public disclosure of government budget information, including funding and debt information.)	2014
Government Resolution 159 (Providing guidelines for the handling and sharing of data within government electronic databases.)	2017
Law on Protection of Personal Data (A law that extensively stipulates the protection of personal information and the use of personal data by public and private entities. It also regulates the collection, processing, and utilization of personal data collected by government agencies.)	2021
Fourth Mongolia National Action Plan for Open Government (The multilateral initiative Open Government Partnership (OGP) supports the Mongolian government in formulating an action plan to improve information disclosure. As part of the long-term plan extending to 2050, the action plan for 2021-2023 is currently underway.)	2021
Article 12.6 of the Law on Transparency of Public Information (A law that mandates that accompanying data of the data listed by each national agency to be uploaded to the respective ministries' websites and the national open data system within the period stipulated by the Information Disclosure Act 12.6.)	2023

Additionally, a common licensing rule for the use of open data within the country concerning secondary use and licensing could not be identified. However, it has been confirmed that some open data portals (such as 1212.mn) have adopted the Creative Commons (CC) BY/Attribution license, which allows for modification and commercial use as long as the author is attributed. Therefore, it is necessary for the Mongolian government to clarify the approach to utilizing open data and to establish unified compliance rules, such as following international standards like Creative Commons licenses, so that the various open data portals operated by different government agencies can be managed under a common license.

(d) Data Integration Platform

In addition to open data, we also address the data integration platform, which is similar to open data. While open data involves making government and administrative data publicly accessible for anyone to access and use, the data integration platform allows certain private companies to access and use government and administrative data.

Although the entities that can access government and administrative data differ, the objective remains the same: enabling private companies to effectively utilize previously unused government and administrative data to improve resident services and generate revenue.

As mentioned in Chapter 3, Section 3.(1), the Mongolian government offers E-Mongolia as an e-government service. Under E-Mongolia, there is a data integration platform called XYP, developed by the E-Mongolia administrative agency in 2017. XYP functions as an integrated data exchange platform between ministries. When asked whether XYP was developed with reference to X-Road, the developers of E-Mongolia responded that while the architecture and system were not officially based on X-Road, which is open-source, it might have been partially referenced during development.

Data collected from users through the E-Mongolia interface is stored in the National Data Center. The E-Mongolia interface facilitates data integration not only among administrative agencies but also with private companies. If private companies wish to link their services to E-Mongolia, they must individually apply to E-Mongolia for an API token (for a fee), and the application undergoes a certain review process. There are already several cases of collaboration with private companies, and there is a desire to strengthen this integration and further improvement of service efficiency through the expansion of API functions. Regarding the handling of personal information, users are dealt with using an opt-in method, although some users have expressed concerns about excessive email distribution.

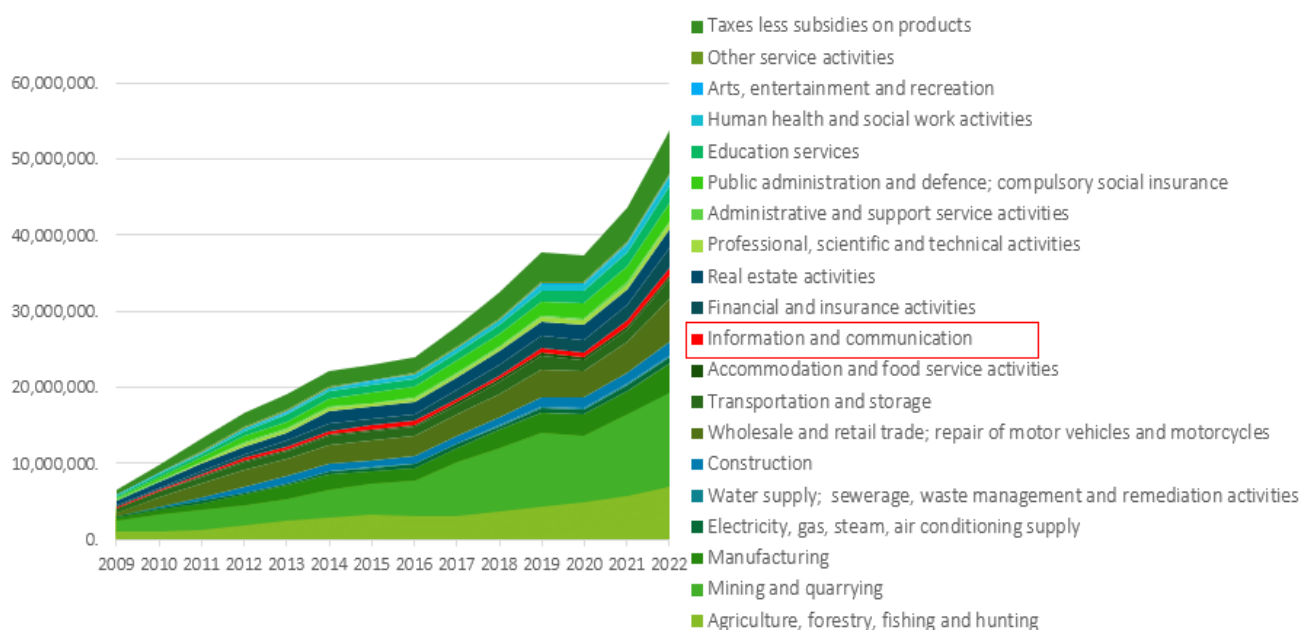
3.Current Status of the ICT and Digital Industry, and Startup Ecosystem

1) Current Status of ICT and Digital Industry Promotion

(a) ICT and Digital Industry Market

GDP Ratio of the ICT Industry

As of 2022, the ICT industry's contribution to Mongolia's GDP remains at approximately 2%. The industries with the highest GDP ratios are mining and agriculture, accounting for 23% and 13%, respectively. Historically, these traditional industries have occupied significant portions of Mongolia's GDP. However, mining, in particular, is highly susceptible to fluctuations in international market conditions and resource prices. Consequently, there is a growing need for industries that can serve as additional pillars to drive Mongolia's economic growth.



Source: Compiled by JICA Study Team based on data from the National Statistics Office of Mongolia
Figure 14 Trends in Mongolia's GDP by Sector (MNT million, current prices)



Figure 15 Mongolia's GDP by Sector (2022, current prices)

Domestic Market Size

In Mongolia, mobile phones are widely adopted, and access to 4G networks is already available in urban areas of regional cities. Internet penetration has also grown significantly, reaching 84% in 2021, with the country's internet infrastructure relying on fiber optic connections with neighboring China and Russia.

The market size of the ICT industry, particularly the total revenue of the telecommunications sector, has been consistently growing since 2012. By 2017, it had increased approximately 1.4 times, and by 2022, it had nearly tripled to MNT 1.7 trillion (approximately JPY 73 billion). This growth can be attributed to the government's efforts to expand and improve the quality of mobile and internet communication networks, as outlined in the "Vision for Sustainable Development 2030" (2016) by the MDDIC.

According to the Invest Mongolia Agency, such comprehensive government support for the blossoming ICT industry could also attract foreign investment into the sector.

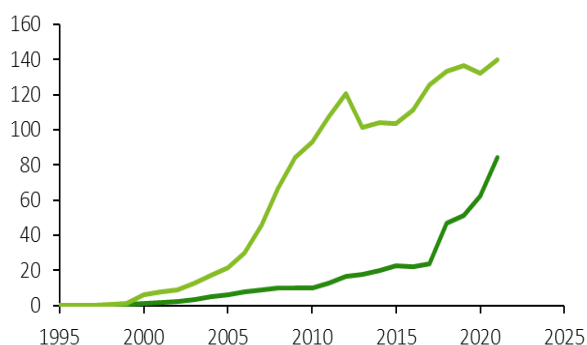


Figure 16 Internet Penetration Rate

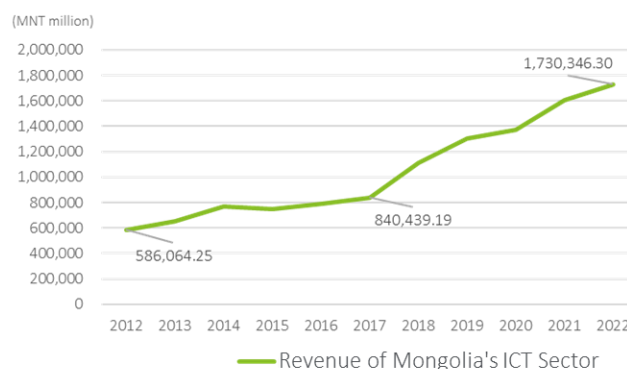


Figure 17 Trends in Total Revenue of Mongolia's ICT Sector

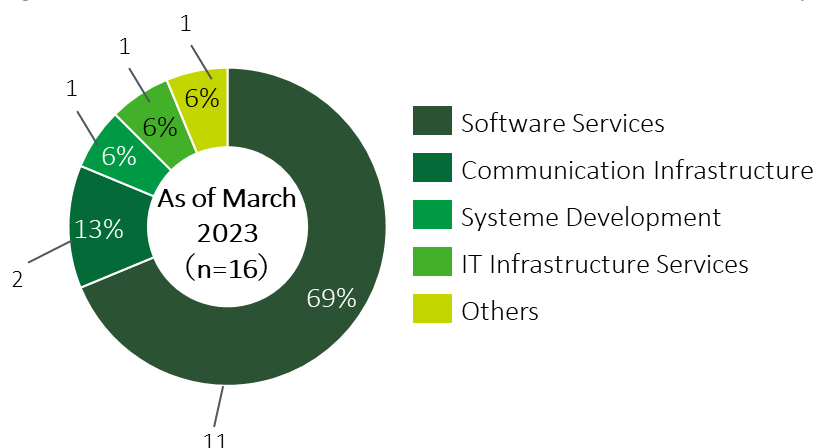
Source: Compiled by JICA Study Team based on the data from the World Bank and the National Statistics Office of Mongolia

Key Players

In Mongolia's ICT industry, the majority of companies are involved in software services (software development and provision), followed by firms offering telecommunications infrastructure services, including fixed-line

communications (such as landlines, ADSL, and fiber optics) and mobile communications (such as cellular and PHS).

Among software service companies, major players include Mogul Group and INTERACTIVE, both established in the 1990s. INTERACTIVE, in particular, has played a significant role in the ICT industry, securing contracts from private companies in the United States and the United Kingdom, as well as the Kyrgyz government, and international organizations such as the UNDP and the World Bank. The company also contributed to the "e-Mongolia National Program" in 2006. Concerning startups, major software service companies include AND Global, founded in 2017 and specializing in fintech, as well as Shoppy.mn, which operates an e-commerce platform, and Chimege Systems, which focuses on AI-based speech recognition technology. In the telecommunications sector, key players include Mobicom, Unitel, Skytel, and Datacom. These companies play a central role in providing telecommunications infrastructure and services across the country.

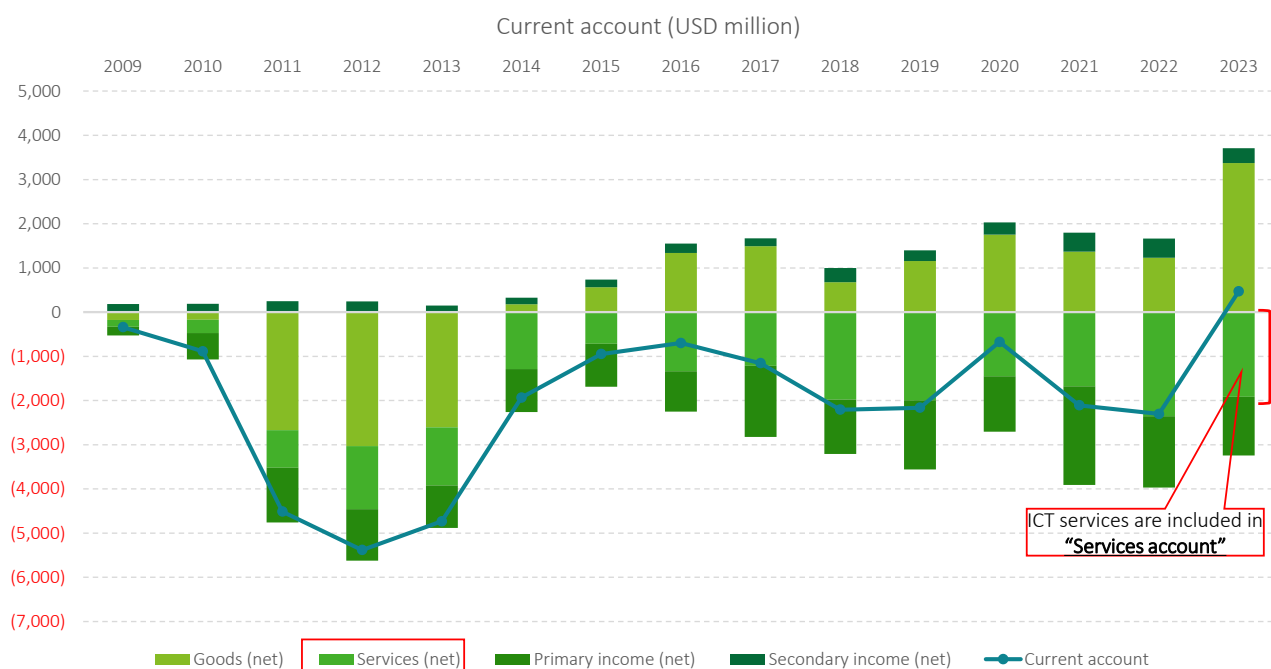


Source: Compiled by the JICA Study Team based on data from SPEEDA

Figure 18 Breakdown of ICT and Digital Companies

(b) Current account balance of ICT industry

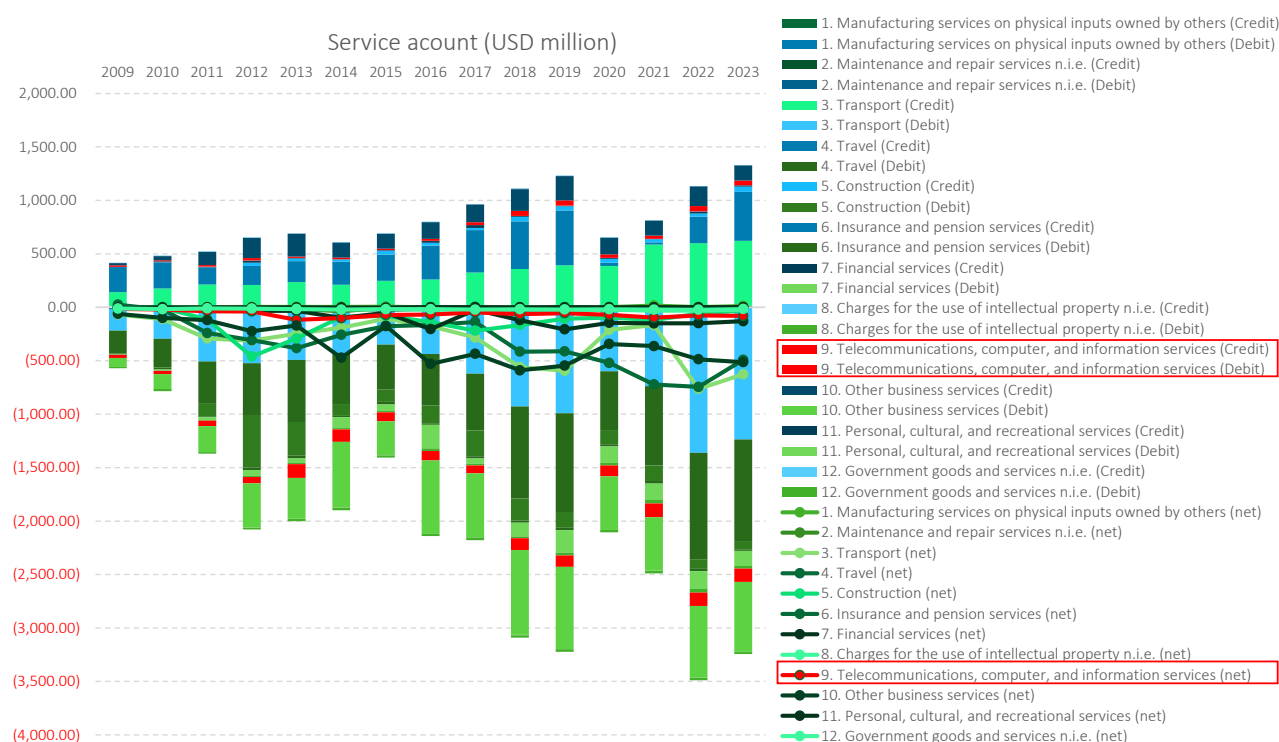
As shown in the figure below, Mongolia's current account balance had been in the red until recently, and while its trade balance turned into a surplus, its services balance, including ICT services, remained in the red.



Source: Compiled by JICA Study Team based on data from the National Statistics Office of Mongolia

Figure 19 Trends in Mongolia's Current Account

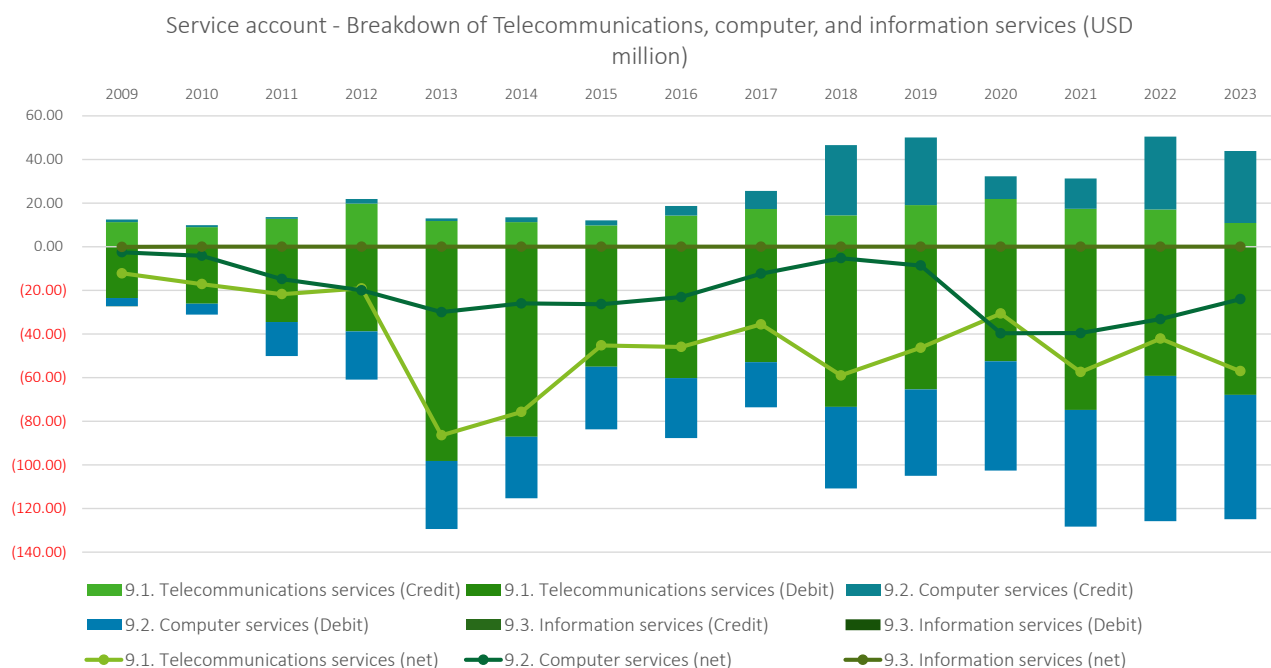
Looking at the breakdown of the service balance in 2023, while the credit for the entire service balance was 1,331.5 million USD (approximately 198.8 billion yen) and the debit for 3,234.91 million USD (approximately 483 billion yen), the credit for "9. Telecommunications, computer, and information services" including ICT services was 43.85 million USD (approximately 6.5 billion yen), the debit for 124.89 million USD (approximately 18.6 billion yen), and the net for 81.04 million USD (approximately 12.1 billion yen). Both credit and debit accounts for only about 3% of the total service balance. A large part of the service balance is accounted for by "3. Transport" and "4. Travel" and as for debits, "10. Other business services"(Technology, trade-related and other business services) affects the service balance deficit.



Source: Compiled by JICA Study Team based on data from the National Statistics Office of Mongolia

Figure 20 Trends in Mongolia's Service Account

Moreover, looking at the breakdown of "9. Telecommunications, computer, and information services" it can be seen that the credit for "9.1. Telecommunications services" has remained constant, while that for "9.2. Computer services" has increased in recent years. On the other hand, the debits of "9.1. Telecommunications services" and "9.2. Computer services" have increased significantly in recent years, suggesting that in order to earn foreign currency, in addition to expanding the ICT industry overseas, it is important to promote the substitution of overseas services through the in-house production of ICT services.



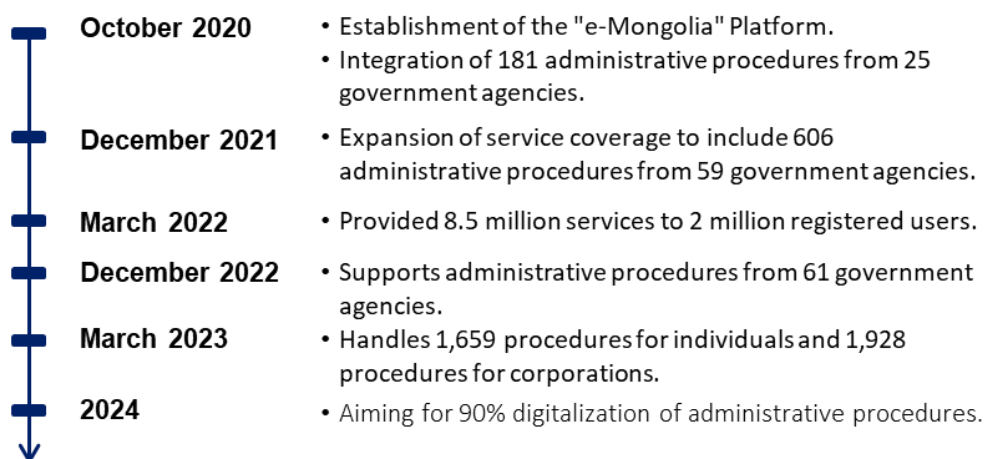
Source: Compiled by JICA Study Team based on data from the National Statistics Office of Mongolia
Figure 21 Changes in Telecommunications, Computer and Information Services in Mongolia's Service Account

(c) E-government

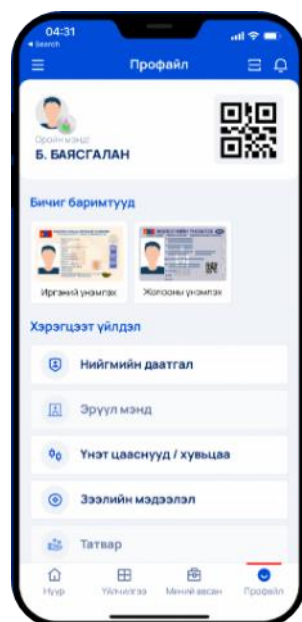
Government Initiatives

Under the current MDDIC (formerly ICTA), the predecessor to the current e-Mongolia, the "e-Mongolia National Program," was launched in 2005. Its goals included the development of ICT applications, including e-government, improvement of IT literacy, promotion of public-private partnerships, and enhancement of the competitiveness of the IT industry. However, significant achievements in terms of creating a digital nation were not realized. Subsequently, in 2020, the "Vision 2050" strategy was formulated, aiming to foster technology-based innovation by 2030. Strengthening the ICT and digital industries was identified as a priority, with a target of digitizing 90% of administrative services by 2024. In October of the same year, the "e-Mongolia" platform was established.

The e-Mongolia platform was introduced to address two main challenges: (1) strengthening governance in administration, such as preventing corruption, and (2) improving inefficient administrative services caused by weak infrastructure across the vast national territory. Development has progressed in collaboration with countries like Estonia, which have advanced examples in this field. The platform is available as both a mobile app and a web version, enabling online execution of 994 procedures from 83 registered organizations as of April 2024, including passport and driver's license applications.



Source: Compiled by the JICA Study Team
Figure 22 History of e-Mongolia



Source: Compiled by the JICA Study Team
Figure 23 e-Mongolia Mobile App Interface (Image)

Effects and Usage of e-Mongolia Implementation

The introduction of e-Mongolia has yielded significant results. By 2022, operational costs within the government were reduced by an estimated USD 30 million (approximately JPY 4.5 billion) compared to the pre-implementation period, through savings in expenses related to paper, postage, transportation, and labor. Additionally, complaints related to corruption and bribery decreased by 30%. Administrative procedures, which previously required 2-3 hours, have been shortened to an average of 2-5 minutes. As a result, by the end of 2021, the platform succeeded in reducing annual administrative processing time by 3,581 hours. These outcomes indicate that the initial goals of strengthening governance and improving administrative service efficiency have been achieved.

As of September 2023, the number of registered users of e-Mongolia reached 1.7 million, representing approximately 51% of the population. While further increases in the utilization rate are required, the demographic breakdown of users shows a wide range of age groups, with a focus on individuals in their 20s and 30s, but also including teenagers and those aged 50 and above. For elderly users, operational support by administrative staff is provided to promote adoption. Additionally, in terms of regional utilization rates, the distribution of users is roughly half in Ulaanbaatar and half in rural areas, indicating that the use of e-Mongolia is expanding even in regions with limited access to administrative services.

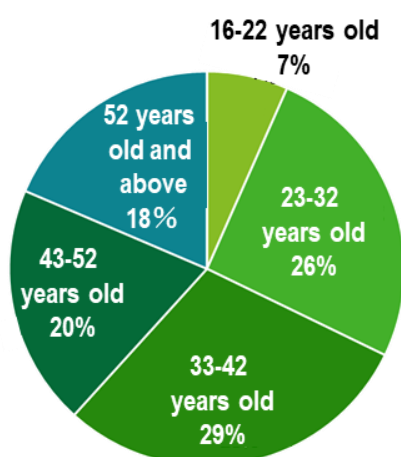


Figure 24 Age Distribution of e-Mongolia Users

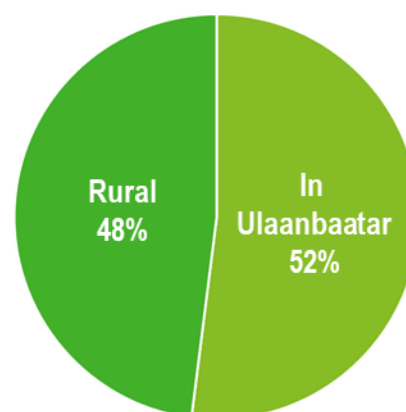


Figure 25 Regional Distribution of e-Mongolia Users

Source: Compiled by the JICA Study Team based on e-Mongolia Academy materials

e-government index

UNDESA, United Nations Department of Economic and Social Affairs, publishes the e-Government Index, which evaluates 193 member states. This index is determined through a comprehensive assessment of three aspects: online service provision, telecommunication connectivity, and human capability. Mongolia ranked 92nd in both 2018 and 2020 but improved to 74th in 2022 following the initiation of e-Mongolia initiatives. This demonstrates that the government's promotion of e-Mongolia has been internationally recognized for its efforts toward digital governance.

Table 16 Transition of Mongolia's e-Government Index

2018	2020	2022
92nd out of 193 countries	92nd out of 193 countries	74th out of 193 countries

Source: Compiled by the JICA Study Team based on IT Park materials

(d) ICT and Digital Talent

Digital Literacy of the Population

According to the 2018 Information and Communication Technology Skills Survey in Mongolia, only 31% of individuals were found to be capable of using computers and smartphones to gather information¹⁴. On the other hand, the "Survey on ICT Usage by Households and Individuals" conducted by the National Statistics Office and the MDDIC in 2021 revealed that 43.8% of individuals were able to use the internet for tasks such as information gathering and data storage¹⁵.

However, only 38.8% of individuals could use video calls and text messaging, and merely 27% were able to utilize online banking or e-commerce services. These figures all fall below 50%, indicating that the ICT literacy of the population remains relatively low. Furthermore, only 9.4% of individuals were able to perform data analysis or programming using computers.

Given this situation, the government needs to not only support the enhancement of general ICT skills among the population but also reform the education system to foster advanced digital literacy, such as programming, and provide opportunities for skill development for employed persons.

Supply and Demand Balance and Quality of Human Resources

A) Supply and Demand Balance

Regarding the supply and demand balance of ICT human resources, the "Report of barometer survey on labor

¹⁴ MDDIC (2022) "Digital Nation approval guidelines"

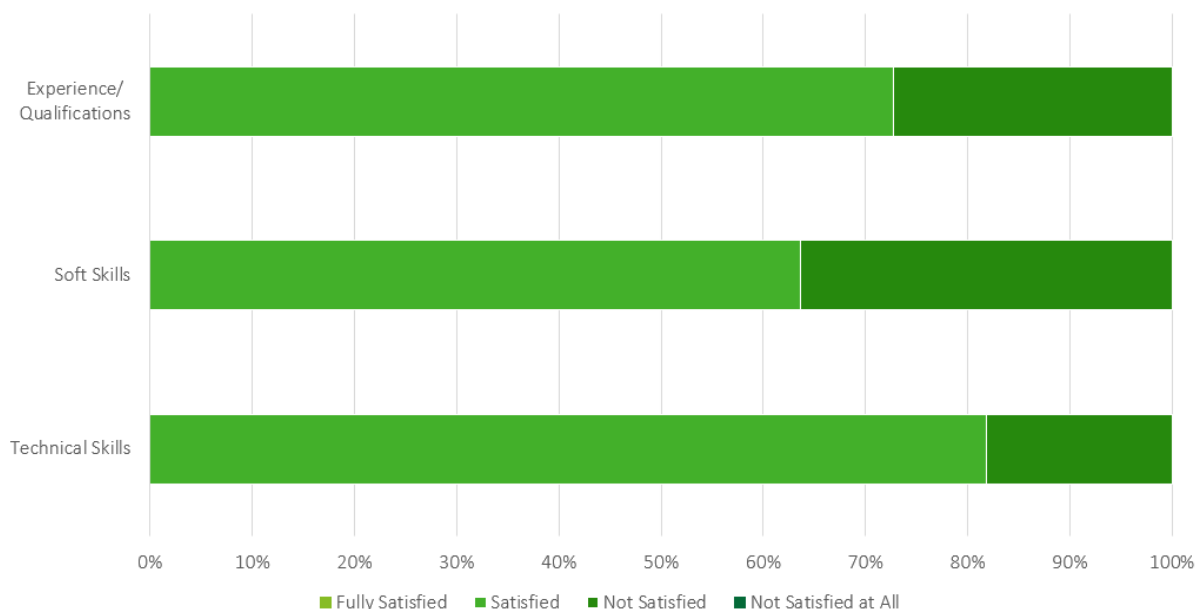
¹⁵ MDDIC (2022) "Digital Nation approval guidelines"

market demand (2019)" conducted by the Ministry of Family, Labor and Social Protection of Mongolia¹⁶ and data released by the National Statistics Office in 2019¹⁷ indicate that the number of employees in the ICT industry was 11,322 in 2016, with 1,200 job openings. By 2020, the number of employees had increased to 13,900, with 1,600 job openings, demonstrating a steady increase in demand for ICT personnel. As for the supply of ICT personnel, while quantitative data on the number of ICT graduates from universities and technical colleges has not been disclosed, interviews with the Ministry of Education revealed that the number of graduates from university ICT courses was 591 for the 2019-2020 academic year and 613 for the 2022-2023 academic year. Although this suggests a general upward trend, there has not been a significant increase (for more details, refer to Chapter 5. 2. 1)). Furthermore, interviews with the Ministry of Education confirmed that as of April 2024, there are 7,835 students enrolled in university ICT courses. Additionally, Japanese-style technical colleges have established Information Processing Departments since 2020, and the first graduates from Mongolia's technical colleges are expected in 2025.

Based on interviews with the Mongolia-Japan Higher Engineering Education Development Project (hereinafter MJEED) Secretariat and institutions such as the Mongolian University of Science and Technology (hereinafter MUST), it has been identified that the current ICT labor market is a seller's market, with Mongolian ICT companies consistently facing a shortage of skilled personnel. For university students majoring in ICT, recruitment activities by companies typically begin as early as their third year, with outstanding students often receiving job offers at this stage. In particular, students from top domestic universities, such as the ICT departments of the MUST, tend to secure employment early, with most students finalizing job placements before entering their fourth year. Furthermore, internships for ICT students generally commence in their second year of university. Compared to students in other fields, ICT students participate in corporate internships at an earlier stage, allowing both students and companies to begin securing employment opportunities and talent acquisition at an early phase.

B) Quality of Human Resources

This section discusses the "quality" of personnel, focusing on the ICT technical skills of new graduates and those of professionals. Regarding the ICT technical skills of new graduates, the results of a company survey conducted during the first Job Fair revealed that 80% of companies believe the technical skills of students meet the required standards.



Source: JICA Study Team based on the questionnaire survey results.

Figure 26 Survey for Companies: Do the Hired Students Meet the Skills and Experience Required by the Company? (n=11)

¹⁶ [BAROMETER SURVEY ON LABOR MARKET DEMAND \(2019\)](#)

¹⁷ [Brief Presentation on ICT Statistics Experiences of Mongolia\(2019\)](#)

On the other hand, interviews with Mongolian ICT companies, such as Mogul Group, revealed that while the ICT technical skills of new graduates are not particularly high, they are nurtured to acquire practical-level technical skills through approximately 2–3 years of on-the-job training (OJT). Given the seller's market in the ICT labor sector, it appears that companies often do not require advanced technical skills from students at the time of hiring, as they aim to enhance technical skills through OJT and other post-hiring training programs.

Regarding the ICT skills of professionals, the "Survey on Skills Demand in Mongolia" (2022) conducted by the Ministry of Family, Labour and Social Protection¹⁸ found that among the tasks companies identified as being negatively impacted by employee skill deficiencies, software development ranked second, and ICT service-related tasks ranked fourth. This suggests two key points: first, ICT skills among professionals across various industries in Mongolia are insufficient, and second, even within ICT companies, the technical skills of personnel do not meet the required standards.

Therefore, it can be concluded that the quality of ICT personnel in Mongolia, whether new graduates or professionals, is not particularly high. Mongolia faces the challenge of addressing an ICT skills gap, which is critical for enabling companies to conduct efficient business operations.

2) Current Status of Startup Ecosystem Development

Number of SUs

While it is difficult to accurately ascertain the number of SUs in Mongolia, based on the SU database (Pitchbook) and public reports, it is considered to be approximately 100. Reference values are shown below.

- Number of Mongolia-headquartered SUs in Pitchbook: 103 (as of February 21, 2024) * Selected only from unlisted companies headquartered in Mongolia.
- Number of companies surveyed in JICA, START (2024) "Baseline survey of the MONGOLIAN STARTUP ECOSYSTEM 2023": 91
- Number of companies surveyed in JICA, KITE, Mongolian Marketing Consulting Group (2022) "Baseline survey of the Mongolian start-up ecosystem": 80

Major Examples of Mongolian SU

AND Global

- Funding: Realized Series A funding and raised funds from overseas investors not only in Mongolia (SBI Investment, Marubeni, etc.)
- Overseas expansion: Expanded into 12 countries, mainly emerging countries, and signed MoU with Marubeni Corporation of America in February 24



Figure 27 Press Release for SBI Investment Funding



Figure 28 MoU Signing with Marubeni Corporation of America

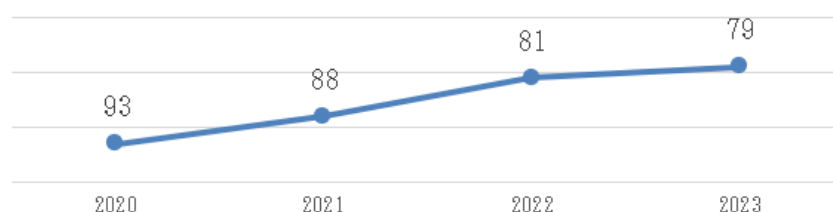
Source : [AND Global press release](#)

Ecosystem Indicator

According to the 2023 edition of "Global Startup Ecosystem Index¹⁹", Mongolia ranked 79th out of 100 countries in the SU ecosystem, and its ranking is rising every year.

¹⁸ [Skills Demand in Mongolia \(2022\)](#)

¹⁹ A report published annually by StartupBlink. It analyzes and ranks the startup ecosystems of various countries and cities based on three criteria: "Quantity Score," "Quality Score," and "Startup Business Environment." A



Source: Global Startup Ecosystem Index

Figure 29 Mongolia's Ranking in the Global Startup Ecosystem Index

3) Current Situation of Open Data Utilization

(a) Utilization of Open Data

Through our investigation, we found no cases in Mongolia where government open data was reused through open data portals, etc., and turned into a business. Several factors can be considered for this, including: (1) Open data portals and data catalogs which are operated by government and related entities are difficult to use, and the data stored lacks novelty, making it difficult for private companies to identify useful data for business purposes. (2) Private companies do not understand the usefulness or effective utilization methods of open data.

Regarding (1), this is due to the lack of internal ICT personnel skills in the government and related entities, resulting in a lack of user-friendly data catalogs designed with private sector data use in mind. This issue was actually pointed out by the MDDIC. An official in charge of the open data hackathon at MDDIC pointed out that "the open data catalog in Mongolia is still in its infancy, and we hope for support to make the open data portal more user-friendly."

Regarding (2), it can be said that there is no point of contact between the government and private companies to appeal the effectiveness of open data as a business to private sector. In fact, in Estonia, the number of business cases by the private sector increased as efforts to promote the use of open data for the private sector became more active after 2018. Active communication between the government and the private sector through workshops, case studies, hackathons, etc., can be said to be the first step in creating business use cases of open data by the private sector.

Additionally, the open data hackathon planned by MDDIC in 2023 was canceled due to the low number of applicant companies, indicating the low interest of private companies. To verify the assumed factors mentioned above, the results of the hackathon and PoC are summarized in Chapter 7.

For reference, we have included comments from MDDIC regarding the utilization status of open data in Mongolia below.

Table 17 Statements Related to the Status of Utilization of Open Data in Mongolia by MDDIC

Although the opening of government data itself is already being carried out through government agency websites such as "1212.mn," private companies do not understand how to utilize government open data for business purposes.	MDDIC (June 7, 2023)
To promote the digital economy, we aim to open and utilize not only government data but also private sector data. We are currently in the process of obtaining consent for the utilization of corporate data.	MDDIC (June 7, 2023)
There are particular challenges in the opening and effective utilization of public data in rural areas.	MDDIC, Department of Policy and Planning (October 27, 2023)

(b) Utilization of Data Integration Platform

As mentioned in Chapter 3, Section 2.(3), e-Mongolia allows private companies to utilize government and administrative data through a data integration platform called XYP. According to a hearing with the E-Mongolia Academy, there are usage cases where financial institutions such as banks and microfinance companies use XYP to understand the lending situation and utilize it for loan screening. Additionally, there are cases where the platform is used to understand property ownership status and apply it for social insurance payments.

Regarding open data, no effective utilization cases were confirmed, but in the case of the data integration platform, usage examples as mentioned above can be observed. The reasons for this discrepancy are likely due to, firstly, the differences in the objectives of each service, and secondly, the differences in the data being handled, whether it is open or closed. On the first point, the purpose of open data utilization is to make government-held data available to the public and to allow private companies to use it. However, how the data will be used is left to the ideas of private companies. On the other hand, the data integration platform aims to incorporate public data into existing private sector services to improve those services, and the methods of data utilization are often clearly defined in advance. Regarding the second point, the data integration platform deals with closed data, which often includes specific data containing personal information, making it easier to link and integrate with customer data and other data held by private companies.

Chapter 4 Narrowing down the focus areas for priority research

In Chapter 4, priority areas requiring more focused investigation are identified and organized to review the Mongolian government's policy proposals and JICA's support initiatives. The specific process involves two main steps: first, analyzing the gaps between the goals and the current status of each theme investigated in Chapter 3 to identify key issues; and second, evaluating each issue based on three criteria and perspectives, and determining the magnitude of each issue (large, medium, small) based on the evaluation results.

Table 18 Evaluation Perspectives for Determining the Magnitude of Issues

Evaluation Criteria	Evaluation Perspectives
Strategic Importance (High, Medium, Low)	To what extent the resolution of the target issue impacts the development of the ICT industry and startup promotion. Since this is an indicator that is difficult to evaluate quantitatively, the assessment is conducted qualitatively.
Severity (High, Medium, Low)	The severity of the target issue is assessed. For indicators that can be measured quantitatively, the current achievement level against the goal is used: less than 50% is classified as "High," 50% to less than 75% as "Medium," and 75% or more as "Low." For indicators that cannot be measured quantitatively, the evaluation will be conducted qualitatively.
Existence of Initiatives (Yes, No)	Whether there are existing efforts by the Mongolian government or development partners to address the issue, or whether future initiatives are indicated in strategies or plans.

Furthermore, even if there are existing efforts categorized as "present," the degree of those efforts varies. Therefore, when determining the overall significance of the issues, the final evaluation was decided through comprehensive consideration of the strategic importance, severity of the issues, and the presence or absence of existing efforts, followed by discussions between the JICA Study Team and JICA representatives.

The evaluation approach is applied similarly to the third step. Thirdly, for items evaluated as having "large" or "medium" significance, areas where the Mongolian government and JICA can implement new policies or support measures are identified based on the presence or absence of existing development partners and Japan's support resources. These areas are designated as key research areas, which will be explored further in Chapter 5.

1. Promotion of the ICT and Digital Industry

1) ICT and Digital Industry Market

Before examining the issues for each component of the ICT and digital industry, an overview of the ICT and digital market will be reviewed based on three aspects: market growth rate, market size, and the market's GDP ratio.

(a) Challenges

The growth rate of the ICT market was 12% as of 2020, but it is targeted to increase to 25% by 2027²⁰. On the other hand, according to the Mongolian Statistical Office, the market size of the ICT industry was MNT 1.7 trillion (approximately JPY 73 billion) as of 2022, but no future target value has been set.

Additionally, the challenges of the ICT industry compared to other industries are clearly illustrated by examining the GDP ratio. As of 2022, the ICT market's GDP ratio was only 2%, which is significantly smaller compared to other industries (see Chapter 3, Section 3. (1) for details). Furthermore, within Vision 2050, the GDP ratio for manufacturing is targeted to increase from 10.9% to 27.4%, and for transportation from 4.6% to 11.6% by 2050. On the other hand, there is no mention of target figures for the ICT industry.

Considering these factors, the overall challenges of the ICT industry can be summarized as follows: the GDP ratio remains very small, and unlike other industries, there are no clear target settings.

In industrial development, the absence of target settings makes it difficult to establish a clear direction and hinders concrete actions. Therefore, setting targets and formulating plans to achieve them are essential, and the

²⁰ MDDIC "Digital Nation approval guidelines" (2022)

strategic importance of this issue is evaluated as "high." Regarding existing efforts, under the support of the International Trade Centre (ITC), the Ministry of Economy and Development is currently developing the National Export Strategy for Prioritized Non-Mining Sectors (NES). One of the six sectors targeted by the National Export Strategy (NES)²¹, includes the IT Services Export Strategy (hereinafter the "Export Strategy"). The other five sectors are adventure and cultural tourism, cashmere and other wool, meat and meat products, leather and leather products, and sea buckthorn and pine nuts. This Export Strategy is being developed by the Ministry of Economy and Development in collaboration with MDDIC. During the development process, feedback is being collected from relevant organizations, such as IT Park and the Software Association²². This Export Strategy is comprehensive in nature and is considered an important strategy that outlines government policies and future initiatives in the ICT and digital sectors, especially given the current absence of a master plan by the MDDIC.

On the other hand, it should be noted that this Export Strategy is fundamentally a strategy premised on exports. Policies necessary for the promotion of the ICT industry are not necessarily all encompassed when the focus is solely on exports. Therefore, it is deemed necessary for the MDDIC to take the lead in formulating a strategy specifically aimed at promoting the ICT industry.

Table 19 Step 1: Evaluation of Challenges (ICT and Digital Industry Market)

Theme	Gap Between Goal and Current Status			Challenges	Evaluation of Challenges			Scale of the challenge (High, Medium, Low)
	Goal	Current	Source		Strategic Importance	Severity	Existence of Initiatives	
ICT Revenue Growth Rate	25% (2027)	12% (2020)	Goal/Curr ent Status: Digital Nation	- The GDP share of the ICT industry is ignificantly lower compared to other industries. - Unlike other industries, no target values have been set.	High: In industrial development, it is necessary to set targets and formulate plans to achieve them.	High: Many areas, including the ICT industry, human resources, startups, and open data, lack target settings.	Yes: Creation of an Export Strategy (However, while the Export Strategy is comprehensive, it is primarily focused on exports).	High
ICT Industry Market Size	- (No target set)	1.7 trillion MNT (approx. 73 billion yen) (2022)	Current Status: National Statistics Office of Mongolia					
ICT Market GDP Ratio	(No target set. IT Park has set a goal of 5%, but the deadline is unclear)	2% (2022)	Goal: IT Park's 3rd Working Group presentati on materials					

(b) Priority Research Areas for the Mongolian Government and JICA's Support Measures

One potential solution to address the challenges of the ICT industry's still very small market size and the lack of set target values is the creation of a master plan. Although the master plan under consideration is not specifically aimed at promoting the ICT industry as part of the MDDIC' objectives, as previously mentioned, the International Trade Centre (ITC) is acting as a development partner and supporting the formulation of the Export Strategy.

²¹ ITC Website "Mongolia: National Export Strategy" (Accessed on July 2, 2024)

²² Draft of the Mongolia IT Services Export Strategy (as of October 2023), received from IT Park.

Table 20 Step 2: Evaluation of the Priority Research Areas for the Mongolian Government and JICA's Support Measures (ICT and Digital Industry Market)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Result: Priority Research Area
		Presence of Development Partners: Yes/No	Availability of Japanese Support Resources: Yes/No	
ICT Revenue Growth Rate	- The GDP share of the ICT industry is significantly lower compared to other industries. - Unlike other industries, no target value has been set.	Yes: - ITC (Formulation of Export Strategy) - UNDP (Establishment of a strategic partnership for the implementation of the Digital Nation initiative)	Yes: Experience of JICA in supporting the creation of master plans	Priority Research Area

(c) Direction of Support Measures by the Mongolian Government and JICA

Based on the organization of findings up to Step 2, the creation of a master plan, as shown in the table below, is considered useful as a JICA support proposal for the overall promotion of the ICT and digital industry market. Regarding the creation of the master plan, the MDDIC has commented that while a master plan is necessary, long-term plans typically adopted in master plans, such as 5-year or 10-year plans, are not suitable for the ICT industry, which is characterized by rapid technological advancements and drastic changes. Instead, it is more appropriate to implement short-term plans spanning several years and update them as needed. Therefore, the master plan in this context is envisioned as being closer to an action plan, detailing short-term and specific activities as well as implementation frameworks. Furthermore, collaboration and clear delineation with the Export Strategy are essential.

Table 21 Step 3: Direction of Measures by the Mongolian Government and JICA (ICT and Digital Industry Market)

Theme	Evaluation Result		Direction of JICA Support			
	Scale of the Challenge	Priority Research Area	Support Menu	Main Activities	Proposed Scheme	Counter part
ICT Revenue Growth Rate	High	Priority Research Area	Creation of a Master Plan for ICT and Digital Industry Promotion	- Support for the formulation of a comprehensive master plan for ICT and digital industry development (including startup promotion) - Clarification of role-sharing among relevant organizations - Establishment of an implementation framework for the action plan	Development Planning Survey-type Technical Cooperation	MDDIC
ICT Industry Market Size						
ICT Market GDP Ratio						

2) Digital Trade Balance

Escaping the dependence on mineral resources for foreign exchange earnings is a major challenge for the Mongolian economy. JICA Study Team examines the external situation and challenges of the ICT and digital industries, which are considered to be one of the pillars of the Mongolian economy, and the direction of support measures based on the Digital Trade Balance²³.

(a) Challenges

At the time of the survey, the Mongolian government did not have a target for the Digital Trade Balance, and

²³ The total of "Charges for the use of intellectual property", "Telecommunications, computer, and information services" and "Other business services" in the breakdown of Service Account.

the Export Strategy is taking action to improve the capture rate of digital-related transactions. On the other hand, it is possible to calculate the Digital Trade Balance to some extent using Current Account data available at present, and as of 2023, the balance had a deficit of 616 million USD (about 91.9 billion yen).

One of the major challenges facing Mongolia's economy is to break away from its dependence on mineral resources to earn foreign currency. Creating a new pillar of export industry is of great strategic importance. At present, the trade balance (credit: mineral resources account for most of the current account balance) accounts for nearly 94% of the current account balance (credit), and resource dependence is serious.

Efforts to expand the ICT and digital industries overseas began in 2023, including the creation of an Export Strategy led by the Ministry of Economic Development and collaboration with the Silkroad Innovation Hub, a community of entrepreneurs from Central Asia and Mongolia based on the West Coast of the United States. However, there are few existing efforts.

For this reason, the assessment of issues is "Serious," and we believe that these issues should be addressed with priority.

Table 22 Step 1: Evaluation of Challenges (Digital Trade Balance)

Theme	Gap between goal and current status			Challenges	Evaluation of challenges			Scale of the challenge (High, Medium, Low)
	Goal	Current	Source		Strategic Importance	Severity	Existence of Initiatives	
Digital Trade Balance	- (No setting * In Export Strategy, the action is to improve the capture rate.)	- Balance: 616 million USD (91.9 billion JPY) - Debit: 803 million USD (119.8 billion JPY) (6.8%) - Credit: USD 186 million (JPY 27.7 billion) (1.5%) (In 2023,% is relative to current account balance)	Current Status: National Statistics Office of Mongolia and Central Bank of Mongolia	• Shortage of ICT human resources • Lack of growth capital for overseas expansion • Lack of recognition of Mongolia's ICT brand • Lack of ICT industry statistics	High: A major challenge for the Mongolian economy is to break away from dependence on mineral resources for foreign exchange earnings	High: At present, the trade balance (credit: mineral resources account for most of the current account balance) accounts for nearly 94% of the current account balance (credit), and the dependence on resources is serious.	Yes: Draft of Export Strategy, and collaboration with Silkroad Innovation Hub	High

(b) Key Research Areas for the Mongolian Government and JICA's Support Measures

Challenges to improving the Digital Trade Balance and promoting overseas expansion of the ICT and digital industries include the shortage of ICT human resources, the lack of growth funds for overseas expansion, the lack of recognition of Mongolia's ICT brand, and the lack of statistics on the ICT industry.

To address this issue, the ITC supports the formulation of Export Strategy, and the EBRD provides support for overseas expansion (mainly in Europe) to some companies in its acceleration program. Resources that can be used by the Japanese side include the programs and institutions listed in the table below in a wide range of areas, such as building support systems for overseas expansion, raising awareness, supporting human resource development, and developing statistics.

Given the magnitude of the challenges, there is currently little support from development partners and multiple resources available on the Japanese side. Therefore, improving the Digital Trade Balance is considered to be a priority area for this survey.

Table 23 Step 2: Evaluation of Priority Research Areas for the Mongolian Government and JICA's Support Measures (Digital Trade Balance)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Result: Priority Research Area
		Presence of Development Partners: Yes/No	Availability of Japanese Support Resources: Yes/No	
Digital Trade Balance	• Shortage of ICT human resources • Lack of growth capital for overseas expansion • Lack of recognition of Mongolia's ICT brand • Lack of ICT industry statistics	Yes: • ITC (Export Strategy Formulation) • EBRD Accelerator Program (Star Venture)	Yes: • Building support systems for overseas expansion of the ICT and digital industries and raising their recognition (branding, etc.): Achievements of J-Startup certification measures by the Ministry of Economy, Trade and Industry and JETRO in Japan • Human Resources Development for Overseas Expansion of ICT and Digital Industries: JDLA cooperating with DXCUP, Nagaoka College of Technology developing industrial DX human resources through JICA Grassroots Technical Cooperation • Promoting Collaboration between ICT and Digital Industries and Overseas Ecosystems: Shinagawa Ward and Other Local Governments in Japan • Development of statistics related to ICT and digital industries: the Ministry of Internal Affairs and Communications of Japan, etc., for estimating digital trade balance	Priority Research Area

(c) Direction of Support Measures by the Mongolian Government and JICA

As support measures for improving the digital balance and promoting the overseas expansion of ICT and digital industries, technical cooperation projects that aim for five outcomes corresponding to specific issues can be considered, as shown in the table below. The C/P is assumed to be the MDDIC, which oversees the entire digital industry, and IT Park, which is responsible for the overseas expansion of the digital industry.

Table 24 Step 3: Direction of Measures by the Mongolian Government and JICA (Digital Trade Balance)

Theme	Evaluation result		Direction of JICA's Cooperation			
	Scale of Challenges	Priority Research Area	Support Menu	Main activities	Proposed scheme	Counterpart
Digital Trade Balance	Serious	Priority Research Area	Project to Support Overseas Expansion of Mongolian ICT and Digital Industries	• Establishing a support system for overseas expansion of Mongolian ICT and digital industries (formation of working groups, etc.) • Raising awareness of Mongolia's ICT and digital industries overseas (branding, etc.) • Developing human resources that will contribute to the overseas expansion of Mongolia's ICT and digital industries (technical and business training, etc.) • Promoting cooperation between Mongolian ICT and digital industries and overseas ecosystems (conclusion of MoU, Japan mission, business matching, etc.) • Maintaining statistics on Mongolian ICT and digital industries (especially overseas transactions)	Technical cooperation project	MDDIC, IT Park, National Statistics Office, Central Bank of Mongolia

3) e-Government

(a) Challenges

Challenges in e-Government will be analyzed based on two aspects: (1) onlineization of administrative services and (2) the e-Government index.

(1) Digitalization of Administrative Services

The analysis of the digitalization of administrative services evaluates from both the service provider's perspective and the user's perspective.

From the service provider's point of view, the Mongolian government's Vision 2050 aims to digitalize 90% of administrative services (making over 800 procedures available online) by 2024. As of 2022, 994 services were provided online, resulting in a reduction of operating costs within the government by USD 30 million (approximately JPY 4.5 billion) and a 30% decrease in complaints related to corruption and bribery. Additionally, private sector services are integrated into the e-Mongolia platform. According to the state-owned enterprise E-Mongolia Academy, which operates e-Mongolia, as of April 2024, the platform provides 1,173 services, of which 60–70% are government services and 30–40% are services offered by private companies²⁴.

From the user's perspective, an analysis based on the utilization rate, such as the number of registered e-Mongolia users, shows that, two years after its launch, approximately 1.7 million people (around 51% of the population) are already using the platform. As analyzed in Chapter 3, Section 3. (1), the breakdown of users shows that e-Mongolia is widely used across various age groups, primarily by people in their 20s and 30s, but also by teenagers and those aged 50 and above. In terms of regional usage, users are roughly evenly split between those in Ulaanbaatar and those in rural areas. This indicates that e-Mongolia has also gained traction in rural areas, where access to administrative services is typically limited.

To further increase the utilization rate of e-Mongolia, challenges such as the digital divide (affecting the elderly and nomadic populations) are anticipated. It is desirable for the Mongolian government to set clear goals for promoting the use of online administrative services. Considering that promoting the use of e-Mongolia is an essential element in advancing e-Government and fostering the domestic ICT industry, its strategic importance is assessed as "high."

On the other hand, while the achievements in providing (supply-side) e-Government services via e-Mongolia are recognized to a certain extent, there is room for improvement in terms of promoting usage (demand-side) of these services. Therefore, the severity of the challenges is assessed as "medium." Given that the Mongolian government is actively advancing e-Government initiatives with the support of other donors—such as ongoing projects by the ADB and WB for e-Government and smart government development—the overall magnitude of the challenges is also evaluated as "medium."

(2) e-Government index

There are no specific targets set by the Mongolian government regarding the e-Government Index. Mongolia ranked 92nd out of 193 member states in both 2018 and 2020, but since the launch of the e-Mongolia initiative, its ranking improved to 74th in 2022. On the other hand, hearings conducted with various ministries (such as the Ministry of Food, Agriculture and Light Industry, the Ministry of Health, and the Ministry of Roads and Transport) revealed that while each ministry is working on e-Government initiatives, there is no concrete top-down strategy provided by the MDDIC to guide e-Government efforts, leading to a lack of inter-ministerial collaboration. Furthermore, through these hearings, it was identified that low digital literacy among administrative staff (including local government employees) and a shortage of digital personnel (ICT experts) within ministries are also significant challenges.

This section focuses on the lack of inter-ministerial collaboration. The Mongolian government aims to promote the ICT industry, and increasing public projects commissioned by the government is crucial as an initial step in industrial promotion. Currently, there is no unified policy at the government level, and no system procurement or other measures have been implemented to accelerate e-Government development across sectors and nationwide.

Based on these findings, improving the e-Government Index requires not only the MDDIC but also collaboration among other entities such as the Ministry of Health, the Ministry of Agriculture, the National Statistics Office, and local governments. By jointly developing and expanding e-Government services, these efforts can increase opportunities for domestic ICT companies to participate in service development.

Therefore, the expansion of government electronic services is a fundamental element for promoting the domestic ICT industry, and its strategic importance is assessed as "high." However, the digitalization of administrative services within each ministry has not progressed significantly, and challenges such as the lack of inter-ministerial collaboration centered on the MDDIC, as well as shortages of personnel within individual

²⁴ Hearing with E-Mongolia Academy (April 23, 2024)

ministries, persist. As a result, the severity of these challenges is also assessed as "high."

On the other hand, existing initiatives include sector-specific efforts such as digitalization support provided to the Ministry of Health by WHO and to the Ministry of Agriculture by FAO. These examples indicate progress in individual sectors. Taking these factors into account, the overall magnitude of the challenges is assessed as "medium."

Table 25 Step 1: Evaluation of Challenges (e-Government)

Theme	Gap Between Goal and Current Status			Challenges	Evaluation of Challenges			Scale of the Challenge (High, Medium, Low)
	Goal	Current	Source		Strategic Importance	Severity	Existence of Initiatives	
Online Government Services	90% of government services have been digitalized.	• 994 government services were digitalized (as of 2022).) • Number of registered e-Mongolia users: 1.7 million.	Goal: Vision 2050 Current Status: e-Mongolia Academy	It is necessary to set goals not only for the provision of services by the government but also for promoting the utilization of services in the digitalization of government services.	High: Promoting the use of e-Mongolia is an essential element for advancing e-government and fostering the domestic ICT industry.	Medium: While achievements in the provision (supply) of e-government services through e-Mongolia have been recognized to a certain extent, there is significant room for improvement in promoting usage (demand).	Yes: Projects for e-government and smart government are currently being implemented by organizations such as ADB and WB.	Medium
e-Government index	(No target set)	74th out of 193 countries	Current: UN Department of Social and Economic Affairs	The challenge is to expand opportunities for domestic ICT companies to participate in service development through the development and enhancement of e-government services across the entire government.	High: The expansion of government e-services is a fundamental element for fostering the domestic ICT industry.	High: The digitalization of administrative services in each ministry has not progressed sufficiently. Challenges include the lack of inter-ministerial coordination led by the MDDIC, as well as a shortage of personnel within individual ministries.	Yes: Individual ministries are implementing digitalization support through assistance provided by organizations such as WHO for the Ministry of Health and FAO for the Ministry of Agriculture and Livestock.	Medium

(b) Key Research Areas for the Mongolian Government and JICA's Support Measures

(1) Digitalization of Administrative Services

One of Mongolia's development partners is Estonia. The Estonian government has participated in the Mongolia Economic Forum, and since the establishment of e-Mongolia, the Mongolian government has modeled its e-Government efforts on e-Estonia. Currently, Estonia's e-Governance Academy is working in collaboration with the MDDIC to enhance the ICT capabilities of Mongolian government officials, train experts, formulate strategies to promote government digitalization, and strengthen cybersecurity.

Additionally, the World Bank is implementing the Smart Government Project II (2023–2027, with an IDA credit of USD 40.7 million, approximately JPY 6.1 billion). This project supports the improvement of Mongolia's

legal frameworks and regulations to enhance server security and establish cybersecurity measures as digitalization progresses²⁵.

Additionally, the ADB is implementing the e-Government and Digital Transformation Project, supporting the MDDIC as its counterpart, like other development agencies, to execute the Digital Nation initiative. (Project name: e-Government and Digital Transformation (Technical Assistance) / Duration: December 2022–December 2025 / Support scale: USD 1 million, approximately JPY 149 million). Specifically, the project provides technical assistance in the following areas: 1. redesigning systems to improve the environment for utilizing online administrative services, 2. enhancing cybersecurity capabilities, and 3. supporting stakeholders in adapting to digitalization.

The project overview highlights that many development agencies are actively supporting Mongolia's e-Government efforts by enhancing security capabilities, improving ICT skills, and formulating strategies. However, there has been no specific support to address challenges such as promoting the use of e-Mongolia among nomadic populations and the elderly, as well as encouraging usage through government-led initiatives. To tackle similar challenges, Japan's Cabinet Office has implemented the Digital Garden City Nation Initiative. This initiative aims to "resolve regional challenges through digital implementation, ensuring that no one is left behind and that everyone can enjoy the benefits of digitalization, leading to a fulfilling life." As part of this effort, digitalization experts are deployed to local governments to promote digitalization and address regional challenges, particularly in areas with a high proportion of elderly residents. Measures under this initiative include the deployment of National Digitalization Promotion Managers to support these activities.

Such Japanese initiatives to bridge the digital divide between urban and rural areas could serve as a valuable reference for Mongolia. Specifically, Mongolia could consider leveraging local governments to take the lead in addressing the digital divide faced by nomadic populations and the elderly.

(1) e-Government index

As development partners, sector-specific development partners are providing support for the digitalization efforts of various ministries. From a hearing with the Ministry of Health, it was confirmed that plans for digitalization in the health sector are being formulated and implemented in collaboration with the WHO. Under the support of the WHO, the Vision 2050 policy outlines the digitalization of the health sector, and currently, the Ministry of Health is formulating short-term ICT strategies aligned with this policy for implementation by 2050.

Similarly, a hearing with the Ministry of Food, Agriculture, and Light Industry revealed that an IT system assessment for the food, agriculture, and light industry sectors is being conducted with support from the FAO. Additionally, an application has been developed to monitor the natural conditions of the highlands for nomadic populations. This satellite data processing system, called the Sustainable Fodder Management System, which observes natural conditions in the highlands, was created with support from the ADB.

In terms of Japan's development resources, initiatives such as the national strategy outlined in the Priority Plan for Realizing a Digital Society announced by the Digital Agency, as well as efforts to open legal and regulatory data and enable private companies to conduct administrative procedures through the "e-Gov Portal," are noteworthy. These national strategies for digitalization could be beneficial when considering future policies for the development and expansion of e-Government services in Mongolia and the promotion of the domestic ICT industry. Similarly, the e-Gov Portal initiative could also serve as a reference for Mongolia's e-Mongolia initiative.

²⁵ [Smart Government Project II website](#) (August 2024 Accessed)

Table 26 Step 2: Evaluation of the Priority Research Areas for the Mongolian Government and JICA's Support Measures (e-Government)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Result: Priority Research Area
		Presence of Development Partners: Yes/No	Availability of Japanese Support Resources: Yes/No	
Online Government Services	In the digitalization of government services, it is essential to set goals not only for the provision of services by the government but also for promoting the utilization of these services.	Yes: World Bank, Estonia, ADB, APCICT	Yes: Cabinet Office's "Digital Garden City Nation Initiative"	—
e-Government index	The challenge is to expand opportunities for domestic ICT companies to participate in service development through the development and enhancement of e-government services across the entire government.	Yes: WHO, FAO, ADB	Yes: Digital Agency's "e-Gov Portal" (Electronic Procedures, Legal Search, etc.) Digital Agency's "Priority Plan for Realizing a Digital Society"	—

4) ICT and Digital Human Resources

(a) Challenges

Challenges related to the development of ICT and digital human resources can be analyzed from three perspectives: (1) digital literacy of the citizens from the demand-side perspective, and (2) the quantity and (3) the quality of ICT human resources from the supply-side perspective.

(1) Digital literacy of the citizens

The population capable of using online banking and e-commerce stands at 27%²⁶, indicating that challenges remain in terms of digital literacy. However, regarding the population capable of using the internet for information gathering or data storage, the achievement rate relative to the target set in Digital Nation—50% by 2027—was already at 43.8% as of 2021, exceeding 80% of the target. Based on this²⁷, the severity of the issue is assessed as "low."

In the promotion of the ICT industry, improving the quantity and quality of the supply side is considered more critical. Therefore, the strategic importance of addressing digital literacy, which is a demand-side issue, is assessed as "medium." Efforts to improve digital literacy have been ongoing, such as the development of internet environments in schools under the e-Mongolia National Program initiated in 2005, and the distribution of ICT equipment to schools and ICT training for teachers based on the Master Plan for Education Development 2006–2015 introduced in 2006. Taking these results into account, the scale of the challenge is assessed as "low."

(2) Quantity of ICT Human Resources

As indicated in Chapter 3, Section 3. (1)(e), the number of employees in the ICT industry in 2020 was 13,900, while the number of job openings was 1,600^{28,29}. On the other hand, as will be discussed later in Chapter 5, Section 2. (1), according to data held by the Ministry of Education, the number of graduates specializing in ICT in the 2019–2020 academic year was 591. Based on this, the achievement rate for job openings in 2020 can be estimated at 37%.

Considering the expected increase in demand for human resources in the future, the supply-demand gap is likely to become more severe, and the severity of the issue is assessed as "high." Furthermore, human resources are a critical issue forming the foundation of industrial promotion, and their strategic importance is also assessed as "high."

²⁶ MDDIC (2022), "Digital Nation Approval Guidelines"

²⁷ Ibid

²⁸ [BAROMETER SURVEY ON LABOR MARKET DEMAND \(2019\)](#)

²⁹ [Brief Presentation on ICT Statistics Experiences of Mongolia\(2019\)](#)

To analyze the presence or absence of existing initiatives, the challenges at each step of the development process for improving the quality and quantity of ICT human resources are organized as shown in the diagram below.

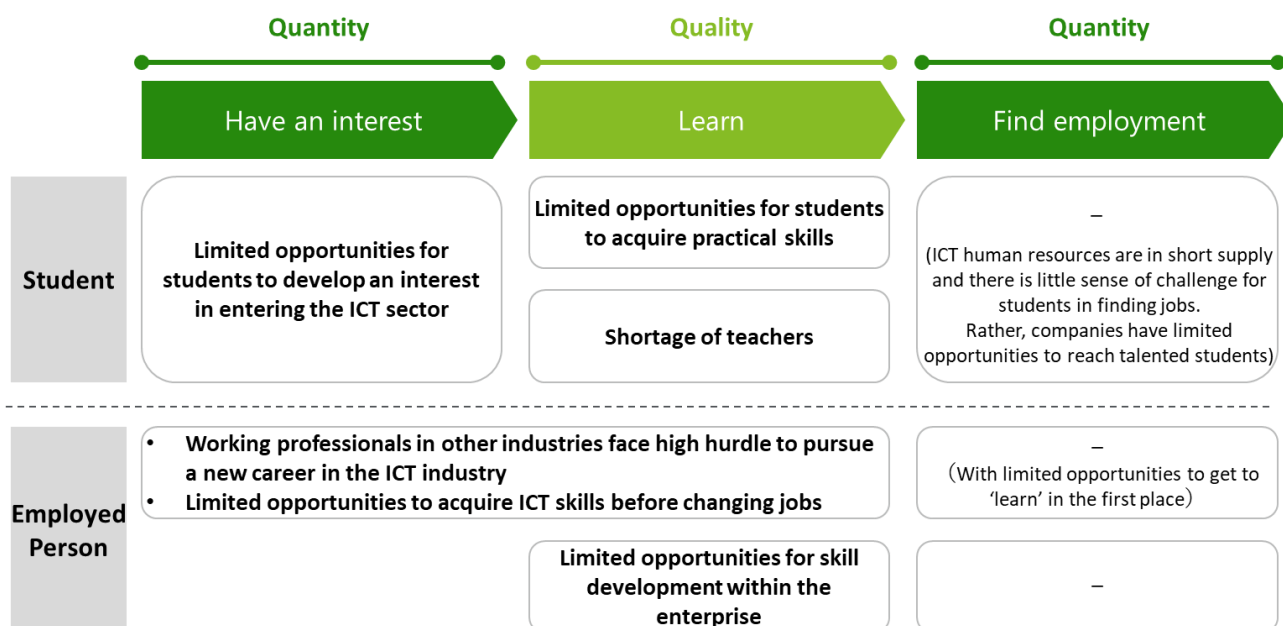


Figure 30 Challenges in steps for human resource development in ICT Sector

To increase the quantity of human resources, it is first necessary to increase the number of students enrolling in ICT-related fields. Regarding the employment of students who have graduated, there is a challenge in terms of limited opportunities to learn about companies. However, as the ICT market is a seller's market, students do not perceive this as a significant issue. Rather, companies are seeking ways and opportunities to reach a larger pool of talented students. As for initiatives to enhance students' interest, the Export Strategy 2.1.3 has proposed "Conduct school awareness programmes to expand interest in IT jobs" as a future measure. While the leading organization for this initiative has not been clearly defined, it is under consideration for the Ministry of Education to partner in providing awareness sessions primarily targeted at students aged 15 to 18. Additionally, to increase the quantity of human resources, it would be effective not only to focus on students but also to involve working professionals from other industries. However, at present, there are no reskilling programs for professionals, and the hurdles for transitioning to the ICT industry remain high. Taking these circumstances into account, the severity of the issue is assessed as "high."

(3) Quality of ICT Human Resources

As indicated in Chapter 3, Section 3.(1), the "Survey on Skills Demand in Mongolia" (2022)³⁰, conducted by the Ministry of Labor and Social Protection, pointed out two key issues: first, the overall ICT skills of working professionals are insufficient, and second, even within ICT companies, the technical skills of human resources do not meet the required standards.

In the company survey conducted during the first ICT and Digital Human Resources Job Seminar (PP2) as part of this study, more than 80% of companies responded that the students they hire meet the required technical skills. However, based on the results of interviews with local companies, the reality is that due to a shortage of human resources, companies hire students with a certain level of technical skills and spend several years training them after they join the company (for details, refer to Chapter 7, Section 2. (3), Analysis of the Survey from the First ICT and Digital Human Resources Job Seminar).

Furthermore, in the same survey, the percentage of companies satisfied with students' soft skills was slightly over 60%, which is lower than the level of satisfaction with technical skills. In this report, soft skills are defined as the fundamental abilities and characteristics that serve as a foundation for carrying out work.

Regarding the lack of practical skills among students (both technical and soft skills), as shown in the diagram above, this issue can be attributed to two factors: the limited opportunities to acquire practical skills in school

³⁰ [Skills Demand in Mongolia \(2022\)](#)

education, and the insufficient number of high-quality teachers capable of appropriately supervising graduation research. For working professionals, it is assumed that a challenge lies in the limited availability of in-company training programs aimed at improving skills.

Similar to "(2) Quantity of ICT Human Resources," the quality of ICT human resources is a critical issue that forms the foundation of industrial promotion. Therefore, its strategic importance is assessed as "high." Although the severity of the issue cannot be measured quantitatively, considering the current situation of skill insufficiency, it is assessed as "medium."

Regarding the presence of existing initiatives, in terms of providing students with opportunities to acquire practical skills, efforts are primarily undertaken individually by each educational institution. However, as a future government initiative, the Export Strategy 2.1.5 outlines plans to "Establish a Public-Private IT Skill Development Council and conduct periodic meetings," led by the Ministry of Education. Nonetheless, the purpose of the council and the methods for its deliberations remain undefined. Additionally, since December 2022, the MDDIC has been implementing a Cybersecurity Human Resource Development Project through a JICA technical cooperation project, which is planned to continue until November 2026. This initiative aims to enhance cybersecurity education in Mongolia by building a public-private-academic partnership network for cybersecurity human resource development and developing cybersecurity education programs for students, current lecturers, and public officials.

Furthermore, as for the development of high-quality teachers, there are currently no major initiatives in place. Regarding in-company training programs for skill improvement, the Export Strategy 2.1.6 proposes "Support on-the-job training and apprenticeship schemes." This includes plans to investigate the current situation of low-skilled workers and consider financial support schemes, such as providing training subsidies to companies, led by the MDDIC.

While several government initiatives are planned, there are not many existing initiatives at this point. Taking into account these circumstances, along with other evaluation results, the severity of the issue is assessed as "high."

Table 27 Step 1: Evaluation of Challenges (ICT and Digital Human Resource Development)

Theme	Gap between goal and current status			Challenges	Evaluation of challenges			Scale of Challenges (High, Medium, Low)
	Goal	Current	Source		Strategic Importance	Severity	Existence of Initiatives	
Digital Literacy of Population	50% (2027)	43.8% (2021) However, only 27% of the population can use online banking or e-commerce.	Goal/Current Status: Digital Nation (Household Survey)	The digital literacy of the population is not high.	Medium: Developing the supply side is more important than merely improving consumer digital literacy.	Low: Over 80% of the target value has been achieved.	Yes: 2005 e-Mongolia National Program 2006-2015 Master Plan for Educational Development	Low
Quantity of ICT human resource development	— (Export Strategy refers to 2.1 Increase the talent pool, but no specific numerical targets are set.)	As of 2020: Job fulfillment rate is approximately 37% (1,600 ICT job openings in 2020 vs. 591 ICT graduates in 2019-2020).	Current Status: Job openings are based on public reports, while ICT graduate numbers are from interviews with the Ministry of Education.	Shortage of ICT personnel. The factors include: - Students: Limited opportunities to develop an interest in pursuing studies in the ICT field. - Working Professionals: Lack of reskilling programs.	High: Talent is a core issue for industrial development.	High: The estimated job fulfillment rate in 2020 is 70%, but the number of ICT graduates remains at 591. Considering the increasing future demand for talent, the supply-demand gap is expected to worsen.	For Students: No (Future plan: Export Strategy 2.1.3 - Conduct school awareness programs to expand interest in IT jobs.) For Working Professionals: No	High
Quality of ICT human resource development	— (Export Strategy refers to 2.1 Increase the talent pool, but no specific numerical targets are set.)	Many companies report a lack of both technical and soft skills among employees.	Current Status: • Technical Skills: Based on the "Survey on Skills Demand in Mongolia" (2022). • Soft Skills: Based on the questionnaire conducted in this study.	Low quality of ICT personnel. The factors include: - Students: Lack of opportunities to acquire practical skills - Teachers: Shortage of teachers • - Employed person: Lack of in-company skills enhancement training	High: Talent is a fundamental and critical issue for industrial development. Moreover, improving talent skills can accelerate ICT industry growth.	Medium: While it cannot be quantitatively evaluated, the current skills shortage warrants a "Medium" assessment.	• Common to students, teachers, and working adults: Yes JICA Technical Cooperation: Cybersecurity talent development. • For Students: None (Future plan: Export Strategy 2.1.5. Establish a Public-Private IT Skill Development Council and conduct periodic meetings.) • For Teachers: None • For Working Professionals: None (Future plan: Export Strategy 2.1.6. Support on-the-job training and apprenticeship schemes.)	High

(b) Key Research Areas for Policy Consideration by the Mongolian Government and JICA

(1) Quantity of ICT Human Resources

As a common support measure for both the quantity and quality of human resources, the ADB is assisting the Ministry of Education in the formulation and implementation of the Education Sector Mid-Term Development Plan 2021–2030. For an overview of the project, please refer to Chapter 5, Section 1. (6).

In addition to planning and implementing educational sector initiatives, activities aimed at increasing ICT human resources include the co-hosting of the Employment Fair – 2024 in May 2024³¹, in collaboration with the Ministry of Labor and Social Protection and the International Organization for Migration (hereinafter IOM) Mongolia, during the Misheel Expo business fair held in Ulaanbaatar. However, it remains unclear whether this initiative will continue. For details, please refer to Chapter 5, Section 2. (4). Furthermore, as mentioned earlier, Google is promoting the Grow with Google Mongolia Project in collaboration with the MDDIC, with the goal of developing 1,000 ICT professionals.

Regarding Japanese resources that can be leveraged for Mongolia's initiatives, one example is the Japanese-style joint job fairs, which aim to increase the number of students pursuing careers in the ICT field. However, since ICT professionals are in a seller's market, merely providing students with job opportunities offers limited value. The primary value lies in enabling students to gain a deeper understanding of companies, reducing mismatches in the job-hunting process, and allowing companies to secure talented students.

For programs promoting the reskilling of working professionals, examples include Tokyo Metropolitan Government's "Digital College Tokyo" and the Ministry of Economy, Trade and Industry's "ReSkill Courses." Details of these programs are discussed in Chapter 5, Section 2. (5), "Japanese Support Resources for ICT and Digital Human Resource Development."

(2) Quality of ICT Human Resource

There are no notable initiatives by development partners specifically focused on improving the quality of ICT human resources. On the other hand, from the perspective of providing opportunities for students to acquire practical skills, there are several Japanese support resources that could be utilized. For example, JICA has experience in operating the DX CUP, a business contest for Mongolian students, as part of the pilot projects under this study. Additionally, JICA has implemented curriculum development through technical cooperation and ICT human resource development programs in various countries via grassroots and technical cooperation projects.

Currently, in Mongolia, JICA is conducting the aforementioned technical cooperation project, the "Cybersecurity Human Resource Development Project", as well as the Grassroots Technical Cooperation project titled "Building an Industrial DX Human Resource Development Platform for Industrial Transformation in Mongolia and Niigata". Moreover, study abroad schemes in Japan could serve as one potential solution to address the shortage of qualified teachers in Mongolia.

³¹ IOM [press release](#) (Accessed on July 4, 2024)

Table 28 Step 2: Evaluation of the Priority Research Areas for the Mongolian Government and JICA's Support Measures (ICT and Digital Human Resource Development)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Result: Priority Research Area
		Presence of Development Partners: Yes/No	Presence of Development Partners: Yes/No	
Quantity of ICT human resource development	Shortage of ICT personnel. The factors include: - Students: Limited opportunities to develop an interest in pursuing studies in the ICT field. - Working Professionals: Lack of reskilling programs.	Yes: IOM will hold an Employment Fair with Mongolia in May 2024. Google (Growth with Google Mongolia Projects) ADB, involved in the creation and implementation of the Medium-Term Development Plan for the Education Sector 2021-2030, addressing both the quantity and quality of ICT personnel.	- For students: Yes Japanese-style Joint Employment Explanatory Meeting (Job Seminar)	Priority Research Area
			- For working professionals: YES Tokyo Metropolitan Government's 'Digital College TOKYO' (provides free ICT courses and employment support for job seekers under the age of 35) - Ministry of Economy, Trade and Industry's 'Re-Skill Courses' (a system where the Minister of Economy, Trade and Industry certifies specialized and practical educational training courses)	
Quality of ICT human resource development	Low quality of ICT personnel. The factors include: - Students: Lack of opportunities to acquire practical skills - Teachers: Shortage of teachers - Working Professionals: Lack of in-company skills enhancement training	Yes: ADB, involved in the creation and implementation of the Medium-Term Development Plan for the Education Sector 2021-2030, addressing both the quantity and quality of ICT personnel.	- For students: Yes Business plan competitions for students such as DX CUP Industry-academia collaboration initiatives in the ICT field Curriculum development through technical cooperation projects (currently implementing technical cooperation for cybersecurity personnel training in Mongolia)	Priority Research Area
			- For teachers: Yes JICA's ICT personnel training programs through grassroots and technical cooperation projects (study abroad programs to Japan)	
			For teachers: Yes	

(c) Direction of Support Measures by the Mongolian Government and JICA

Based on the analysis up to Step 2, the activities outlined in the table below are considered effective as the direction of JICA's support for improving the quantity and quality of ICT human resources.

Table 29 Step 3: Direction of Measures by the Mongolian Government and JICA (ICT and Digital Human Resource Development)

Theme	Evaluation		Direction of JICA Support			
	Scale of challenges	Evaluation of priority	Support Menu	Main Activities	Scheme	Counterpart
Quantity of ICT human resource development	High	Priority Research Area	Encouragement to pursue studies in the ICT field	Development of content and implementation of activities to promote the pursuit of studies in the ICT field for students before entering university or technical college. *In collaboration with Export Strategy 2.1.3: Conduct school awareness programs to expand interest in IT jobs	Technical Cooperation	Ministry of Education
			Provision of employment opportunities for students and talent acquisition opportunities for companies	Continuation of Job Seminars as an opportunity of job matching (PP2 activity in this project)	- (Handed over to local institutions)	MOJC
			Development of reskilling programs for working professionals	- Support for the development of government-led ICT reskilling programs for working professionals and the establishment of a delivery system. - Support for the development of a government support scheme for institutions capable of providing reskilling programs.	Technical Cooperation	Ministry of Education
Quality of ICT human resource development	High	Priority Research Area	Industry-Government-Academia Consortium & Development of Practical Curriculum	First Step - Establish an industry-government-academia consortium and build a sustainable operational system. *In collaboration with Export Strategy 2.1.5: Establish a Public-Private IT Skill Development Council and conduct periodic meetings. Second Step - Develop a system for curriculum development that incorporates industry opinions. Promote the implementation of industry-academia joint projects	Technical Cooperation	MDDIC, Ministry of Economy and Development, Cabinet Secretariat, Ministry of Education, Ministry of Family, Labour and Social Protection
			Hosting business contests for students	Continuation of DX CUP (PP4 activity in this project).	- (Handed over to local institutions)	DX Mongolia
			(To address the shortage of teachers) Establishment of study abroad or internship programs in Japan	Establish study abroad/internship schemes in Japan.	Long Term Training	Ministry of Education
			(To address the shortage of teachers) Support for establishing a system to provide online classes from Japan	Securing partner universities in Japan and establishing a system for providing online classes by universities in Mongolia.	Technical Cooperation	Ministry of Education

2. Building a Startup Ecosystem

The challenges in building the SU ecosystem were analyzed from five perspectives: 1) Human Resource, 2) Business Development, 3) Financial Access, 4) Startup-friendly Laws, Regulations and Policies, and 5) Global/Local Network of Ecosystem players.

Overview of SU Ecosystem and Key Research Areas

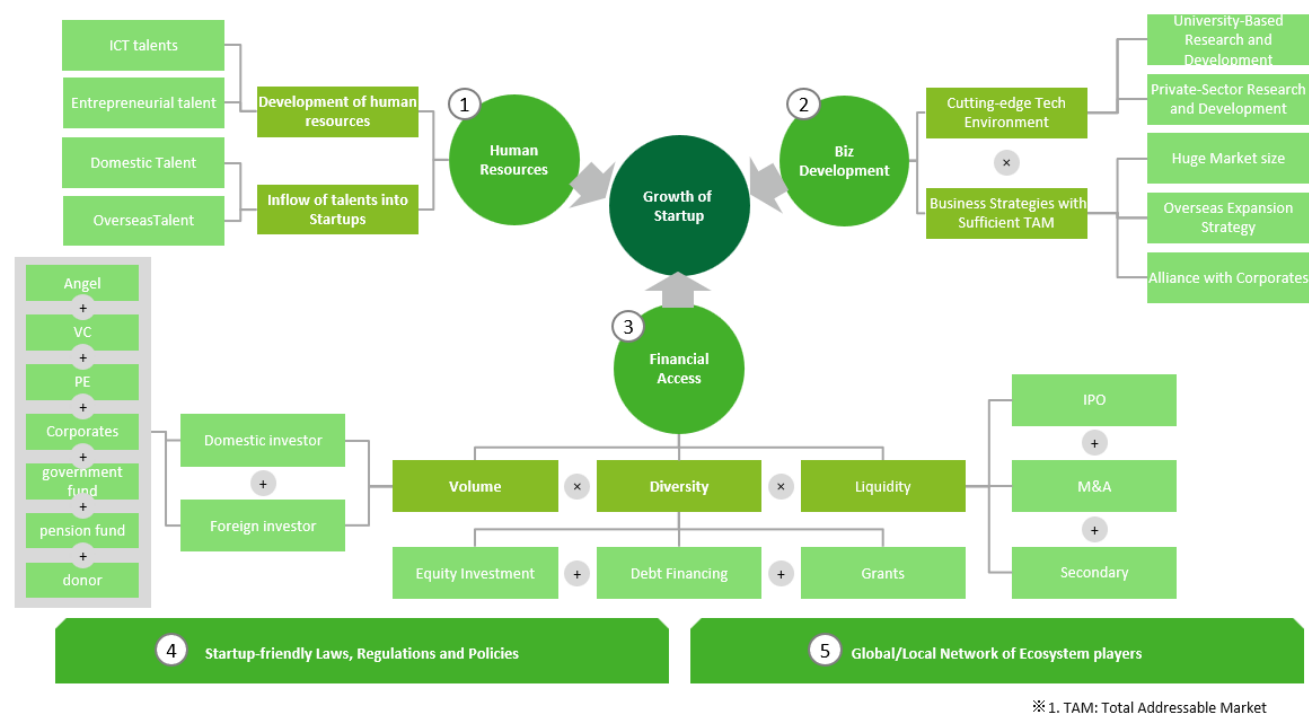


Figure 31 Overview of the Startup Ecosystem

1) Human Resources

(a) Challenges

The Human Resources is composed of two perspectives: 1. Development of human resources and 2. Inflow of talents into startups.

1. Development of Human Resources

With regard to the 1. Development of Human Resources the analysis was conducted from the following perspectives:

- 1-1. Education of ICT Talent
- 1-2. Education of Entrepreneurial Talent

1-1. Education of ICT Talent

The topic of 1-1. Education of ICT Human Resources is further addressed in Chapter 4.1 (4): ICT/Digital Human Resources.

1-2 Education of Entrepreneurial Talent

1-2 Education of Entrepreneurial Talent has been evaluated as having high strategic importance, high severity, and a high overall level of challenge.

While some higher education institutions, such as the National University of Mongolia (hereinafter NUM) and the MUST, offer entrepreneurial development programs, the number of startups originating from these universities remains limited, and the content of these programs is insufficient.

The cultivation of entrepreneurial talent is critical for producing unicorn startups and significantly impacts the startup ecosystem as a whole, which is why the strategic importance is rated as "high." Furthermore, the difficulty in producing entrepreneurs capable of building scalable businesses is a serious issue, resulting in a rating of high severity. Consequently, the overall challenge is also rated as "high."

2. Inflow of talents into startups

2. Inflow of talents into startups is analyzed from two perspectives:

- **2-1. Inflow of Domestic Talent**
- **2-2. Inflow of Overseas Talent**

Startups require two broad categories of talent:

- CxO-level Talent: Executives with leadership and strategic expertise
- Other Talent: Engineers (ICT professionals), sales and marketing personnel, and administrative staff.

The following sections detail the challenges related to recruitment and retention for both categories.

2-1. Inflow of Domestic Talent

For CxO-level talent, the strategic importance is rated as "low," the severity as "medium," and the overall challenge as "medium." Startups seek experienced professionals from large domestic companies; however, the small talent pool leads to intense competition, making recruitment difficult.

For other talent, recent graduates generally show little resistance to entrepreneurship, with some joining startups or even launching their own businesses. Among mid-career professionals, job mobility is high, with many individuals changing jobs every 2–3 years.

Recruitment methods primarily include talent matching services, personal networks, and direct approaches via social media, with some reports indicating successful hiring. However, concerns remain regarding the quality of domestic talent in terms of business skills and commitment to projects. Cultural factors, such as a low resistance to resignation, also result in high retention costs. These issues highlight challenges in hiring and retaining skilled talent for long-term contributions.

Given the difficulty of significantly increasing the domestic talent pool at the CxO level and the need for broader improvements in the quality and work culture for other talent (engineers, sales and marketing professionals, administrative staff), short-term solutions are limited. As a result, the strategic importance is rated as "low." While CxO-level recruitment may take over a year, recruitment of other talent is currently manageable, leading to a medium severity rating and an overall challenge rating of "medium."

2-2. Inflow of Overseas Talent

The strategic importance is rated as "low," the severity as "medium," and the overall challenge as "medium." While obtaining work permits in Mongolia is not overly difficult, the inflow of foreign or overseas-experienced talent into startups remains limited.

For international expansion, startups require individuals with local networks and the ability to conduct sales and marketing (e.g., foreign nationals or Mongolians with overseas experience). However, the lack of connections makes recruitment challenging.

Regarding the assessment of challenges, while overseas talent is critical for international expansion, it represents only one part of the broader challenges associated with global growth. Other challenges are relatively more significant, and alternative approaches, such as joint ventures (JVs) or partnerships with local companies, can serve as substitutes or supplements. Consequently, the strategic importance is rated as "low," the severity as "medium," and the overall challenge as "medium."

Table 30 Step 1: Evaluation of Challenges (Startup ecosystem construction 1. Human Resources)

Theme		Gap between the target and the current situation			Challenges	Evaluation of Challenges			Evaluation results: Problem size (High/Medium/Low)
		Goal	Current	Source		Strategic Importance	Severity	Existing Initiatives	
1. Development of Human Resources	1-1 Education of ICT Talent	In accordance with Chapter 4.1 (4): ICT/Digital Human Resources							
	1-2 Education of Entrepreneurial Talent	- No quantitative targets have been set in Vision 2050, citing the World Bank's Entrepreneurship Indicators, but limited indicators related to women's entrepreneurship	▪ Some higher education institutions, such as NUM and UST, provide support for business idea creation and startup, but do not provide support for business expansion	▪ JICA Report (2023) ³² ▪ SUs applying for MONJA ▪ On-Site hearings	▪ Start-up-related support has been provided, but it has not produced significant results. Few educational institutions can provide high-quality programs related to innovation and entrepreneurship	High: Entrepreneurial talent is an essential element of the ecosystem and has great strategic importance.	High: The seriousness of the current situation is that we have not been able to produce entrepreneurs with scalable business models.	Yes: ▪ NUM, MUST and UFE Offers Unique Entrepreneurship Education Programs ▪ Implementation of a program to dispatch human resources to Japan in cooperation with three national universities (NUM, MUST, MULS)	High
2 Inflow of Talents into Startups	2-1 Inflow of Domestic Talent	-	▪ The number of CxO human resources is small and competition rate is high. ▪ There are few engineers and sales personnel in the market, and retention is difficult.	▪ On-Site hearings	▪ Few qualified CxO personnel in Mongolia ▪ Other human resources are limited in terms of commitment and skills.	Low: ▪ Fundamental expansion of CxO talent is difficult and a low strategic priority ▪ Similarly, it is difficult to raise the level of human resources and improve the working culture for other human resources.	Medium: ▪ CxO adoption can take up to a year or more, so the severity is high ▪ Regarding the recruitment of other human resources, the level of	No	Medium

							severity is currently medium. .		
	2-2 Inflow of Overseas Talent	-	The degree of difficulty in obtaining a work permit is not high, but foreign nationals and people with overseas backgrounds have not been able to flow into SU in the first place.	On-Site hearings	There is no network to recruit people with local networks	Low: Although it is important from the viewpoint of overseas expansion, it is relatively small due to the positioning of some elements and other major issues.	Midium: JV and partnership with local companies are more important for overseas expansion, and overseas recruitment is not a necessary condition.	No	Medium

(b) Focus Areas in the Survey for Support Measures by the Mongolian Government and JICA
Regarding 1-2. Education of Entrepreneurial Talent, no activities by development partners is identified. Japan's support resources include the Entrepreneurship Education Initiative (Ministry of Education, Culture, Sports, Science and Technology), FoundX (University of Tokyo), the Waseda Institute for Strategic Studies on Open Innovation (Waseda University), and J-Star (Ministry of Economy, Trade and Industry). This area was selected as a priority for research due to the scale of the issue and the abundance of support resources available.

Table 31 Step 2: Evaluation of the Priority Research Areas for the Mongolian Government and JICA's Support Measures (Startup Ecosystem Construction 1. Human Resources)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Results: Priority Research Areas
		Development partners: Yes/No	Availability of Japanese support resources: Yes/No	
1-2 Education of Entrepreneurial Talent	Start-up-related support has been provided, but it has not produced significant results. Few educational institutions can provide high-quality programs related to innovation and entrepreneurship	No	Yes - Measures to promote entrepreneurship education (Ministry of Education, Culture, Sports, Science and Technology) - FoundX (University of Tokyo) - Institute for Strategic Research on Open Innovation (Waseda University) - University-originated accelerator (JICA) - J-StarX (Ministry of Economy, Trade and Industry) - Japan Innovation Campus (Ministry of Economy, Trade and Industry)	Priority research area

(c) Mongolian Government and JICA's Support Direction

Regarding 1-2. Education of Entrepreneurial Talent, the support package includes two key components:

- **Entrepreneurship education program in collaboration with universities**
- **Dispatchment of personnel to overseas startup ecosystems (including Japan)**

The former provides entrepreneurship education programs to students in partnership with Mongolian universities and technical colleges.

The latter involves sending entrepreneurs to companies, universities, incubation facilities, and startup-related events in countries with more developed startup ecosystems, offering exposure and insights not accessible domestically.

This initiative could be implemented as a Technical Cooperation project, with the counterpart organization being either the Ministry of Education or IT Park.

Table 32 Step 3: Direction of support measures by the Government of Mongolia and JICA (Building Startup Ecosystem 1. Human Resources)

Theme	Evaluation Result		Direction of JICA's cooperation			
	Scale of the Challenge	Priority Research Areas	Support Menu	Main Activities	Proposed Scheme	Counterpart
1-2 Education of Entrepreneurial Human Resources	High	Key research areas	Entrepreneurship education program in collaboration with universities	Implementation of an entrepreneurship education program in collaboration with educational institutions in Mongolia	Technical Cooperation	- Ministry of Education - IT Park
			Dispatchment of personnel to overseas startup ecosystems (including Japan)	- Dispatch personnel to businesses/universities in countries with advanced startup ecosystems. - Provide programs that allow participation in incubation facilities and events.		

2) Business Development

(a) Challenges

To drive the business growth of SUs, it is essential to both develop competitive technological seeds and pursue business strategies targeting large market opportunities.

Therefore, Business Development is structured around two key perspectives:

- **1. Cutting-edge Tech Environment**
- **2. Business Strategies with Sufficient Total Addressable Market (TAM).**

1. Cutting-edge Tech Environment

This area was analyzed from two perspectives:

- **1-1. University-Based Research and Development**
- **1-2. Private-Sector Research and Development**

1-1. University-Based Research and Development

This area was evaluated as having low strategic importance, moderate severity, and moderate overall challenge.

In 2023, Mongolia recorded zero international patent applications. While approximately 28% of startups reportedly engage in academia-industry collaboration, most such interactions are limited to networking or employment-related initiatives³². University-based startups are limited to a few cases from institutions such as the NUM and the MUST.

Challenges on the university side include a lack of research facilities and laboratories, insufficient funding, underdeveloped frameworks for industry collaboration, weak capacity to train STEM professionals, and limited capability for commercialization. As a result, universities are not able to adequately provide students with the inputs needed to transform technological seeds into viable businesses. There is also an absence of financial mechanisms such as gap funds.

Given the limited research capacity to produce tech-driven startups, the strategic importance of this area is considered low. While the number of university-originated startups is small, this reflects the overall limited number of startups in the ecosystem. Thus, the severity and overall challenge are both rated as moderate.

³² [JICA, START \(2024\) 「MONGOLIAN STARTUP ECOSYSTEM 2023」](#)

1-2. Private-Sector Research and Development

This area was also assessed as having low strategic importance, moderate severity, and moderate overall challenge.

At present, Mongolia lacks facilities that support deep tech R&D or incubation, and there are no hubs for collaboration with industry. A Science and Technology Park is currently under development and is expected to serve this role in the future.

As the underlying issues are similar to those in the university context, the same ratings were applied: low strategic importance, moderate severity, and moderate challenge.

2. Business Strategies with Sufficient Total Addressable Market (TAM)

This category was analyzed from two perspectives:

- **2-1. Large Market Size and Global Expansion Strategy**
- **2-2. Alliances with Corporations**

2-1. Large Market Size and Global Expansion Strategy

This area was assessed as having high strategic importance, high severity, and a high overall level of challenge.

Currently, based on the available information, fewer than ten startups in Mongolia have successfully expanded overseas. Although multiple accelerators exist within the country, there are only a limited number of players capable of supporting global expansion.

Given the small size of Mongolia's domestic market, scaling a business within the country alone is extremely difficult. As such, international expansion is an essential component of growth for startups, justifying the high strategic importance assigned to this area.

Furthermore, only one startup has reached Series A funding. In contrast, countries with a similar population size, such as Estonia and Armenia, have produced multiple unicorns. This stark contrast underscores the seriousness of the issue. Therefore, both severity and overall challenge were also rated as high.

2-2. Alliances with Corporations

This area was evaluated as having moderate strategic importance, high severity, and a high overall level of challenge.

Only around 5% of startups in Mongolia are engaged in open innovation—a model of leveraging external resources, typically in the context of collaboration between large corporations and startups. While a few major companies, such as Socratus, MONOS, and MCS Ventures, are beginning to engage with startups, the number of startups that have received investment from large corporations remains at only about 9%³².

Challenges exist on both sides:

On the corporate side, there is a lack of understanding and openness toward startups and open innovation.

On the startup side, very few companies have reached the stage of product development or commercialization where collaboration with large enterprises would be feasible.

Moreover, given the scarcity of globally competitive large corporations within Mongolia, domestic corporate alliances may have limited potential to drive significant startup growth. Based on these factors, the strategic importance of this area was assessed as moderate.

However, the almost complete absence of successful open innovation cases illustrates the seriousness of the situation. As such, both the severity and the overall level of challenge were rated as high.

Table 33 Step 1: Evaluation of Challenges (startup ecosystem construction 2. Business Development)

Theme		Gap between the target and the current situation			Challenges	Assessment of Issues			Evaluation Results: Magnitude of Issues (High/Medium/Low)
		Goal	Current	Source		Strategic importance	Severity	Existing Initiatives	
1. Cutting-edge Tech Environment	1-1. University-Based Research and Development	-	▪ Mongolia filed 0 international patent applications in 2023 ▪ NUM and MUST have created several SUs	▪ JICA Report (2023)³² ▪ SUs applying for MONJA ▪ Hearings during field surveys	▪ The level of research in Mongolia is not high. ▪ Universities have not been able to provide know-how or funds for commercializing technology seeds.	Low: For emerging countries with immature technological environments, it is difficult to create SUs with high technological capabilities, and they are inferior as an important factor for growth.	Medium: The number of SUs originating from universities is small, but the overall population of SUs is also small, so the severity is medium.	Established Technology and Innovation Transfer Centers	Medium
	1-2. Private-Sector Research and Development	-	▪ Considering the construction of a Science and Technology Park	▪ Hearings during field surveys	▪ Lack of deep tech research and incubation facilities ▪ There is no base for cooperation with industry.	Low: same as above	Medium: The number of deep tech SUs is small, but the population of all SUs is also small, so the severity is medium.	No	Medium
2. Business Strategies with Sufficient Total Addressable Market (TAM)	2-1. Large Market Size and Global Expansion Strategy	-	▪ Few SUs have been able to expand overseas ▪ The domestic accelerator's ability to support overseas development of SU is weak	▪ JICA Report (2023)³² ▪ On-Site hearings	▪ SUs have not grown up to be able to expand overseas. ▪ Not have enough qualified supporters to support overseas expansion	High: Considering the size of Mongolia's domestic market, it is very important to establish contacts with overseas countries.	High: Only one company has reached Series A and very few SUs have been able to scale.	Yes: JICA, EBRD, MCS, Socratus, etc. provide accelerator programs	High

	2-2. Alliances with Corporations	-	- Approximately 5% of SUs are involved in open innovation - Approximately 9% of SUs raised from large companies	- JICA Report (2023) ³² - On-Site hearings	- Lack of understanding of SU and open innovation by large companies - Few SUs in Mongolia meet the needs of large companies	Medium: Important for SU's business expansion, but small impact as there are few large companies in Mongolia	High: Large companies are trying business tie-ups through CVCs, but there are few successful cases.	Yes: MCS and Monos have formed a business partnership through an accelerator program.	High
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(b) Focus Areas in the Survey for Support Measures by the Mongolian Government and JICA
Two types of support programs are envisioned for this area:

- **Qualitative Approach: Regional accelerator supporting expansion into Central Asia or Southeast Asia**
- **Quantitative Approach: Accelerator targeting pre-seed and seed stage startups**

Both programs could be implemented as Technical Cooperation projects, with the MDDIC and IT Park serving as the expected counterpart organizations.

Table 34 Step 3: Direction of Measures by the Mongolian Government and JICA (Building Startup Ecosystem 2. Business Development)

Theme	Evaluation result		Direction of JICA Support			
	Scale of the Challenge	Priority Research Area	Support Menu	Main Activities	Proposed Scheme	Counterpart
2-1. Large Market Size and Global Expansion Strategy	High	Key research areas	Qualitative Approach: Regional accelerator supporting expansion into Central Asia or Southeast Asia	Provide an accelerator program that supports the expansion of Mongolian startups into their main target regions, Central Asia and Southeast Asia	Technical Cooperation	• MDDIC • IT Park
			Quantitative Approach: Accelerator targeting pre-seed and seed stage startups	Continue the current MONJA program with the aim of increasing the number of seed-stage startups		

(c) Direction of support measures by the Government of Mongolia and JICA

In the area of Large Market Size and Global Expansion Strategy, the EBRD has been providing acceleration programs.

Japan's support resources include the Shido Next Innovator program implemented by Ministry of Economy, Trade and Industry, the NINJA and MONJA programs by JICA, and the J-Bridge initiative by JETRO.

Given the high strategic importance and severity of the challenges in this area, along with the availability of robust support resources from Japan, this topic has been designated as a priority research area.

Table 35 Step 2: valuation of the Priority Research Areas for the Mongolian Government and JICA's Support Measures (Start-up Ecosystem Development 2. Business Development)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Results: Priority Research Areas
		Presence of Development Partners: Yes/No	Availability of Japanese Support Resources: Yes/No	
2-1. Large Market Size and Global Expansion Strategy	• SUs have not grown up to be able to expand overseas. • Not have enough qualified supporters to support overseas expansion	Yes: Star Venture Programme (EBRD)	Yes: • Shido Next innovator (Ministry of Economy, Trade and Industry) • NINJA, MONJA (JICA) • J-Bridge (JETRO)	Priority research areas

3) Financial Access

(a) Challenges

The flow of risk capital into SUs was analyzed from three perspectives:

1. Volume
2. Diversity

3. Liquidity

1. Volume

This dimension was analyzed from two perspectives:

- **1-1. Risk Capital from Domestic Investors**
- **1-2. Risk Capital from International Investors**

1-1. Risk Capital from Domestic Investors

This area was assessed as having high strategic importance, high severity, and a high overall level of challenge.

The cumulative total of initial fundraising amounts to MNT 13.4 billion (approx. JPY 580 million) across 80 startups, which is still relatively small. The overall volume of available capital is insufficient.

One key issue is the limited number of private investors. In addition, public-sector institutions—which would normally be expected to play a catalytic role in immature markets—have provided only a limited amount of funding, mostly in the form of small-scale subsidies. As a result, 74% of initial startup capital is currently sourced from personal savings³².

Considering the importance of capital volume for startup growth and the scarcity of funding sources, all three aspects—strategic importance, severity, and overall challenge—are assessed as high.

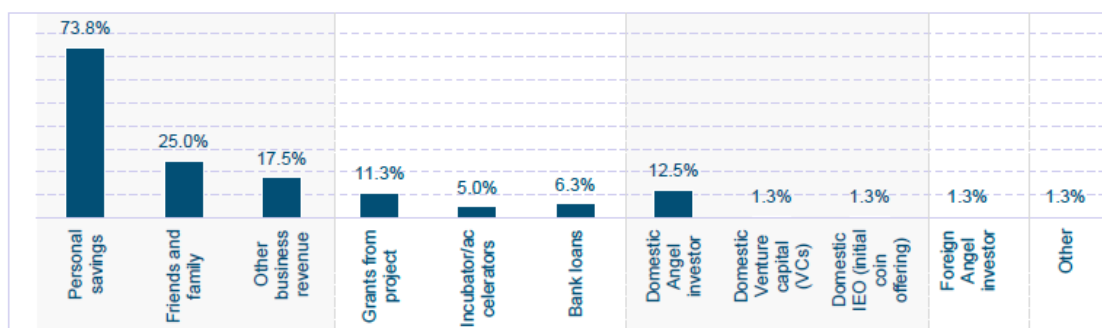
1-2. Risk Capital from International Investors

This area is also assessed as having high strategic importance, high severity, and a high overall level of challenge, in line with the situation for domestic investors.

Currently, less than 5% of startups in Mongolia have received funding from international investors. While AND Global has secured investment from firms such as Marubeni and SBI Holdings, most other startups have not been successful in attracting overseas capital.

Given the limited presence of international investment and the parallels with domestic capital challenges, the same ratings of high were applied across all three dimensions.

Figure 10: Source of initial funding, n=80



Source: JICA, START (2024) “MONGOLIAN STARTUP ECOSYSTEM 2023 ”

Figure 32 Funding sources for early stage financing

2. Diversity

Diversity was analyzed from 3 perspectives:

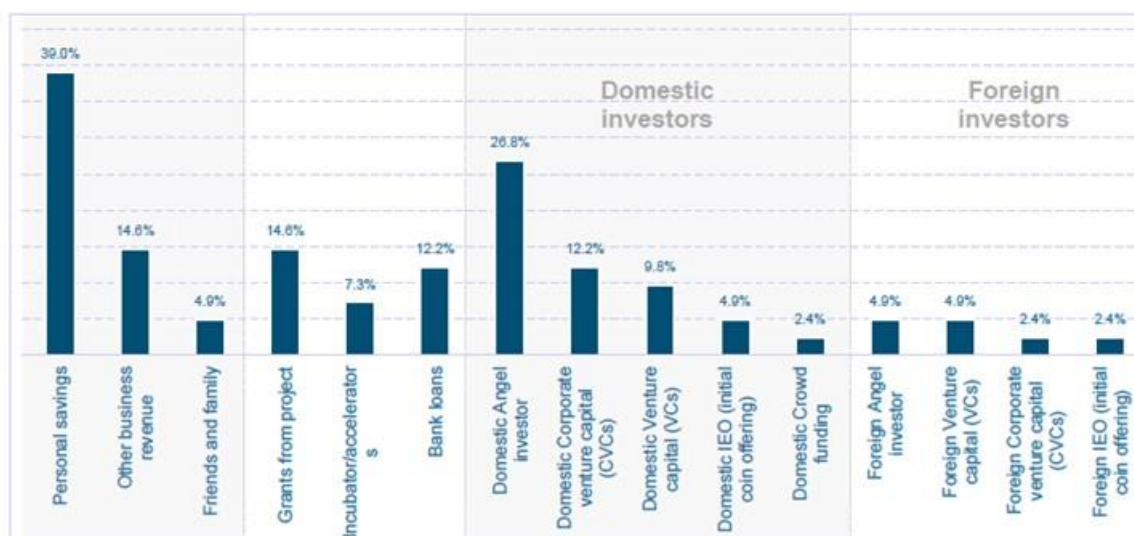
- **2-1. Equity Investment**
- **2-2. Debt Financing**
- **2-3. Grants**

All rated as “high” for strategic importance, “high” for severity, and “high” for magnitude of issues.

2-1. Equity Investment In 2-1. Equity Investment, the private sector has more than one angel investor, one VC, more than one corporate, and no PE. In the government sector, there is no SU investment in either the government fund or the pension fund, and there is no SU investment from donors. Therefore, the sources of funds for investment are very limited. Since there are various investors in the ecosystem of developed countries, and it is important for the development of the ecosystem in Mongolia, the strategic importance is high, and the

severity is also high in the current situation. Therefore, the challenge is assessed as high.

Figure 12: Source of follow-on funding, n=41



Source: JICA, START (2024) “MONGOLIAN STARTUP ECOSYSTEM 2023 ”

Figure 33 Funding Sources for Financing

2-2. Debt Financing and 2-3. Grants

In both debt financing and grants, the number of capital providers is even more limited than in equity investment. In the case of debt financing, a credit guarantee scheme—the Tamil Credit Guarantee Fund—is recently established. However, it remains unclear whether it is functioning effectively. Moreover, banks, which should be the main source of startup lending, impose the same conditions on startups as they do on SMEs, including high interest rates and collateral requirements. As a result, banks are not functioning as viable financing channels for startups.

Regarding grants, the Science and Technology Fund (STF) provides a limited amount of support, equivalent to MNT 12 billion (approximately 0.01% of GDP). Other major funding sources, such as government bodies and development aid agencies, have not provided sufficient grant-based support.

In view of the limited availability of both debt and grant funding, all aspects—strategic importance, severity, and overall challenge—are rated as high.

3. Liquidity

The liquidity of startup capital is analyzed from three perspectives:

- 3-1. IPOs
- 3-2. M&A
- 3-3. Secondary Markets

All three were assessed as having moderate strategic importance, moderate severity, and a moderate overall level of challenge.

3-1. IPOs

Among the 80 startups surveyed, 19 reported having experienced an exit, of which only 5% were through IPOs. The small number of IPOs is a notable issue. This is attributed to two primary factors: (1) few startups reach the scale or maturity necessary for listing, and (2) the Mongolian Stock Exchange (MSE) remains underdeveloped.

As of the latest data, the MSE has a market capitalization of MNT 11 trillion (approx. JPY 472.3 billion), equivalent to just 20.8% of Mongolia’s GDP, suggesting that the capital market is not functioning effectively. While IPO market liquidity can play a significant role in motivating entrepreneurs, the current number of IPO-ready startups is limited. Thus, although improving IPO access is important, it is considered a medium- to long-term goal, and therefore rated moderate across all three dimensions.

3-2. M&A

Of the same 19 startups that reported exits, 95% indicated having exited through private placements to large corporations³². Therefore, the dominant exit route in Mongolia is currently through M&A with large firms. However, valuations at exit remain relatively low compared to those in other countries, and the creation of high-impact M&A cases will likely take time. While improving exit opportunities is critical for incentivizing investment, the pace of improvement is expected to be gradual. For this reason, the strategic importance, severity, and overall challenge were each rated as moderate.

3-3. Secondary Markets

Currently, there is no dedicated secondary marketplace for startup equity in Mongolia. When investors need to divest their holdings, off-market private transactions between investors are believed to be the most common method.

Given the similarity to the M&A situation, all aspects of secondary markets—strategic importance, severity, and overall challenge—are likewise assessed as moderate.

Table 36 Step 1: Evaluation of Challenges (startup ecosystem construction 3. Financial Access)

Theme		Gap between the target and the current situation			Challenges	Evaluation of Challenges			Scale of the challenge (High, Medium, Low)
		Goal	Current	Source		Strategic Importance	Severity	Existence of Initiatives	
1. Volume	1-1. Risk Capital from Domestic Investors	-	- Cumulative initial funding: 13.4 billion MNT (approx. 580 million yen) (80 SUs) - Cumulative total after second funding: 88.9 billion MNT (approx. 3.82 billion yen) (41 SUs)	JICA Report (2023) ³²	There is not enough money flowing into SU. There are two issues below. - No government funding (grants only) - Insufficient number of private investors	High: Funding is critical to SU's growth	High: Although there are only a few businesses worth investing in and financing, the current situation is serious because there are few funds for growth.	Yes: Grants from the Science and Technology Fund (STF) (no SU-specific measures)	High
	1-2. Risk Capital from International Investors	-	Less than 5% of SUs raise funds from overseas investors	JICA Report (2023) ³²	There are few overseas investors interested in Mongolian SUs, and the amount of funds is insufficient.	High: Funding from overseas investors is important because it can be a stepping stone for overseas expansion.	High: same as above	Yes: Grants provided by UN and World Bank	High
2. Diversity	2-1. Equity Investment	-	- Angel: Multiple people - VC: 1 - PE: Almost no investment in SUs - Corporates: Several companies invested in SUs - Government Fund: None - Pension Fund: No SU investment - Donor: No SU investment	- JICA Report (2023) ³² - On-Site hearings	- In the private sector, investors are only angels, VCs, and corporates, and there is only one VC. - No investment or loan from the government	High: Expanding the diversity of equity providers is strategically important as the ecosystem grows	High: The current situation is serious because business growth is difficult without growth funds.	Yes: EBRD established Angel Investment Club	High

	2-2. Debt Financing	-	- The Tamil Credit Guarantee Fund Project has been established, but it is unclear whether it is functioning. - There are few banks providing loans to SUs	- Data from the Joint Public-Private Council - On-Site hearings	- There are few banks lending to SU - Lack of effective government support for loans	High: Since there are few equity providers at present, debt financing is one of SU's key procurement methods and strategically important.	High: The current situation is serious because business growth is difficult without growth funds.	Yes: Tamil Credit Guarantee Fund Project	High
	2-3. Grants	-	- Grants to SUs are almost non-existent in both the government and government-affiliated financial institutions. - The annual grants from STF is 12 billion MNT (about 520 million yen) (0.01% of GDP), which is insufficient.	On-Site hearings	There are currently almost no government or development grants for SUs, and SUs have limited access to financing	High: It is important to provide grants in stages and areas where equity or debt financing is difficult.	Medium: The current situation is serious because business growth is difficult without growth funds.	Yes: - STF subsidies (no SU-specific measures) - World Bank provides small grants	High
3. Liquidity	3-1. IPOs	-	5% of exits are IPO	JICA Report (2023)³²	- Few startups are at a level where they can go public. - Inadequate functioning of MSE as a capital market	Medium: There are few SUs that reach the exit level, and as this is a medium- to long-term approach, the urgency level will decrease.	Medium: It has a big impact on entrepreneurial motivation.	No	Medium
	3-2. M&A	-	95% of exits are M&As by large companies - Valuation at exit is 12 times	JICA Report (2023)³²	There are M&A deals by large corporations, but the deal sizes are small.	Medium: For investors, exit diversification is important, but less urgent	Medium: same as above	No	Medium
	3-3. Secondary Markets	-	There is no secondary market.	On-Site hearings	Limited exit methods	Medium: same as above	Medium : same as above	No	Medium

(b) Focus Areas in the Survey for Support Measures by the Mongolian Government and JICA

1-1. Risk Capital from Domestic Investors

The EBRD has established an Angel Investment Club to support the development of a domestic angel investor community in Mongolia. Japan's support resources include support for the establishment of public-private funds in emerging economies by JICA, startup funding programs provided by the Japan Finance Corporation, direct investments and LP investments by government-affiliated venture capital entities such as JIC and JICT, startup loans and structured lending programs by local governments, various grant schemes, and the Angel Tax Incentive Program. Given both the scale of the challenges and the availability of these Japanese support resources, this topic is designated as a priority research area.

1-2. Risk Capital from International Investors

The World Bank currently provides grant-based support in this area. Japan's support resources include Private Sector Investment Finance by JICA. In view of the scale of the challenges and the potential for support from Japan, this is also designated as a priority research area.

2-1. Equity Investment, 2-2. Debt Financing, 2-3. Grants,

As outlined above, while initiatives such as the EBRD's Angel Investment Club and grant support by the World Bank have been identified, activities by other development partners have not been confirmed.

In terms of Japanese support resources:

- For 2-1. Equity Investment, available mechanisms include JICA's support for the establishment of public-private funds in emerging markets, as well as direct investments and LP investments by government-affiliated venture capital entities (e.g., JIC, JICT).
- For 2-2. Debt Financing, low-interest startup loans offered by the Japan Finance Corporation (JFC) serve as a reference model.
- For 2-3. Grants, a variety of programs are available from different institutions.

Given the scale of the challenges and the potential for impactful support, these areas have been designated as priority domains for a priority research area.

Table 37 Step 2: Evaluation of the Priority Research Areas for the Mongolian Government and JICA's Support Measures (Startup Ecosystem Construction 3. Financial Access)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Result: Priority Research Area
		Presence of Development Partners: Yes/No	Availability of Japanese Support Resources: Yes/No	
1-1. Risk Capital from Domestic Investors	There is not enough money flowing into SUs. There are two issues below. • No government funding (grants only) • Insufficient number of private investors	Yes: EBRD establishes Angel Investment Club (operations taken over by Exponential Partners)	Yes: • Support for the establishment of public-private funds in emerging countries (JICA) • Various Loans (Japan Finance Corporation) • Direct and LP investments from government-affiliated VCs • Start-up and institutional financing by local governments • Various grants	Priority research areas
1-2. Risk Capital from International Investors	• There are few overseas investors interested in Mongolian SUs, and the amount of funds is insufficient.	Yes: The World Bank provides grants.	Yes: Private Sector Investment Finance (JICA)	Priority research areas
2-1 Equity Investments	• In the private sector, investors are only angels, VCs, and corporates, and there is only one VC. • No investment from the government	Yes: EBRD establishes Angel Investment Club (operations taken over by Exponential Partners)	Yes: • Support for the establishment of public-private funds in emerging countries (JICA) • Direct investment and LP investment from government-affiliated VCs (JIC, JICT, etc.)	Priority research areas
2-2 Debt Financing	• There are few banks lending to SU • Lack of effective government support for loans	No	Yes: Startup Support Fund (Japan Finance Corporation)	Key research areas
2-3.Grants	• There are currently almost no government or development grants for SUs, and SUs have limited access to financing	Yes: World Bank provides small grants	Yes: • Monozukuri Grant (SMRJ)	Key research areas

(C) Direction of support measures by the Government of Mongolia and JICA

1. Volume

The following support measures are considered for both 1-1. Risk Capital from Domestic Investors and 1-2. Risk Capital from International Investors.

● **Two-Step Yen Loan Investment Project**

This scheme involves providing yen loans to the counterpart government (C/P), which in turn channels funds to venture capital firms or commercial banks.

The aim is to promote risk capital provision to SUs while enabling domestic VCs to gain hands-on investment experience and contributing to the growth of the VC industry.

This initiative would be implemented through ODA loans, with the Ministry of Finance as the expected counterpart.

- **Investor Education**

These programs aim to improve the investment literacy of angel investors by providing guidance on startup financing methods, investment strategies, and risk assessment.

Activities may include publication of investment toolkits and training workshops.

Implementation is expected through both Technical Cooperation projects and ODA loans, with the Ministry of Economy and Development or the Ministry of Finance as the counterpart.

- **Support for the Establishment and Operation of Public-Private Funds**

This initiative involves the creation of co-investment funds jointly established by the Government of Mongolia and private sector players.

JICA would provide ODA loans to the Mongolian government to support its capital contributions to the fund. The Ministry of Finance is anticipated as the counterpart.

2. Diversity

For 2-1 Equity Investment, the following initiatives are considered:

- **Support for Public-Private Fund Formation**

(Same as described under 1-1 and 1-2)

- **Two-Step Investment Yen Loan Scheme**

(Same as described above)

For 2-2 Debt Financing

- **Support for the Mongolian government in establishing a system for SU loans (Two-Step Loan Yen Investment Project) (Modeled Japan Finance Corporation (JFC))**

This would involve providing low-interest startup loans to support business development at the pre-seed and seed stages. The program would be implemented through ODA loans, with the Ministry of Finance as the counterpart.

For 2-3 Grants, the following initiative is proposed:

- **Implement a program to provide subsidies using sponsorship**

This program would recruit both public and private sponsors to fund startup acceleration programs that include grant support for participating startups.

The initiative is intended to be implemented as a Technical Cooperation project, with IT Park as the implementing counterpart.

**Table 38 Step 3: Direction of Measures by the Mongolian Government and JICA
(Startup Ecosystem Development 3. Financial Access)**

Theme	Evaluation result		Direction of JICA Support			
	Scale of the Challenge	Priority Research Area	Support Menu	Main Activities	Proposed Scheme	Counterpart
1-1. Risk Capital from Domestic Investors	High	Priority Research Area	Two-Step Investment Yen Loan Scheme	Provide investment funds to VCs and banks through yen loans to C/P	ODA loan	Ministry of Finance
			Investor Education Programs	Implementation of educational programs for angel investors, such as presentation of guidance on SU investment concepts and methods, in cooperation with Angel Investment Club. Assumes content related to risk and value assessment of SU investment	- Technical Cooperation - ODA loan	MDDIC, Ministry of Finance IT Park
1-2. Risk Capital from International Investors	High	Priority Research Area	Support for the Establishment and Operation of Public-Private Funds	- Support for the establishment of a fund jointly funded by the Mongolian government and the private sector - JICA provides the Mongolian government with an ODA loan to cover the cost of investment. - To increase capital and attract investment	ODA loan	Ministry of Finance
2-1 Equity Investments	High	Priority Research Area	Support for the Establishment and Operation of Public-Private Funds	- Support for the establishment of a fund jointly funded by the Mongolian government and the private sector - JICA provides the Mongolian government with an ODA loan to cover the cost of investment. - Aim to increase the volume of funds and attract investment	ODA loan	Ministry of Finance
2-2 Debt Financing	High	Priority Research Area	Support for the Mongolian government's development of SU financing mechanisms (two-step loan project)	- Introduce the Japan Finance Corporation's scheme into Mongolia - Provide yen loans as a two-step loan to finance the loan	ODA loan	Ministry of Finance
2-3. Grants	High	Priority Research Area	Implementation of a program to provide grants through sponsorship	To solicit sponsors and provide grants to SUs in the SU-Support Program (Regional accelerator, MONJA, etc.)	Technical Cooperation	IT Park

4) Startup-friendly Laws, Regulations and Policies

(a) Challenges

4. Startup-friendly Laws, Regulations and Policies were rated as "high" for strategic importance, "medium" for severity, and "high" for magnitude of issues. Currently, the following laws and regulations refer to innovation and startups in Mongolia:

- Science and Technology Fund (STF) (1993)
- Investment Law (2013)
- Innovation Act (2014 (revised in 2019))
- Vision 2050 (2020)
- ICT Industry Promotion Act (2024)

As mentioned above, the STF stipulates the provision of subsidies, but the amount provided is insufficient. Investment laws provide less tax incentives for investors than those in developed countries.

The Innovation Act calls for tax breaks for SUs, but the definition of SUs is narrow and the scope is very limited. The ICT Industry Promotion Law describes the authority and responsibility of the national and local governments in ICT industry promotion, stating that IT Park has begun to provide support when SU's IT-related products and services are launched. It stipulates that the role of the Government is to establish a virtual zone to support the ICT industry and provide tax and non-tax support to companies registered in the virtual zone. Details of tax support could not be found in the text of the law. In terms of non-tax support, preferential measures include: (1) subsidy for patent registration costs; (2) subsidy for certification of international quality and standards at the time of export; (3) compensation for social insurance premiums; (4) subsidy for the balance of AI-related activities when 60% or more of the total costs are self-financed; (5) awards and incentives for patent holders of products and services based on advanced technologies; (6) credit guarantee; (7) one-time subsidy of up to 70% of R & D costs; (8) loan interest support; and (9) approval of early depreciation of assets. On the other hand, the content does not include the elements necessary for the growth of startups comprehensively in that it does not mention support for the construction of human resources and networks, expansion of funding, or diversification of exit strategies.

As the systematization of policy support is important for supporting business startups and promoting investor activities, we believe it is of great strategic importance. However, since there are no regulations that unnecessarily restrict SU-related activities, the severity rating is "medium." As the systematization of policy support is essential for the enhancement of policies, laws and regulations, and the medium- to long-term development of the SU ecosystem, the strategic importance of the systematization is emphasized, and the magnitude of the problem is evaluated as "high".

Table 39 Step 1: Evaluation of Challenges (Startup ecosystem construction 4. Startup-friendly Laws, Regulations and Policies)

Theme	Gap between the target and the current situation			Challenges	Evaluation of Challenges			Scale of the challenge (High, Medium, Low)
	Goal	Current	Source		Strategic Importance	Severity	Existence of Initiatives	
Startup-friendly Laws, Regulations and Policies	-	Here are some of the laws that mention innovation and startups ▪ Science and Technology Fund (STF) (1993) ▪ Investment Law (2013) ▪ Innovation Act (2014 (revised in 2019)), which defines government obligations and activities related to innovation ▪ Vision 2050 (2020) ▪ ICT Industry Promotion Act (2024)	-	▪ STF: Law governing grants. Compared to other countries, the amount is insufficient as a percentage of GDP ▪ Investment Law: Not enough tax breaks for investors ▪ Innovation Act: Tax cuts for SUs exist, but the definition of SUs is narrow and the scope is limited	High: It is important to systematize policy support to support startups and promote investor activities.	Medium: There are no restrictions on SU-related promotional activities. Some supportive measures and initiatives are currently in place, and there are no strict regulations, resulting in a moderate level of impact.	Yes: There are discussions on preferential investment treatment for SUs, establishment of special economic zones, etc.	High

(b) Focus Areas in the Survey for Support Measures by the Mongolian Government and JICA Regarding "Startup-friendly Laws, Regulations and Policies" there were no activities by development partners. Japan's support resources include the Ministry of Economy, Trade and Industry's experience in planning and implementing SU-related measures and JICA's experience in supporting the Nigerian Startup Act. In view of the magnitude of the issues, this area is designated as a priority research area.

Table 40 Step 2: Evaluation of the Priority Research Areas for the Mongolian Government and JICA's Support Measures (Startup Ecosystem Construction 4. Startup-friendly Laws, Regulations and Policies)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Result: Priority Research Area
		Presence of Development Partners: Yes/No	Availability of Japanese Support Resources: Yes/No	
Startup-friendly Laws, Regulations and Policies	- STF: Law governing grants. The amount is insufficient when compared to other countries as a percentage of GDP - Investment Law: Not enough tax breaks for investors - Innovation Act: Tax cuts for SUs exist, but the definition of SUs is narrow and the scope is limited	No	Yes: - Planning and implementation of SU-related measures (the Ministry of Economy, Trade and Industry) - Experience supporting the Nigerian Startup Act (JICA)	Priority research areas

(C) Direction of support measures by the Government of Mongolia and JICA

In the area of "policies and laws and regulations", JICA could support the formulation of the Startup Act, and if it is difficult to formulate the Startup Act, JICA could consider enacting individual measures to promote investment and loans, such as tax breaks for investors. At the same time, a working group could be established to conduct policy dialogues and provide necessary inputs with the C/P, the MDDIC and the Ministry of Economic Development. The assumed scheme is a Technical Cooperation project.

Table 41 Step 3: Direction of Measures by the Mongolian Government and JICA (Establishment of Startup Ecosystem 4. Startup-friendly Laws, Regulations and Policies)

Theme	evaluation result		Direction of JICA's assistance			
	Scale of the challenge	Priority Research Areas	Support Menu	Main Activities	Proposed Scheme	Counterpart
Startup-friendly Laws, Regulations and Policies	High	Priority research areas	Support for development of laws and regulations related to startups	Helping develop startup laws or support the establishment and operation of a working group to consider deregulation that contributes to the creation of incentives, such as tax exemptions for investors.	Technical Cooperation	MDDIC, Ministry of Economy and Development

5) Global/Local Network of Ecosystem players

(a) Challenges

5) Global/Local Network of Ecosystem players is rated as "high" in strategic importance, "high" in severity, and "high" in magnitude.

As for the domestic network, both software (Events, Associations, Communities) and hardware (innovation facilities) are considered to be adequate. For software, there are events such as Startup-Challenge-Mongolia, associations such as Angel Investment Club, and communities such as IT Park. For hardware, spaces are provided by innovation facilities such as IT Park, MONOS, and MCS Ventures. On the other hand, in terms of the overseas network, it is limited to provision of the network with Central Asia to the winners of the Startup Challenge held by IT Park, and there are no noticeable efforts in terms of hardware. As an ecosystem, the ability to support networking with overseas is weak, and SUs have applied for accelerator programs by themselves and are working on networking based on personal relationships, etc. Therefore, the ability to support overseas expansion is also an issue from a network perspective. In light of the above, we rated the strategic importance, severity, and magnitude of the issues as "high".

Table 42 Step 1: Evaluation of Challenges (startup ecosystem construction 5. Global/Local Network of Ecosystem players)

Theme	Gap between the target and the current situation			Challenges	Evaluation of Challenges			Scale of the challenge (High, Medium, Low)
	Goal	Current	Source		Strategic Importance	Severity	Existence of Initiatives	
Global/Local Network of Ecosystem players	-	- Domestic network Full of both software and hardware. Soft (Startup-Challenge-Mongolia, Angel Investment Club, IT Park, etc.), Hard (IT Park, MONOS, MCS Ventures, etc.) - Overseas network On the software side, IT Park will only provide networking opportunities with Central Asia to Startup Challenge winners. On the hardware side, there is no noticeable effort. Ecosystem's ability to support overseas networking is weak, and each company has to deal with the situation individually, such as SUs applying for accelerator programs by themselves or networking based on personal relations.	On-Site hearings	Limited relationship with overseas ecosystem, not providing SUs with a foothold for overseas expansion	High: Overseas network is very important for SU's overseas expansion	High: Companies are applying to programs in other countries, but the number of companies participating is small.	No	High

(b) Focus Areas in the Survey for Support Measures by the Mongolian Government and JICA

As for "networks," the activities of development partners are limited to the provision of the EBRD's Star Venture Programme. As Japan's support resources, JETRO and JICA are implementing accelerator programs and contributing to strengthening overseas networks through these programs. It was selected as a priority research area in view of the magnitude of the issues and the support resources.

Table 43 Step 2: Evaluation of the Priority Research Areas for the Mongolian Government and JICA's Support Measures (Startup Ecosystem Construction 5. Global/Local Network of Ecosystem players)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Result: Priority Research Area
		Presence of Development Partners: Yes/No	Availability of Japanese Support Resources: Yes/No	
Global/Local Network of Ecosystem players	▪ Limited relationship with overseas ecosystem, not providing SU with a foothold for overseas expansion	Yes: Star Venture Programme (EBRD)	Yes:▪ Global Acceleration Hub (JETRO)▪ NINJA, MONJA (JICA)	Priority Research areas

(C) Direction of support measures by the Government of Mongolia and JICA

In the Global/Local Network of Ecosystem players area, a particular emphasis could be placed on establishing contacts between overseas ecosystems/players and Mongolian SUs. This will strengthen the overseas networking of the adopted SUs through the overseas accelerator program mentioned from the perspective of "Business Development." Thus, as with "Business Development," the envisaged scheme is a Technical Cooperation project, and the C/P is the MDDIC, IT Park.

Table 44 Step 3: Direction of Measures by the Mongolian Government and JICA (Building Startup Ecosystem 5. Global/Local Network of Ecosystem players)

Theme	Evaluation result		Direction of JICA's assistance			
	Scale of the challenge	Priority research areas	Support Menu	Main Activities	Proposed Scheme	Counterpart
Global/Local Network of Ecosystem players	High	Priority research areas	Networking with local accelerators through overseas accelerators and MONJA	Collaborate with local accelerators to form a network when implementing the above-mentioned regional accelerator program	Technical Cooperation	▪ MDDIC ▪ IT Park

3. Utilization of Open Data

1) Open Data

(a) Challenges (Open Data)

Although efforts to open up government-held data in Mongolia had seen little progress, the roadmap presented for the development of an open data government catalog by 2020 during Phase 1 (2015-2020) in the World Bank-supported Smart Government Project heightened the momentum for promoting open data in the country. Furthermore, since 2022, MDDIC has been spearheading efforts to encourage various ministries in Mongolia to develop open data catalogs. Currently, ministries are competing to establish open data portals, resulting in several ministries, including MDDIC, the National Statistics Office of Mongolia, and the Center for Health Development, making their open data portals available on the internet.

While recent years have seen a rapid advancement in initiatives related to open data, challenges remain in terms of data quantity and quality across various open data portals. Except for 1212.mn, which has approximately 700 data sets, the number of data sets available on other portals is limited. It is necessary to make currently non-public data within each ministry available as open data. However, it has been confirmed that the Center for Health Development Center is currently in the process of organizing its data, indicating that

some ministries have already made progress in this regard. Additionally, there is a demand for not only an increased number of data sets but also for diverse data types such as live camera data from intersections, CT scan data of patients, and geodata. Private companies have also expressed a need for big data for AI integration and unstructured data.

From a quality perspective, some of the publicly available data on 1313.mn, operated by the Center for Health Development, was found to be corrupted and inaccessible. It is important to address such website malfunctions and improve the update frequency of data sets to enhance the quality of open data portals.

Moreover, the purpose of opening government data is not only to ensure information transparency but also to contribute to solving social issues and promoting business by enabling third-party utilization of government data by companies and other entities.

On the other hand, no business utilization cases of open data in Mongolia have been confirmed, suggesting that private companies in the country may not yet recognize the significance of utilizing opendata. In fact, in a survey conducted during the hackathon mentioned in PP5, 60% of participating companies reported that they were unaware of the existence of open data before participating in the hackathon. In Mongolia, looking ahead to promoting the utilization of open data by the private sector, it is encouraged to provide opportunities for communication between the public and private sectors to promote the use of open data. Additionally, it is recommended to work on the visualization of data on portals, such as Shilen.gov, to enhance infographics and make data to be more user-friendly for third-party.

Table 45 Step1: Evaluation of Challenges (Open Data)

Theme	Gap Between Goals and Current Status			Challenges	Evaluation of Issues			Scale of the challenge (High, Medium, Low)
	Goal	Current	Source		Strategic Importance	Severity	Existence of Initiatives	
Formulation of Open Data Policy: Staff Literacy or Staff	-	Unknown	-	There is a possibility that the literacy of non-technical staff is low, and the perspectives of the upper management and technical staff are not aligned.	High: Policy is at the highest level.	Low: A minimal level of literacy required to achieve the creation of portals.	Yes: World Bank	Medium
Raw-Data Collection: Quantity of Datasets	-	Varies by portal: • 1212.mn: Approximately 700 statistical datasets • 1313.mn: Fewer than 100 • Shilen.gov: Fewer than 100	Goal: - Current Status: Smart Government Project, various portal websites	- Many of the open datasets are statistical data and lack variety. For example, there is a demand for diverse data such as live camera data from intersections, CT image data of patients with symptoms, geospatial data, and GPS data. Additionally, as revealed in hackathons, there is a need for big data and unstructured data to be integrated into AI. - The discovery and in-depth exploration of data items in collaboration with governmental agencies and municipalities are insufficient.	Medium; Without interesting and usable data for the private sector, there is no utility.	High: There is a considerable amount of data available, but during PP5 (hackathons or PoCs), participants pointed out the low usefulness of the data.	No	High
Development of Open Data Portal: Availability and Quality of Data Catalogs	-	[Existence] Confirmed by MDDIC, the Statistical Office, and the Health Development Center [Quality] Varies by portal: • 1212.mn: No issues with data access • 1313.mn: Some published data is	Goal: - Current Status: MDDIC/ National Statistics Office hearing, various portal websites	- Difficult to find useful data - Low visual appeal - Language constraints - Limited data formats - Low frequency of data updates	Medium: The sudden proliferation of portals has made data search difficult.	Medium: The quality of the portals cannot be said to be stable.	No	Medium

		corrupted and inaccessible • Shilen.gov: No issues with data access, some data visualization available						
Secondary Use of Open Data by the Private Sector: Communication with the Private Sector	-	No cases	Goal: - Current Status: Hearing from MDDIC, web research	• Lack of understanding and awareness of open data within companies • Slow progress in considering the potential for utilization	High: It is crucial to consider the opinions of the private sector regarding both the quantity and quality of the data.	High: No examples can be confirmed, making it the most delayed among the four items.	Yes: Attempted to conduct a hackathon (ultimately decided against it)	High

(b) Focus Areas in the Survey for Support Measures by the Mongolian Government and JICA (Open Data)

In addition to the current situation and issues mentioned above, this survey places importance on promoting the use of open data by private companies and other third parties. Therefore, the survey identifies the increase in the quantity of datasets in open data portals of various ministries, which are primarily referenced by private companies, and the improvement of communication with private companies as key focus areas.

The greater the number of datasets, the more options users have, making it easier to utilize the data. While there is no strict rule on the exact number of datasets needed for effective utilization, for example, Japan's Ministry of Internal Affairs and Communications' e-Stat contains approximately 1.5 million datasets from about 700 surveys. Additionally, the Tokyo Metropolitan Government's Open Data Catalog Site, which operates separately from e-Stat, publishes approximately 3,500 datasets from 61 organizations within Tokyo. By increasing the range of options available through the portal, it is expected that the use cases of open data will also increase. Not only the quantity of datasets but also the variety of data, such as real-time data and unstructured data, is important.

Additionally, a significant challenge in the secondary use of open data by the private sector is the lack of understanding and awareness of open data among companies. However, in the hackathon using open data conducted in PP5, the winners were considered to have sufficient understanding and awareness of open data. Even in such cases, they did not proceed to full-scale development of services utilizing open data. The reason cited was that the quantity and content of the open data were insufficient to provide high-value-added services. When comparing the importance of issues, the quantity of datasets mentioned earlier can be considered the top priority.

By addressing these issues and improving the convenience of the portal, it is expected that third parties using open data will find it easier to discover and integrate data, leading to the development of new solutions.

Table 46 Step 2: Evaluation of the Priority Research Areas for the Mongolian Government and JICA's Support Measures (Open Data)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Result: Priority Research Area
		Presence of Development Partners: Yes/No	Availability of Japanese Support Resources: Yes/No	
Formulation of Open Data Policy: Staff Literacy or Staff	• The literacy of non-technical staff is low, and there may be a disconnect between upper management and technical personnel. • Much of the open data consists of statistical data and lacks variety. • The discovery and deep exploration of data items in collaboration with government agencies and local authorities are insufficient.	Yes: World Bank	No	—
Raw-Data Collection: Quantity of Datasets	• Much of the open data consists of statistical data and lacks variety. • The discovery and in-depth exploration of data items in collaboration with government agencies and local authorities are insufficient.	No	No	Priority Research Area
Development of Open Data Portal: Availability and Quality of Data Catalogs	• Useful data is difficult to find. • There is a low level of visual appeal. • Language constraints. • Data formats are limited. • Data update frequency is low. • The literacy of non-technical staff is low, and there may be a disconnect between upper management and technical personnel.	No	No	—

Secondary Use of Open Data by the Private Sector: Communication with the Private Sector	• The existence and usefulness of open data are not recognized by private companies. • Useful data is difficult to find. • There is a low level of visual appeal. • Language constraints. • Data formats are limited. • Data update frequency is low.	No	No	Key Issues
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(c) Mongolian Government and JICA's Support Direction in Open Data

As part of JICA's support measures, it proposes to MDDIC, which currently plays a leading role in establishing open data portals for various ministries. Specifically, the proposal focuses on improving policymakers' open data literacy, enhancing the quantity and quality of data on the open data portal, and promoting the appeal and utilization of open data to private companies. Regarding the literacy of employees, since the establishment of the open data portal itself is already underway, there are no particular issues with the skill level of technical staff. On the other hand, senior officials such as policymakers need to deepen their understanding of what open data is, the purpose of open data for Mongolia, and the needs for its utilization. By improving the open data literacy of these policymakers, appropriate instructions and communication with technical staff can be conducted, leading to the operation of the portal that reflects the direction of the country. From the perspective of increasing the number and improving the quality of datasets, support will be provided for data acquisition methods and pre-processing at the data collection stage to increase the types and numbers of data collected, enabling more datasets to be published as open data. For example, capacity building for real-time data acquisition methods can be considered.

Furthermore, by offering a wide range of format options (extensions) for publication, not just Excel but also csv and json, data integration will be facilitated. Visualizing published data on the web using tools like Business Intelligence aims to make it easier for third parties, such as private companies, to derive ideas from the data.

Lastly, workshops on the utilization of open data could be held between the private sector and the government. These workshops will provide the government with an understanding of the private sector's needs for open data and offer the private sector knowledge and understanding of the effectiveness of open data. The workshops will incorporate the results of the open data hackathon and PoC conducted as PP5 in this project, clarifying the challenges the private sector faces in utilizing government open data and the requirements the government seeks for the private sector to use open data in business. Such bidirectional initiatives between the government and private companies are crucial for promoting the business utilization of open data from a business perspective in Mongolia.

Based on the above, the approach to considering the projectization of technical cooperation projects involves comprehensive support for both the government and private sector up to the pre-stage of actual utilization of open data by third parties, particularly the business use of open data by private companies.

Table 47 Step 3: Direction of Measures by the Mongolian Government and JICA (Open Data)

Theme	Evaluation Result		Direction of JICA Support			
	Scale of the Challenge	Priority Research Area	Support Menu	Main Activities	Proposed Scheme	Counterpart
Formulation of Open Data Policy: Staff Literacy or Staff	Medium	—	Capacity Development Program for Open Data Utilization	Conducting training sessions to provide knowledge about open data and its utilization methods.	Technical Cooperation	MDDIC, Local Government
Raw-Data Collection: Quantity of Datasets	High	Key Issues		- Provide support to enhance data collection skills (e.g., capacity building on methods for obtaining real-time data). - Organize and prepare datasets that are useful for the private sector.	Technical Cooperation	MDDIC, and other portal managing agencies
Development of Open Data Portal: Availability and Quality of Data Catalogs	Medium	—		- Create and enhance the formats of datasets. - Prepare preprocessed and easily usable data. - Improve the graphics and other UI elements of the open data portal.	Technical Cooperation	MDDIC, and other portal managing agencies
Secondary Use of Open Data by the Private Sector: Communication with the Private Sector	High	Key Issues		- Hold workshops for the private sector (the government should strive to understand the needs of the private sector, and the private sector should deepen their understanding of governmental information dissemination). - Further enhance initiatives like PP5 hackathons (e.g., conducting hackathons again with different challenges).	Technical Cooperation	MDDIC

2) Data Integration

(a) Issues (Data Integration)

In the efforts related to the existing data integration platform in Mongolia, it was found that certain initiatives are in place and are actually being operated, based on interviews conducted with relevant ministries and agencies. Firstly, in Mongolian government agencies, the XYP (an integrated inter-ministerial information exchange layer) is already functioning as an Enterprise Service Bus (ESB) system. This XYP layer facilitates mutual data integration among various ministries, including the National Data Center, which is the integrated database of the Mongolian government, and the user interface e-Mongolia. It is said to be partially based on Estonia's X-Road.

Regarding data integration with the private sector, the e-Mongolia application, which allows Mongolian citizens to complete administrative procedures online, is equipped with API functions. External developers,

such as private companies, can connect with e-Mongolia after undergoing a certain review process. Although specific solution examples using the API of e-Mongolia were not identified during the interviews, it can be said that the infrastructure for data integration between the public and private sectors already exists. In terms of handling personal information in data integration within Mongolia, e-Mongolia employs an opt-in method, where users are individually asked for confirmation via email regarding the sharing of personal information between government agencies. The handling methods of personal information in other applications were not confirmed.

From the above, it can be concluded that the construction of a cross-ministerial data integration platform in Mongolia is already progressing, and the Mongolian government does not particularly recognize any issues from the perspective of infrastructure establishment. However, there is room for further efforts in creating business opportunities using data integration between the public and private sectors, and in building data integration infrastructure between private companies within specific industries and between industries.

Table 48 Step1: Evaluation of Challenges (Data Integration)

Theme	Gap Between Goals and Current Status			Challenges	Evaluation of Challenges			Scale of the challenge (High, Medium, Low)
	Goal	Current	Source		Strategic Importance	Severity	Existence of Initiatives	
Research on Core Systems used by Ministries and Local Governments	-	-	-	Increased data management burden due to differing data infrastructures between local and central governments	Small	Medium The increase in data management burden is a challenge.	Unknown	Small (In sequence, it will be integrated with XYP and e-Mongolia.)
Establishing a Cross-Ministerial (Including Local Governments) Data Integration Platform	Following the initial data integration by the National Data Center, the next step is to aim for reducing server load and security risks.	Centered around the intergovernmental data integration platform XYP, the unified database (NDC) and various interfaces such as e-Mongolia have already been integrated	Hearing to e-Mongolia	There are no major issues, but the update of XYP data (a new approach to reducing server load and security risks) is being discussed within NDC and e-Mongolia.	High The Mongolian data integration platform is a strength of the Mongolian ICT industry, and there is a continuous high demand for updates and enhancements.	Small (The data integration platform is already in place.)	Yes (XYP and e-Mongolia)	Medium (Updating the data integration platform and exploring new approaches)
Data Integration Platform in Specific Private Industries (e.g., Mining, Finance)	-	There is a proven track record of data integration with companies in the API format with e-Mongolia. Other details are unknown.	Hearing to e-Mongolia	There is room for improvement from the perspective of promoting future collaboration with companies.	Medium (It is important as part of strengthening and improving the efficiency of Mongolia's key industries.)	High (There is room for improvement from the perspective of corporate collaboration.)	Yes (integration with e-Mongolia)	High (Data sharing for industrial development)
Handling of Personal Information	Establishing a reliable data integration platform	e-Mongolia operates on an opt-in basis.	Hearing to e-Mongolia	None in particular.	Small (While continuous efforts to maintain transparency are necessary, there are opinions that as long as it is convenient, it is acceptable for personal data protection to be less stringent.)	Small (It is being managed through an opt-in approach.)	Yes (managed through opt-in)	Small (There is a tendency to prioritize service improvement over personal information, and the awareness of the issue is not high)

(b) Key Areas of Focus in the Consideration of Support Measures by the Mongolian Government and JICA (Data Integration)

Considering the aforementioned issues, a key area of focus in the consideration of support measures would be the establishment of a data integration platform for specific private industries. Although the current state of inter-company data integration in Mongolia remains unknown due to a lack of investigation, a meeting with the Center for Health Development revealed a strong need for the mutual sharing of patient medical data among healthcare institutions. This suggests that there may be a certain level of demand for data integration and mutual utilization in specific industries within the country. Additionally, in recent years, the importance of data as a strategic asset has increased in Japan as well, and efforts related to inter-company data sharing, known as "data sharing," are progressing from the perspective of new business creation and marketing efficiency. In Mongolia, approaches to promote data sharing, such as the development of data standard specifications in specific industries and the establishment of data trading markets, could greatly benefit from Japan's industry practices.

Table 49 Step 2: Evaluation of the Priority Research Areas for the Mongolian Government and JICA's Support Measures (Data Integration)

Theme	Challenges	Consideration of Necessity/Possibility of JICA Support for the Challenges		Evaluation Result: Priority Research Area
		Presence of Development Partners: Yes/No	Availability of Japanese Support Resources: Yes/No	
Research on Core Systems used by Ministries and Local Governments	Increased Data Management Burden Due to Different Data Infrastructures Between Local and Central Levels	Unknown	None	-
Establishing a Cross-Ministerial (Including Local Governments) Data Integration Platform	-	Yes (ADB is implementing measures to strengthen statistical data governance, integrate databases across various ministries, and provide technical assistance for database development and management)	None	-
Data Integration Platform in Specific Private Industries (e.g., Mining, Finance)	There is Room for Improvement from the Perspective of Promoting Future Corporate Collaboration	None	Yes	Priority Issues
Handling of Personal Information	Unknown	None	Unknown	-

(c) Direction of Support Measures by the Mongolian Government and JICA (Data Integration)

As previously mentioned, a data integration infrastructure already exists between ministries in Mongolia. Therefore, as a priority support plan, we propose to focus on promoting data integration in specific private industries. By conducting surveys, we will understand the current situation of various industries in Mongolia and explore the potential for addressing industry challenges through the utilization of data. Additionally, we will collect examples of industrial promotion through data sharing from overseas, including Japan, and investigate their applicability in Mongolia. Based on this, we will form a consortium with private companies and the Mongolian government to discuss the ideal state of data integration in identified industries. Subsequently, we will select target companies and vendors for platform development, and conduct the necessary preliminary preparations to implement the final data integration approach decided through consortium discussions (envisioning large-scale data integration hub platforms or data trading markets, for example). Following this

process, we will identify the data sets to be shared and support the entire process up to the actual commencement of operations after validation in this technical project.

Table 50 Step 3: Direction of Support Measures by the Mongolian Government and JICA (Data Integration)

Theme	Evaluation Result		JICA's Support Direction			
	Scale of the Challenge	Priority Research Area	Support Menu	Main Activities	Proposed Scheme	Counter part
Research on Core Systems used by Ministries and Local Governments	Unknown	-	Capacity Development Program for the Formation of a Data Integration Infrastructure	Design a data integration infrastructure based on the actual conditions of the core systems of each ministry and local government.	Technical Cooperation	MDDIC
Establishing a Cross-Ministerial (Including Local Governments) Data Integration Platform	-	-		- Store the data held by ministries and local governments in the data integration infrastructure. - Establish a system in which data stored in the data integration infrastructure by ministries and local governments can be utilized by other agencies.	Technical Cooperation	Ministry in Charge of XYP Management
Data Integration Platform in Specific Private Industries (e.g., Mining, Finance)	Small	Priority Issues		- Select specific industries to promote data integration. - Solicit and select private companies to implement data integration. - Identify the data items to be targeted for data integration. - Develop data sharing platforms such as data integration infrastructure.	Technical Cooperation	MDDIC
Handling of Personal Information	Small	-		- Develop laws regarding the handling of personal information. - Establish rules for handling personal information based on the law (specifically, practically define legal requirements such as conditions for anonymization).	Technical Cooperation	Ministry in Charge of XYP Management

Chapter 5 Detailed investigation and analysis of priority areas

1. ICT and Digital Industry Promotion (Overseas Expansion of ICT and Digital Industries)

In addition to the Japan-Mongolia business matching in the pilot project, this study examined Mongolia's ICT and digital industries and startup's strategy for overseas expansion. In April 2023, the Ministry of Economic Development of Mongolia began formulating the National Export Strategy for Prioritized Non-Mining Sectors, a national export strategy targeting priority sectors other than mining. IT services were positioned as one of the target sectors, and the strategy was formulated in collaboration with the MDDIC. For this reason, the National Export Strategy formulated by the Ministry of Economic Development and the MDDIC will be referred to in this study in order to utilize the overseas expansion strategy examined in this study to consider future cooperation by JICA.

1) Why overseas expansion is necessary at the national level

There are two main reasons why Mongolian ICT and digital industries and startups need to expand overseas.

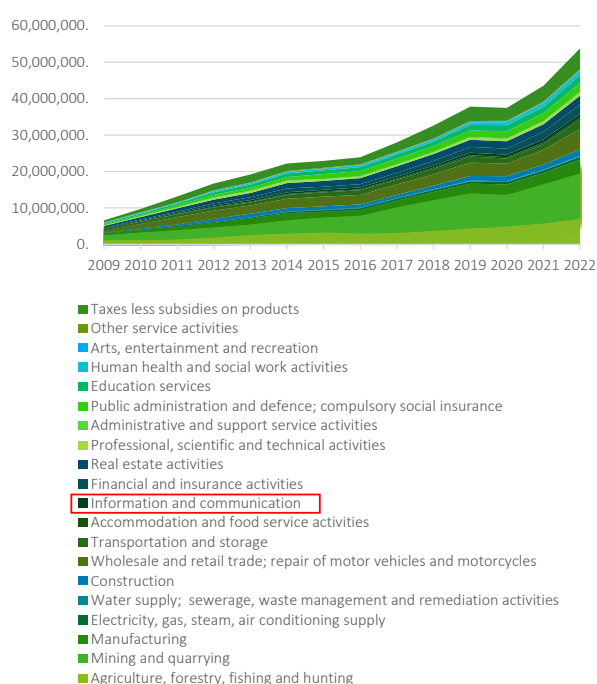
Table 51 Objectives of overseas expansion

Objective of overseas expansion	1 To get foreign currency (= to promote new export industry)	2 To get necessary resources (including fund and technology) from other countries
Challenges in Mongolia	- Exports depends on mining and agriculture - Landlocked	- Limited domestic resources in funding (not many VCs and accelerators) - Especially limitation in hardware industry
Opportunities in Mongolia	- Human resource: Young, STEM, Mathematical Olympiad, language fluence - Test field for new technology (such as radio wave license)	

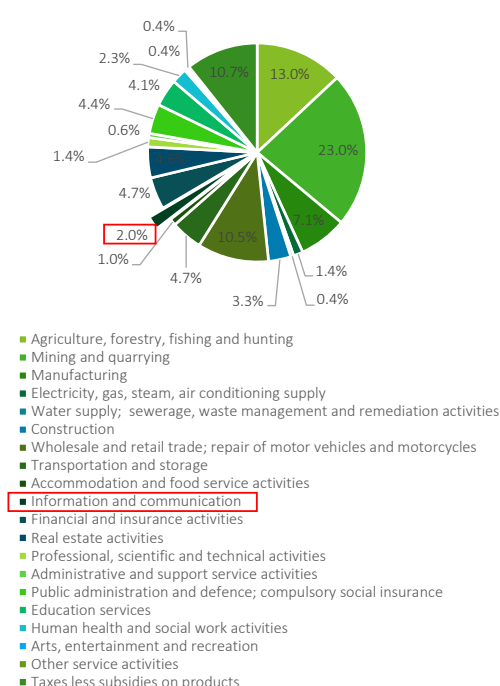
Source: JICA Study Team

As shown in the figure below, the mining industry and the agricultural and pastoral industry have accounted for a large share of Mongolia's GDP, while the information and communications sector accounted for a mere 2% of the country's GDP in 2022. On the other hand, the mining industry is strongly affected by international market conditions and resource prices, and there is a need for the next pillar industry.

GDP by division (MNT million, current price)



GDP by division (2022, current price)

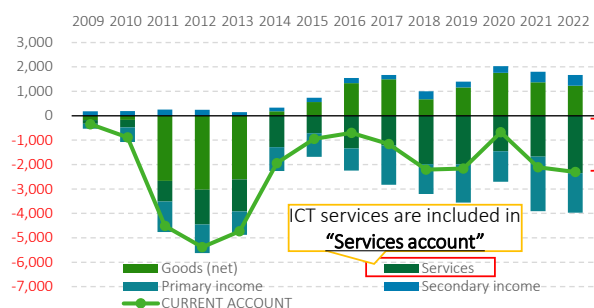


Source: Compiled by JICA Study Team based on data from the National Statistics Office of Mongolia

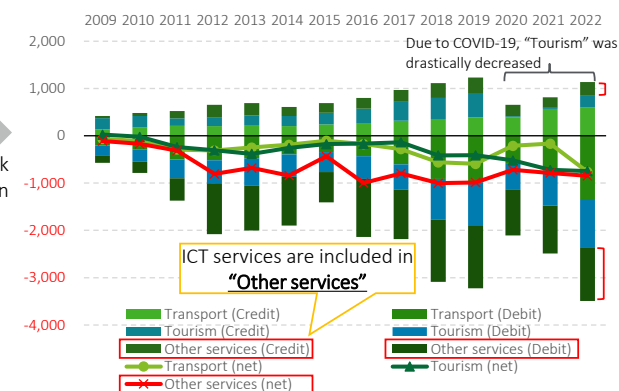
Figure 34 Changes in Mongolia's GDP and share by division in 2022

Mongolia's Current Account has been in the red, as shown in the figure below, and while its Goods Account has turned into a surplus, its Services Account, including ICT services, remains in the red. A breakdown of the Services Account shows that "other services," including ICT services, consist of: i) the amount of payments for ICT services to other countries; and ii) stable but small income related to ICT services from overseas. These findings suggest that in order to earn foreign currency, in addition to the importance of expanding the ICT industry overseas, it is also important to promote the substitution of overseas services through the in-house production of ICT services.

Current account (USD million)



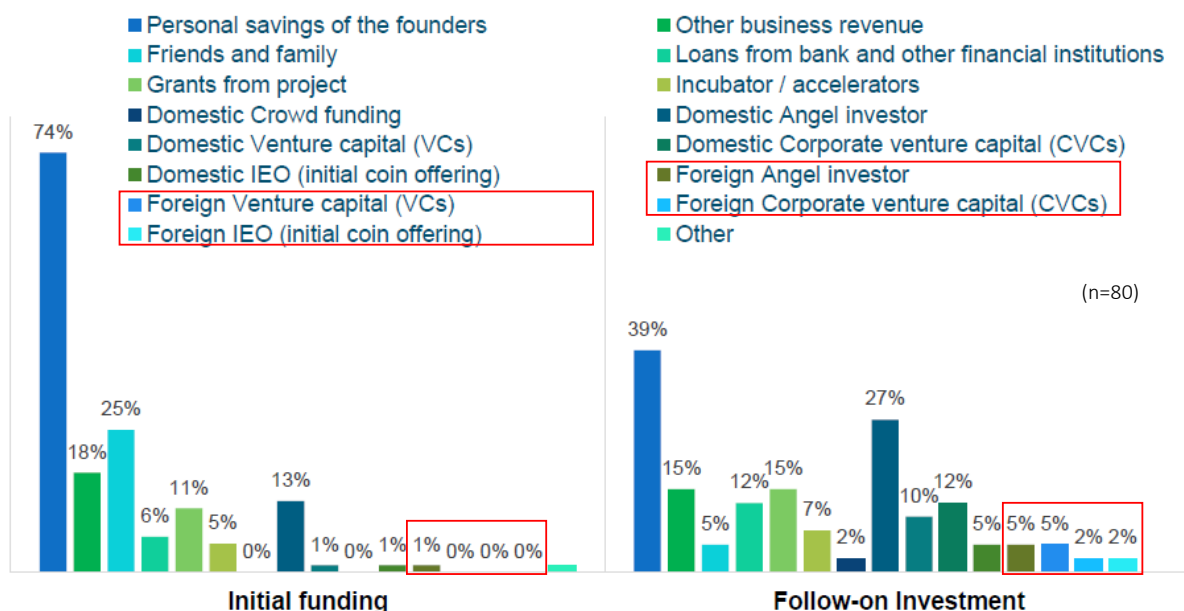
Service account (USD million)



Source: Compiled by JICA Study Team based on data from the National Statistics Office of Mongolia

Figure 35 Changes in Mongolia's Current Account and Services Account

Looking at the financing situation of Mongolian startups with regard to "acquisition of necessary resources," as shown in the figure below, 39% of even follow-on investments (investments made by investors who have previously invested in a company) depend on "founder's personal savings," and financing from overseas angel investors, VCs, CVCs, etc. circled in red is particularly limited.

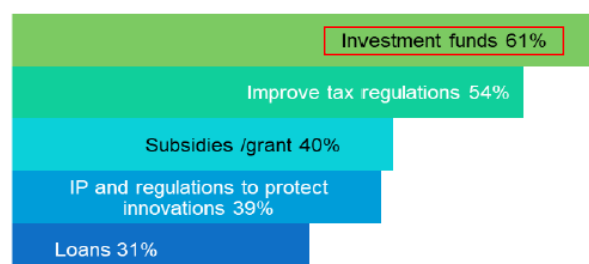


Source: Baseline survey of the Mongolian start-up ecosystem (JICA/KITE/MMCG)

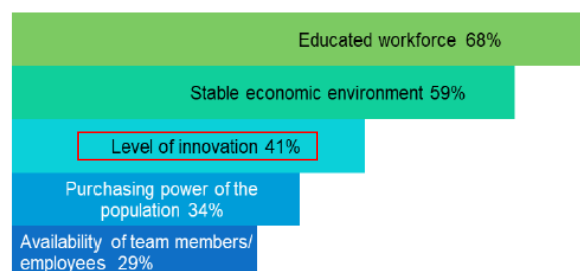
Figure 36 Initial and follow-up investments by source of funds in Mongolia

In relation to this, as shown in the figure below, 61% of Mongolian startups list investment as the most necessary support. In addition to human resources and economic environment, the level of innovation is also mentioned as a factor necessary for building the SU ecosystem in Mongolia, as outlined in the red box.

Top 5 most needed support for start-ups



Top 5 factors to support startup ecosystem in Mongolia



Source: Baseline survey of the Mongolian start-up ecosystem (JICA/KITE/MMCG)

Figure 37 Support needed by startups in Mongolia and elements required to build ecosystem

For these reasons, acquiring necessary resources (such as funds and technologies) from overseas is considered to be one solution to this problem.

2) Types of overseas expansion

Mongolian ICT and digital industries can develop overseas in the following three ways.

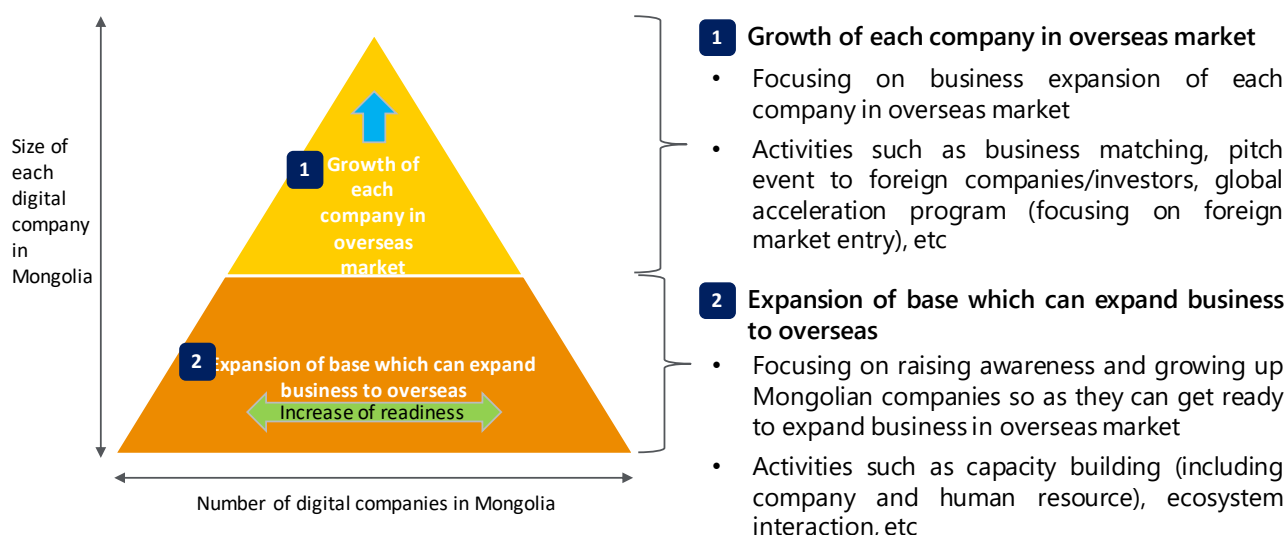
Table 52 Types of Overseas Expansion

Category	1 Service expansion	2 Technology collaboration	3 Fundraising
Overview	- To sell digital service/ product to overseas market (including off-shore development) - If necessary, establish foreign branch	- To create new service/ product through collaboration with foreign companies - Market of new service/ product will be Mongolia or other countries	To raise fund from foreign investors and/ or companies
Expected result	To get foreign currency	To create new product/ service with foreign companies	To raise fund from foreign investors and/ or companies
Target region/country	Asian countries including Central Asia and Southeast Asia	Japan, Singapore, USA and Europe	Japan, Singapore, USA and Europe

Source: JICA Study Team

3) Policy to support overseas expansion

The following two policies can be considered to support overseas expansion of Mongolia's ICT and digital industries.



Source: JICA JICA Study Team

Figure 38 Policy for supporting overseas expansion

Examples of overseas expansion support activities based on these two policies are as follows.

Table 53 Examples of overseas expansion support activities

	Activities	Overview
Policy 1: Growth of each company in overseas market	Business matching (including pitch event)	• Business matching tour or event (mainly with ecosystem partner or target country/ region) • Pitch event for foreign companies and investors • Top sales by * These activities are conducted in PP1, Japan Mission.
	Global Acceleration program	• Acceleration program focusing on overseas expansion, alliance with foreign companies, or fundraising from foreign investors * This activity is partly conducted in PP3, MONJA.
	Innovation trial support	• Provision and coordination of test field of new technology created in collaboration between Mongolian and foreign companies
	Consultation	• Establishment of consultation desk • Provision of consultation on overseas expansion to each company (including legal & tax matter)
	Participate in international ICT event	• Participation in international ICT event (like CES and MWC) as Team Mongolia
Policy 2: Expansion of base which can expand business to overseas	Capacity building of digital companies	• Provision of information on overseas market, trade practice, etc • Training on trade practice (for ICT sector), etc
	Capacity building of human resources	• Training on programming skill both for students and business persons * This activity is partly conducted in PP4, DXCUP.
Cross-cutting activities	Partnership with foreign ICT ecosystem	• Signing of MoU with foreign ICT ecosystem • Co-organizing of event or business matching with ecosystem partner * This activity is partly conducted in PP1, Japan Mission.
	National level event (such as ICT Expo)	• Conducting national level ICT event (such as ICT Expo) • Inviting foreign companies and investors
	Networking platform	• Establishment of Mongolian ICT community (focusing on Mongolian living in foreign countries) • Networking and support each other when expanding business to certain country * This activity is partly conducted in PP1, Japan Mission.
	PR	• Preparation of website to promote Mongolian ICT industry • Preparation of PR material such as brochure

Source: JICA Study Team

4) Discussions on overseas expansion strategies in Working Group

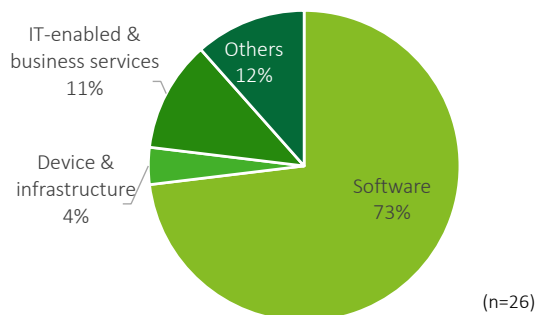
At the WG held in April 2024, the overseas expansion strategy was discussed. In order to gather opinions from private companies more widely, this WG conducted a preliminary questionnaire to ICT companies, and based on the results, held discussions at the WG.

Results of Questionnaire Survey for ICT Companies on Overseas Expansion

In March and April 2024, utilizing networks such as IT Park and private accelerators, we conducted a

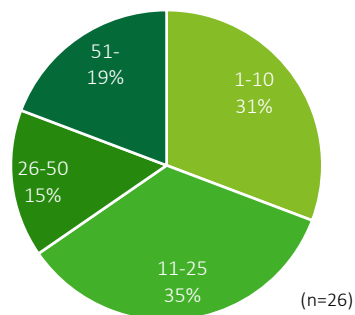
questionnaire for Mongolian ICT companies (Including companies that have a corporate entity and conduct business in Mongolia but have their head office registered overseas for financing, etc.) regarding their overseas expansion, and received 26 responses in total. It should be noted that respondents included eight companies that participated in last year's Japan Mission as part of pilot project 1, namely, Japan-Mongolia Business Matching, so it is possible that "Japan" was selected more than expected as the destination for expansion.

The attributes of the respondent companies are shown in the figure below. The analysis was conducted by product/service type and company size (number of employees).



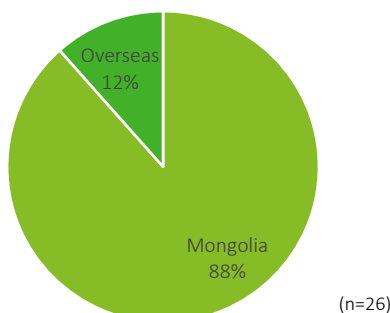
Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 39 Product/Service Types



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 40 Company Size (Number of Employees)



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 41 Head Office

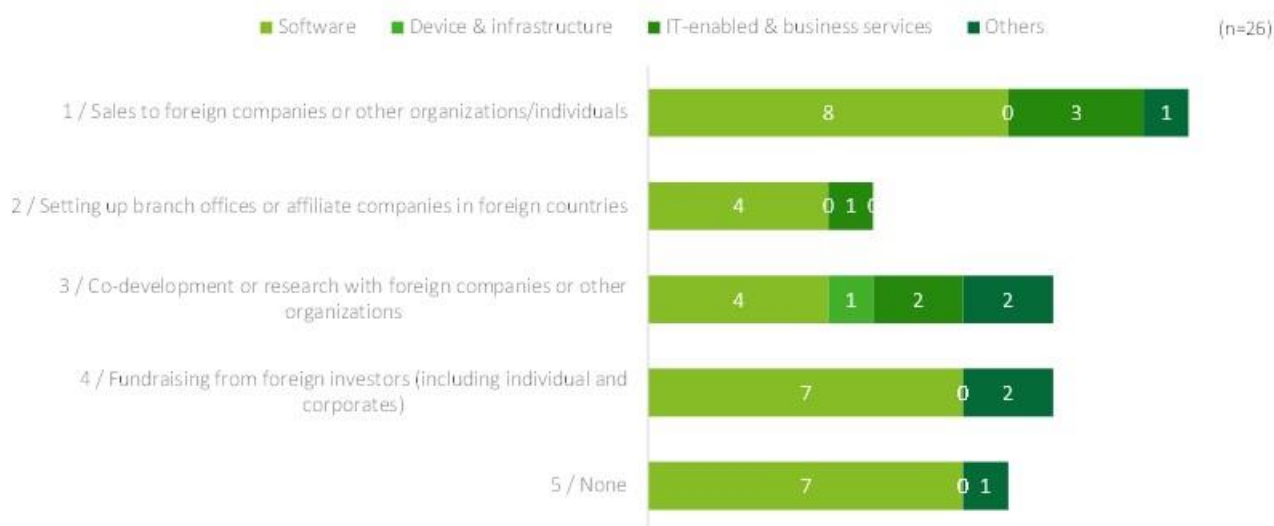
■ Current Status of Overseas Expansion

- "Sales to foreign companies or other organizations/individuals" is the most common.
- Larger companies (51 + employees) tend to have overseas branches.
- Smaller companies are more likely to say they have not expanded overseas.
- The other items show little variation by firm size.
- "Software" companies are primarily "Sales" and "Fundraising" types of overseas expansion.



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 42 Companies' overseas expansion by number of employees (multiple answers allowed)



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 43 Companies' Overseas Expansion by Product/Service Type (Multiple answers allowed)

■ Regions where "Sales to foreign companies or other organizations/individuals" are established

- Neighboring countries such as Japan, East Asia and Central Asia are the main countries and regions to sell the products.
- There are few differences by company size and product/service type.



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 44 Regions of Selling to Foreign Companies or Other Organizations/Individuals by number of employees (Multiple answers allowed)

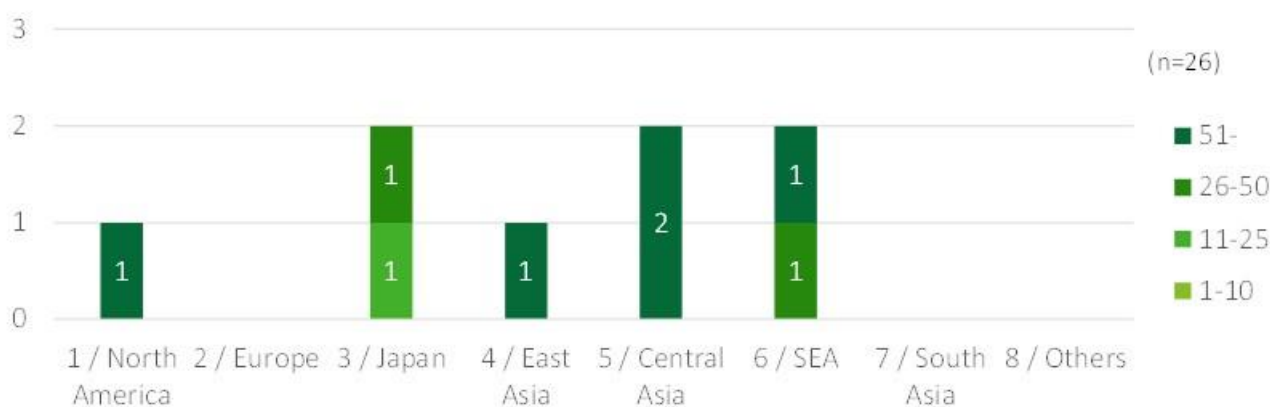


Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 45 Regions of Selling to Foreign Companies or Other Organizations/Individuals by Product/Service Type (Multiple answers allowed)

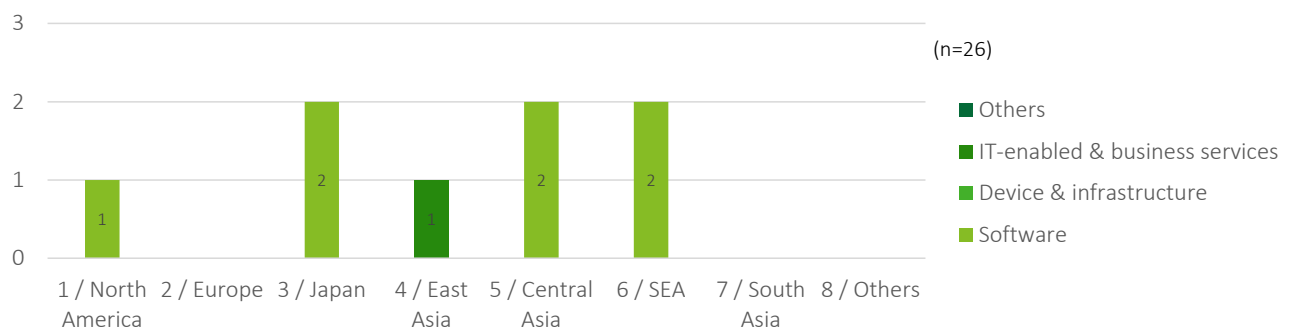
■ Regions where overseas branches and subsidiaries are established

- Neighboring countries such as Japan, East Asia and Central Asia are the main target countries and regions for establishing branches and subsidiaries.
- Southeast Asia (mainly Singapore) is also listed as a country where branches and subsidiaries are established.



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 46 Locations of Establishing Overseas Branches and Subsidiaries by Number of Employees (Multiple answers allowed)



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 47 Locations of Establishing Overseas Branches and Subsidiaries by Product/Service Type (Multiple answers allowed)

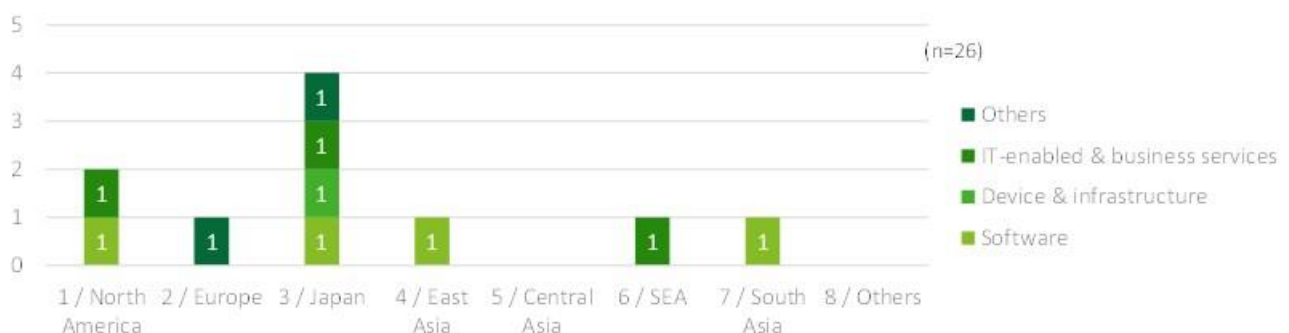
■ Regions where "Joint research and development with overseas companies and other organizations" are established

- Developed countries such as Japan and North America are the main target countries and regions for joint research and development.



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 48 Regions of "Joint Research & Development with Overseas Companies and Other Organizations" by Number of Employees (Multiple answers allowed)

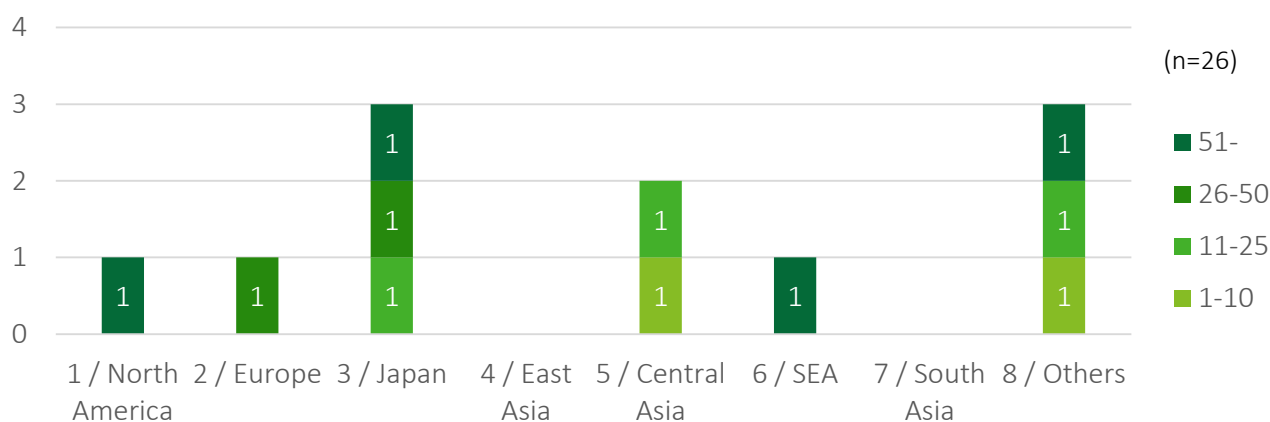


Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 49 Regions of "Joint Research & Development with Overseas Companies and Other Organizations" by Product/Service Type (Multiple answers allowed)

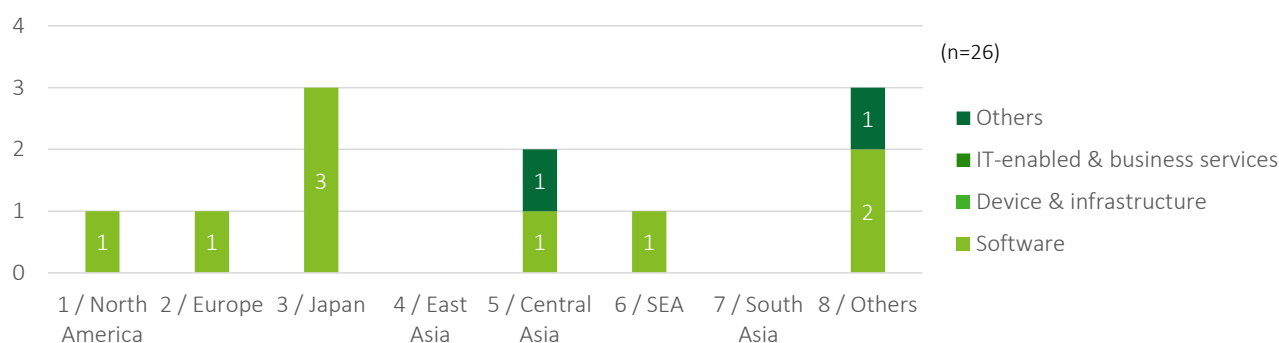
■ Regions for fundraising from overseas investors

- Larger companies are raising funds from developed countries such as Japan, North America, Europe and Southeast Asia (Singapore).
- Smaller companies also raise money in Central Asia (Kazakhstan).



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 50 Locations of Companies' Fundraising from Foreign Investors by Number of Employees (Multiple answers allowed)

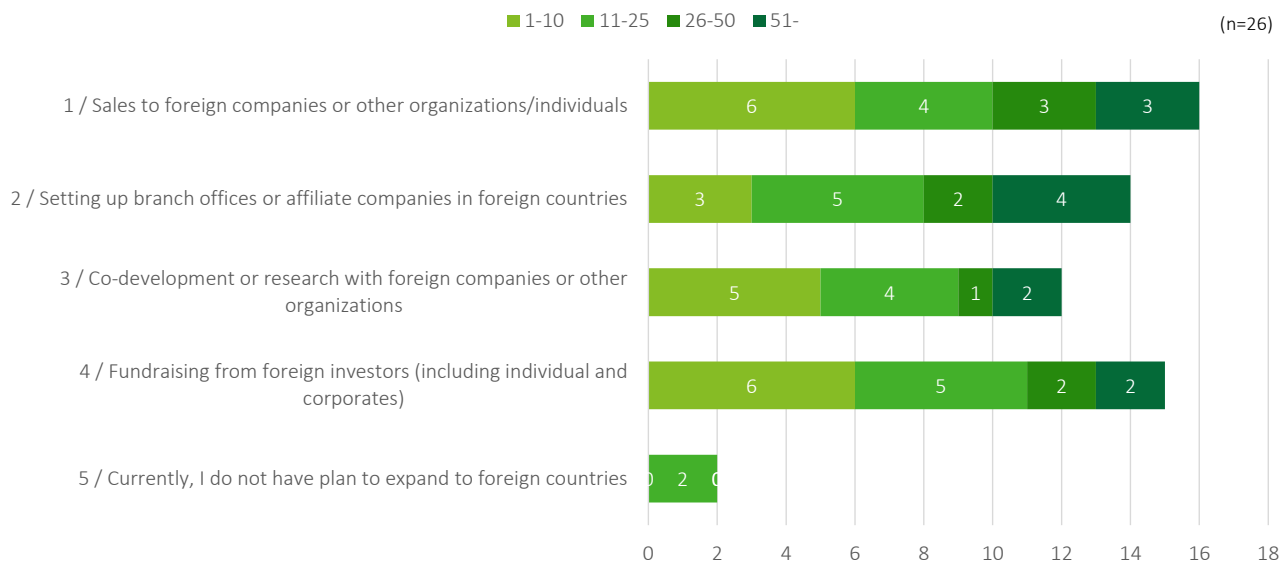


Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 51 Locations of Companies' Fundraising from Foreign Investors by Product/Service Type (Multiple answers allowed)

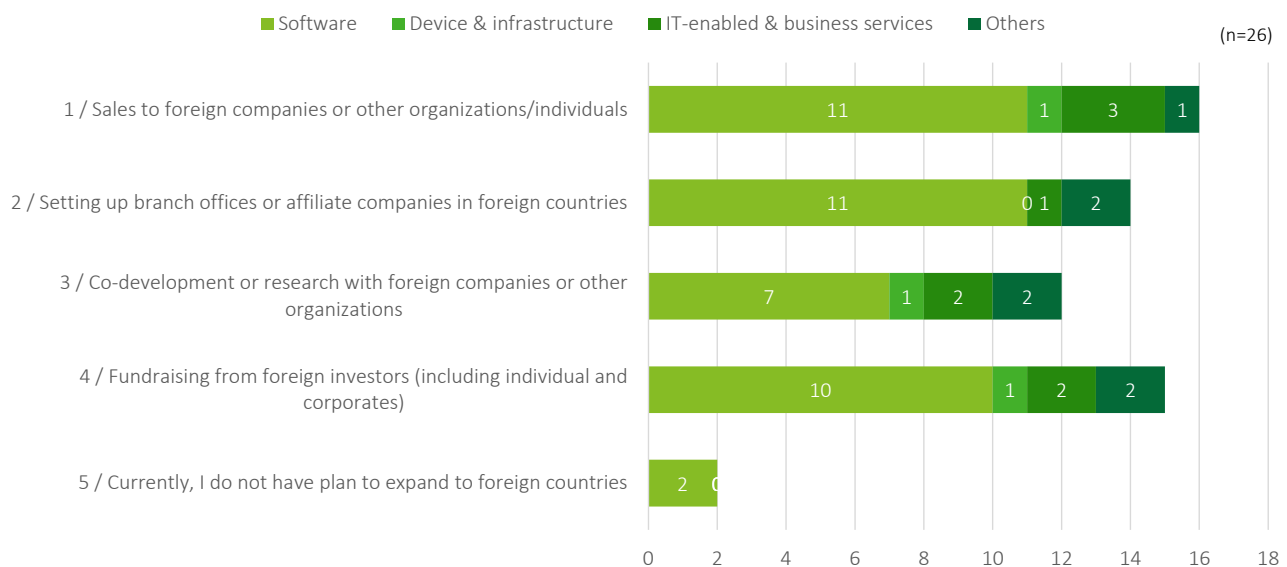
■ Overseas expansion plan

- "Sales" and "Fundraising" are the main types of overseas expansion plans.
- Larger companies are more likely to plan overseas branches.
- Focusing on "Software", the main types of overseas expansion plans are "Sales", "Establishment of a branch office," and "Fundraising".



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 52 Companies' Overseas Expansion Plans by Number of Employees (Multiple answers allowed)

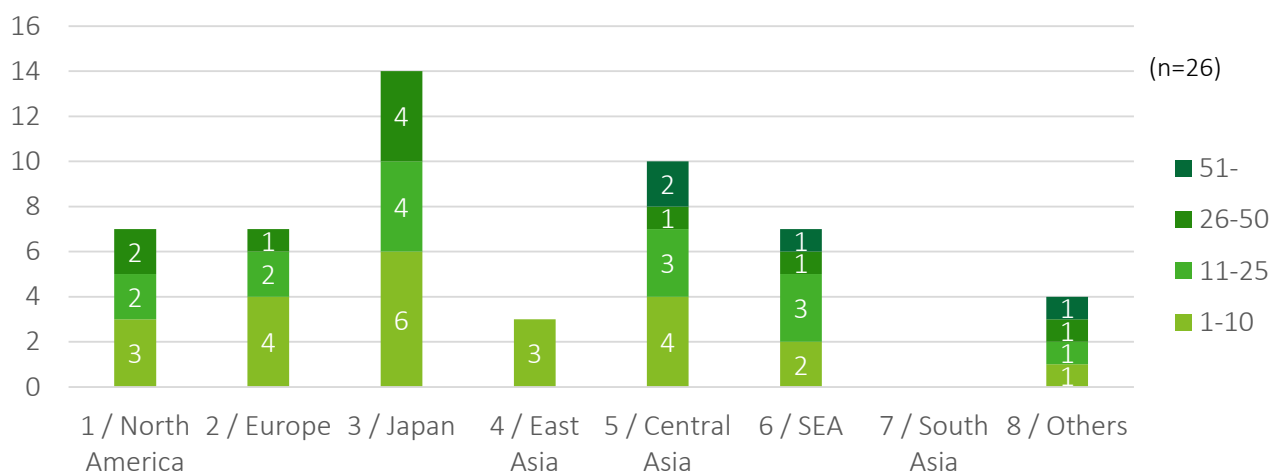


Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 53 Companies' Overseas Expansion Plans by Product/Service Type (Multiple answers allowed)

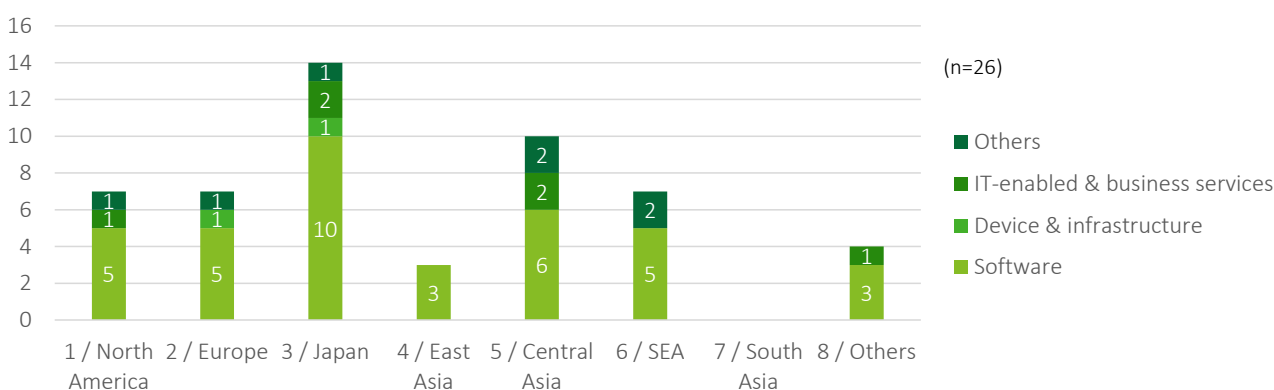
■ Target regions in overseas expansion plans

- Japan is the main destination in the overseas expansion plan, followed by Central Asia. Reasons for entering Central Asia include cultural proximity and less competition than in developed and Southeast Asian markets.
- There are few differences by company size and product/service type.



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 54 Destination Regions in Companies' Overseas Expansion Plans by Number of Employees (Multiple answers allowed)

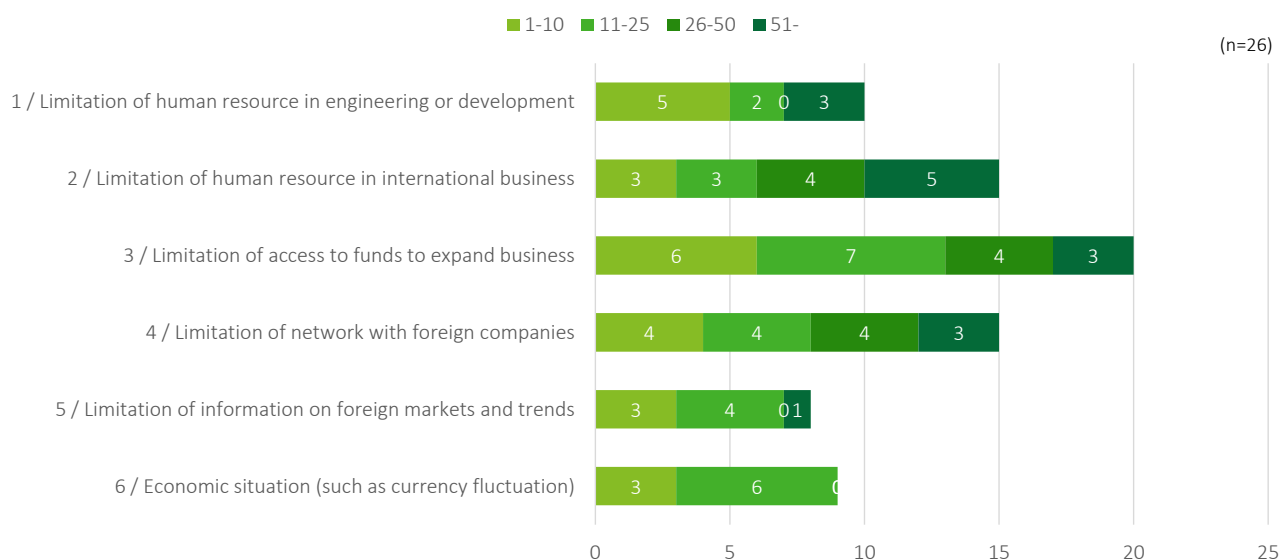


Source: Compiled by JICA Study Team based on the results of the questionnaire

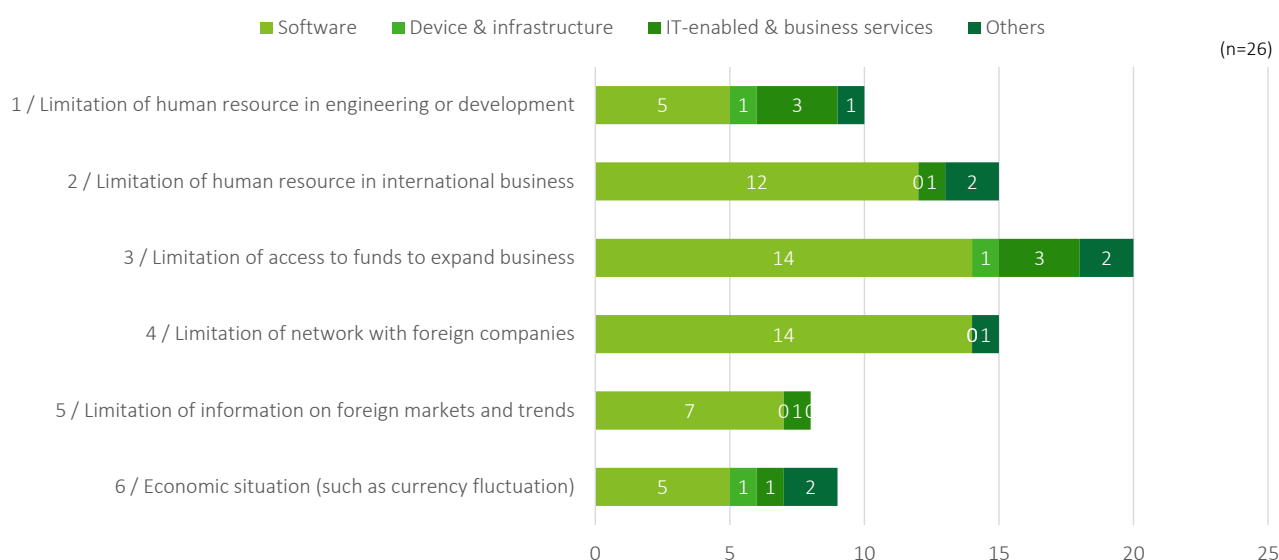
Figure 55 Destination Regions in Companies' Overseas Expansion Plans by Product/Service Type (Multiple answers allowed)

■ Challenges in overseas expansion plans

- “Limitation of access to funds to expand business” is the biggest challenge, followed by “Limitation of human resources in international business” and “Limitation of network with foreign companies”.
- Larger companies face a major challenge of " Limitation of human resources in international business".
- “Limitation of access to funds to expand business” is the main issue for small companies.
- Software companies face “Limitation of access to funds to expand business” and “Limitation of network with foreign companies”.



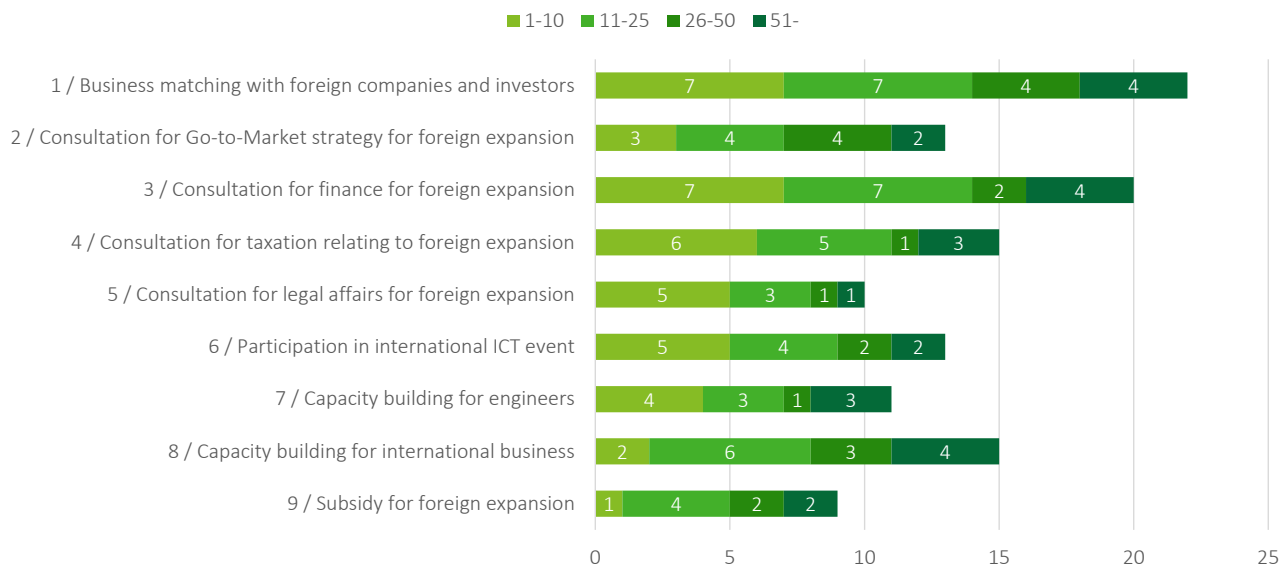
Source: Compiled by JICA Study Team based on the results of the questionnaire
Figure 56 Challenges in Companies' Overseas Expansion Plans by Number of Employees (Multiple answers allowed)



Source: Compiled by JICA Study Team based on the results of the questionnaire
Figure 57 Challenges in Companies' Overseas Expansion Plans by Product/Service Type (Multiple answers allowed)

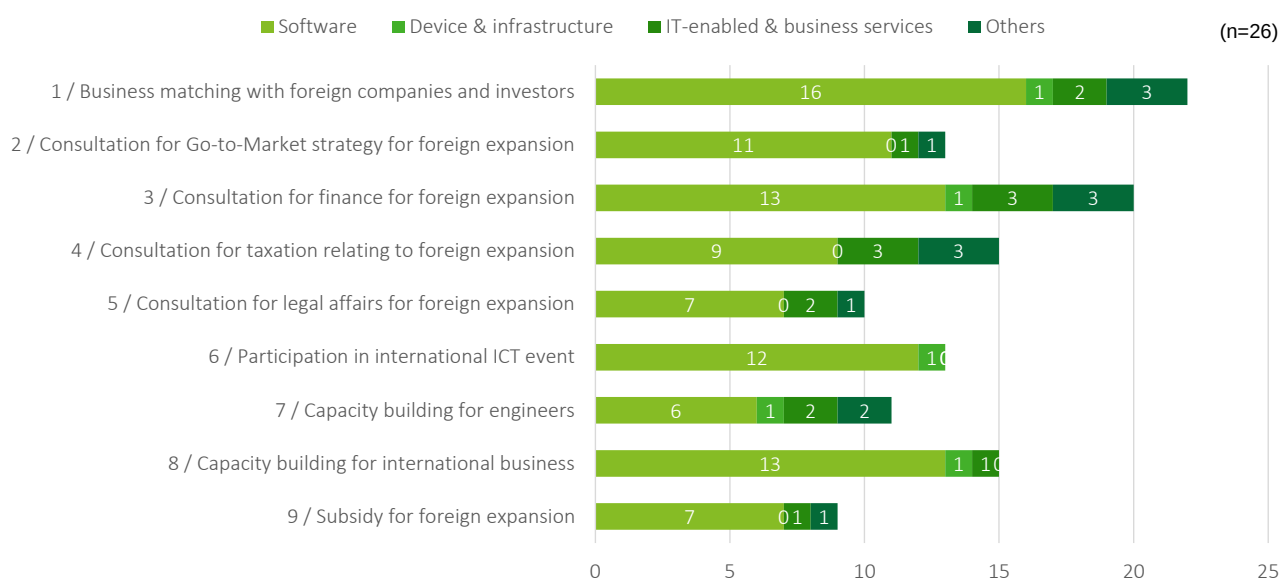
■ Necessary support for overseas expansion plans

- "Business matching" is the most needed, followed by "Consultation for finance".
- The major needs of large enterprises are "Capacity building for international business" in addition to the above.
- "Consultation for taxation" is the main need of small enterprises in addition to the above.
- Software companies have major needs for "Business matching", "Consultation for finance", and "Capacity building for international business".



Source: Compiled by JICA Study Team based on the results of the questionnaire

Figure 58 Support needed for Overseas Expansion Plans by Number of Employees
(Multiple answers allowed)

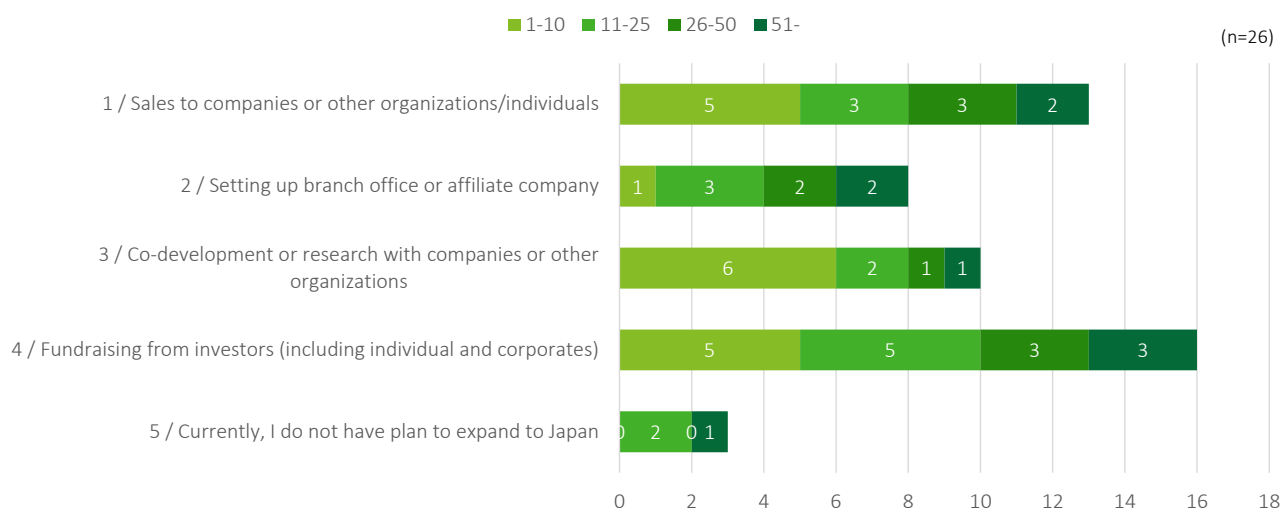


Source: Compiled by JICA Study Team based on the results of the questionnaire

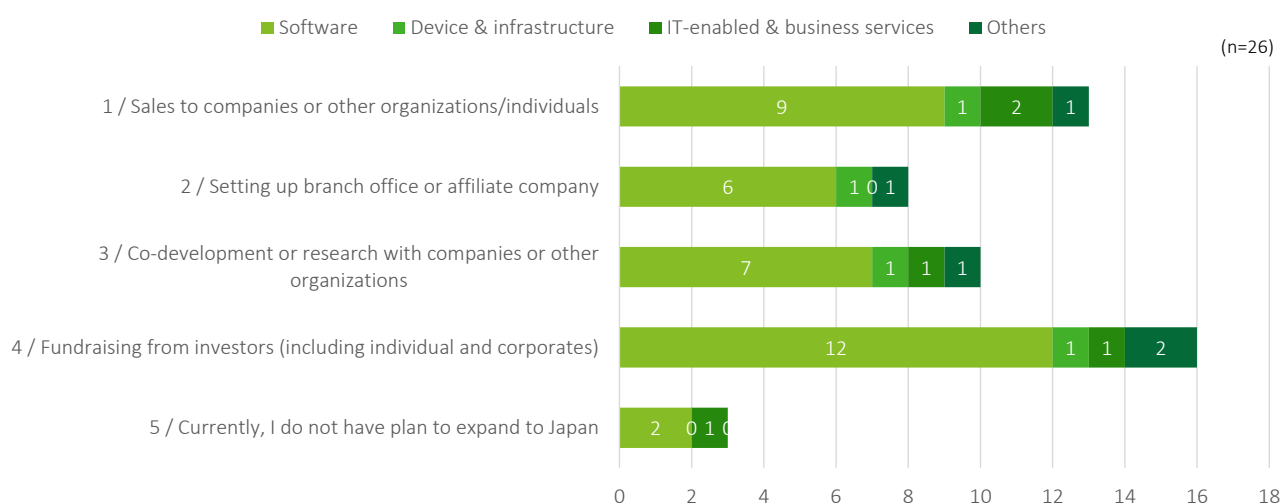
Figure 59 Support needed for Overseas Expansion Plans by Product/Service Type
(Multiple answers allowed)

■ Plans to expand into Japan

- Many companies expect to raise funds in Japan, followed by sales to the Japanese market.



Source: Compiled by JICA Study Team based on the results of the questionnaire
Figure 60 Companies' Expansion Plans into Japan by Number of Employees (Multiple answers allowed)



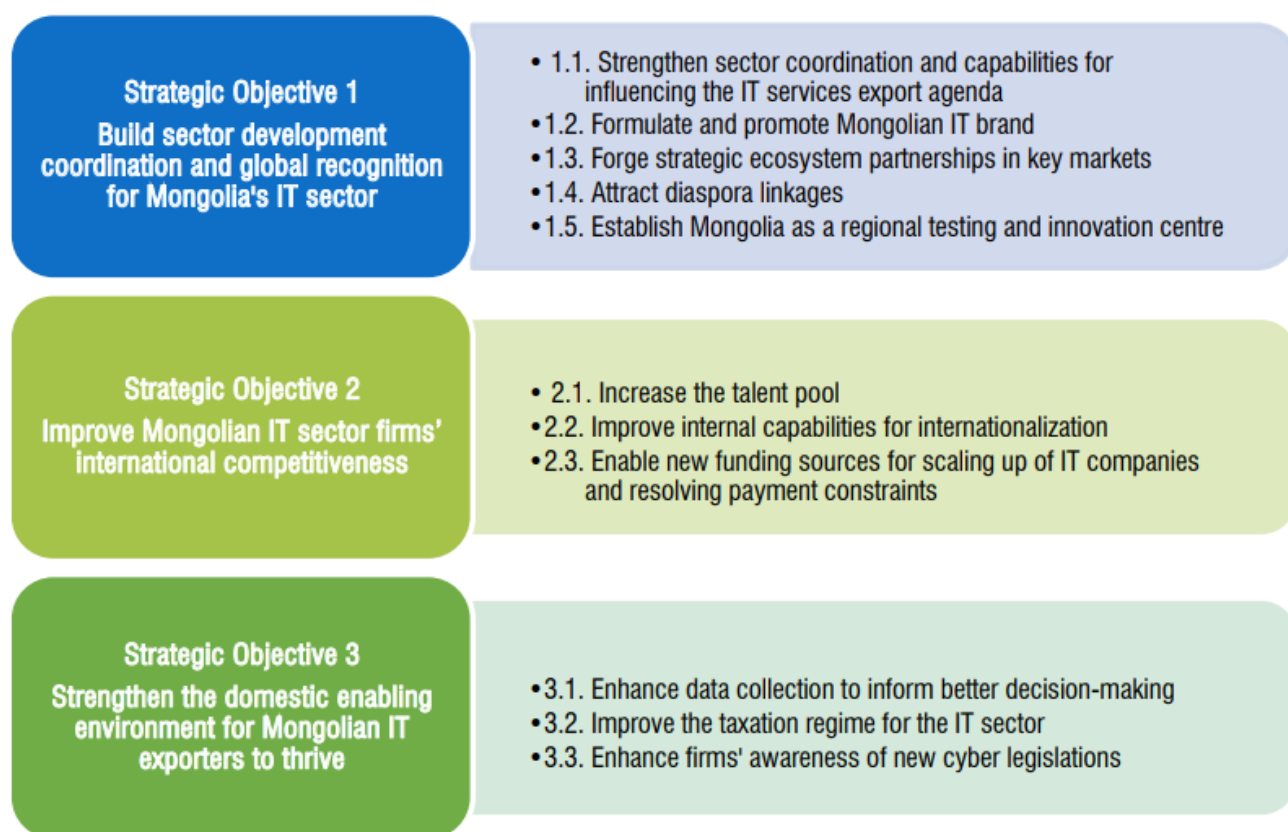
Source: Compiled by JICA Study Team based on the results of the questionnaire
Figure 61 Companies' Expansion Plans into Japan by Product/Service Type (Multiple answers allowed)

The results of the above questionnaire indicate that there are many support needs for business matching, fundraising (including consultation), and capacity building related to international business. The National Export Strategy, which will be described later, covers these items, but at present, business matching is focused on exhibiting at international exhibitions, and support for raising funds from overseas and capacity building for international business are limited.

5) Points of Attention Regarding Overseas Expansion Strategy

As mentioned earlier, in April 2023, the Ministry of Economic Development of Mongolia formulated the National Export Strategy for Prioritized Non-Mining Sectors, a national export strategy targeting priority sectors other than mining, and IT services are one of the target sectors. The planning object period is from 2024 to 2028. The International Trade Center worked as an international consultant, and IT Park worked as a national consultant. Approval procedures were in place as of April 2024, and further discussions will be held with donors and others regarding collaboration in each of the activities described in the Strategy. Although there are some differences in the way this Export Strategy is organized, there are many aspects that overlap with the overseas expansion hypothesis examined in this study in terms of concrete action plans. When considering cooperation in this field in the future, it is necessary to discuss the possibility of cooperation with related organizations.

In the Export Strategy, "A Globally competitive IT Sector Driven by Innovation" is presented as a vision statement and summarized in the strategic framework shown below.



Source: Mongolia IT Services Export Strategy

Figure 62 Framework of Export Strategy

The table below shows the action plan and the role of each ministry in the Mongolia IT Services Export Strategy.

Table 54 Action Plans and the Role of Each Ministry in the Mongolia IT Services Export Strategy (2024) (excerpt)

Strategic objective 1: Build sector development coordination and global recognition for Mongolia's IT sector					
	Activity	Time frame	Lead implementing partner	Supporting implementing partner	Possible funding source
	1.1. Strengthen sector coordination and capabilities for influencing the IT services export agenda				
	1.1.1: Establish a Sector Advisory Committee specifically for IT services exports comprising existing associations and relevant public sector, ensuring inclusiveness of industry stakeholders.	2023-2027	Sector associations	MDDC, Ministry of Economy and Development	Public
	1.1.2: Strengthen leading sector associations' capabilities to better serve the industry	2023-2027	Sector associations	Development partners	Development partners
	1.2. Formulate and promote Mongolian IT brand				
	1.2.1. Conduct industry consultative roundtables to brainstorm on brand positioning	2023-2024	MDDC	Mongolian Software Industry Association	Development partners
	1.2.2. Develop Mongolian IT brand identity and associated collaterals and templates	2024-2025	MDDC	Mongolian Software Industry Association	Development partners
	1.2.3. Conduct awareness sessions for Mongolian embassies in foreign markets and foreign missions in Ulaanbaatar	2025-2026	Ministry of Foreign Affairs	Software Association, MDDC	Public
	1.3. Forge strategic ecosystem partnerships in key markets				
	1.3.1. Strengthen the Silkroad Innovation Hub facility in Silicon Valley with private sector partnership	2024-2027	TBD	Individual IT companies	Private
	1.3.2. National IT Park of Mongolia to forge partnerships with other tech hubs/parks	2024-2027	National IT Park of Mongolia	MDDC	N/A
	1.3.3. Support internationalization of private accelerator and incubator programmes	2024-2027	Individual accelerator and incubators	MDDC	Private
	1.4. Attract diaspora linkages				
	1.4.1. Introduce a 'technology ambassador' soft diplomacy programme	2024-2027	Prime Minister's Office	Ministry of Foreign Affairs, MDDC	Public
	1.4.2. Hold networking events in key markets for Mongolian diaspora in IT roles	2024-2027	Ministry of Foreign Affairs	MDDC	
	1.4.3. Introduce a diaspora IT sector investment scheme	2023-2027	Ministry of Finance	Ministry of Economy and Development, MDDC	N/A
	1.5 Establish Mongolia as a regional testing and innovation centre				
	1.5.1. Develop and adopt the regulatory framework for emerging and frontier technologies testing and experimentation	2023-2024	MDDC	Ministry of Finance	
	1.5.2: Formulate investment propositions and guidelines for specific verticals identified (drone testing, mining automation, extreme weather testing)	2023-2024	Ministry of Economy and Development	MDDC	
	1.5.3: Establish innovation centres for at least 3 identified verticals	2024-2026	Ministry of Economy and Development	MDDC	

*Continued on the next page

Strategic objective 2: Improve Mongolian IT sector firms' international competitiveness					
	Activity	Time frame	Lead implementing partner	Supporting implementing partner	Possible funding source
	2.1. Increase the talent pool				
	2.1.1. Implement matching funds for private IT academies	2023-2024	MDDC	Private IT academies Ministry of Finance	Public
	2.1.2. Conduct conversion programmes for non-tech graduates	2023-2025	National University of Mongolia		Public
	2.1.3. Conduct school awareness programmes to expand interest in IT jobs	2023-2027	Sector associations	MDDC	Private
	2.1.4. Attract foreign IT talent in specialist categories to support industry upgrading	2024-2027	MDDC	Immigration Agency of Mongolia, Ministry Foreign Affairs, Ministry of Economy and Development	Public
	2.1.5. Establish a public-private IT skill development council and conduct periodic meetings	2023-2027	Ministry of Education and Science	MDDC, Sector associations, Mongolian National Council for Education Accreditation	Public
	2.1.6. Support on-the-job training and apprenticeship schemes	2024-2027	MDDC	Ministry of Finance, Software Association	Public
	2.2. Improving internal capabilities for internationalization				
	2.2.1. Implement an export accelerator programme (EAP) to target high-potential companies	2024-2027	Ministry of Economy and Development	MDDC	Development partner
	2.2.2. Improve non-tech competencies for stronger go-to-market and reduce failure rates	2023-2027	Software association	MDDC	Development partner
	2.2.3. Promote the use of the internationalization readiness toolkit among tech startups seeking to internationalize	2023-2027	MDDC	Software Association, National IT Park of Mongolia	ITC
	2.3 Enable new funding sources for scaling up of IT companies and resolving payment constraints				
	2.3.1: Establish a Mongolia venture 'fund of funds'	2025-2027	MDDC	Ministry of Economy and Development, Ministry of Finance	Development partners, public
	2.3.2: Open project financing refinance facilities at key banks to support IT firms' international expansion	2024-2027	Individual banks	MongolBank	
	2.3.3 Enable PayPal and other global online payment platforms to support inward payments for IT exporters	2024-2027	MDDC	All stakeholders	N/A

*Continued on the next page

Strategic objective 3: Strengthen the domestic enabling environment for Mongolian IT exporters to thrive					
	Activity	Time frame	Lead implementing partner	Supporting implementing partner	Possible funding source
	3.1. Enhance data collection to inform better decision-making				
	3.1.1. Conduct an annual survey of IT companies to collate estimates of employment, revenue, and export earnings	2023-2027	Sector associations	MongolBank, National Statistics Office, Mongolian National Chamber of Commerce, and Industry (MNCCI), MDDC	N/A
	3.1.2. Improve digital economy and IT exports capture in national accounts and balance of payments	2024-2026	National Statistics Office	MongolBank	N/A
	3.2. Improve the taxation regime for the IT sector				
	3.2.1. Conduct periodic industry–government engagement sessions to reduce uncertainty/opacity of tax rules, resolve operational issues in tax compliance and address procedural inefficiencies	2023-2027	MDDC	Mongolian National Chamber of Commerce, and Industry (MNCCI), Sector associations, Ministry of Finance	N/A
	3.2.2. Introduce a special corporate income tax regime for IT export companies for a time-bound period	2023-2027	Ministry of Finance	MDDC, Ministry of Economy and Development, sector associations, Mongolian National Chamber of Commerce, and Industry (MNCCI)	Public
	3.3. Enhance firms' awareness of new cyber legislations				
	3.3.1. Conduct periodic workshops for IT firms to increase knowledge of cyber laws in regional and international markets alongside domestic laws	2023-2025	Sector associations	MDDC	Private
	3.3.2. Appoint key management personnel in each company to act as champions for personal data privacy, cybersecurity, and other related laws and conduct specialized training	2024-2025	Individual firms	Law firms	N/A

Source: Mongolia IT Services Export Strategy

6) Partner Support Trends

As mentioned above, the International Trade Center served as an international consultant to assist the Ministry of Economic Development of Mongolia in developing the National Export Strategy for Prioritized Non-Mining Sectors, a national export strategy for priority sectors other than mining. Approval procedures were in place as of April 2024, and further discussions will be held with donors and others regarding collaboration in each of the activities described in the Strategy. Although there are some differences in the way the Export Strategy is organized, there are many aspects that overlap with the overseas expansion hypothesis examined in this study in terms of concrete activity plans. In the future, when the Export Strategy is officially published, it is necessary to discuss the possibility of cooperation with related organizations.

In addition, as described in "Chapter 5 3. Building a startup ecosystem" below, as part of the EBRD's acceleration program, support is provided for overseas expansion of selected startups (mainly into Europe).

In cooperation with the private sector, a mission to the West Coast of the United States was conducted in January and February 2024 in cooperation with the Silkroad Innovation Hub, a community of entrepreneurs from Central Asia and Mongolia based on the West Coast of the United States.

7) Support Resources in Japan

Support for overseas expansion of Mongolia's ICT and digital industries covers a wide range of areas, and Japan's support resources are as follows.

- Building a support system for overseas expansion of the ICT and digital industries and raising their recognition (branding, etc.): J-Startup certification system by the Ministry of Economy, Trade and Industry and JETRO in Japan.
- Human Resource Development for Overseas Expansion of ICT and Digital Industries: JDLA cooperating with DX CUP, Nagaoka College of Technology developing industrial DX human resources through JICA Grassroots Technical Cooperation.

- Promoting cooperation between Mongolian ICT/digital industry and overseas ecosystems: Shinagawa Ward and other local governments in Japan.
- Development of ICT/Digital Industry Statistics: the Ministry of Internal Affairs and Communications of Japan, etc., for estimating digital trade balance.

2. Development of ICT and Digital Talent

1) Supply of ICT and Digital Talent

(a) Annual Number of Graduates Majoring in ICT and Digital Fields (by ICT Skill)

According to interviews with the Ministry of Education, as of 2024, 7,835 students are majoring in ICT and digital fields at universities, and the annual number of graduates is as shown in the table below. However, the breakdown of students by ICT major is not publicly available.

Table 55 Trends in the Number of Graduates Majoring in ICT

2019-2020	2020-2021	2021-2022	2022-2023
591	760	770	613

Source: Compiled by the JICA Study Team based on interviews with the Ministry of Education.

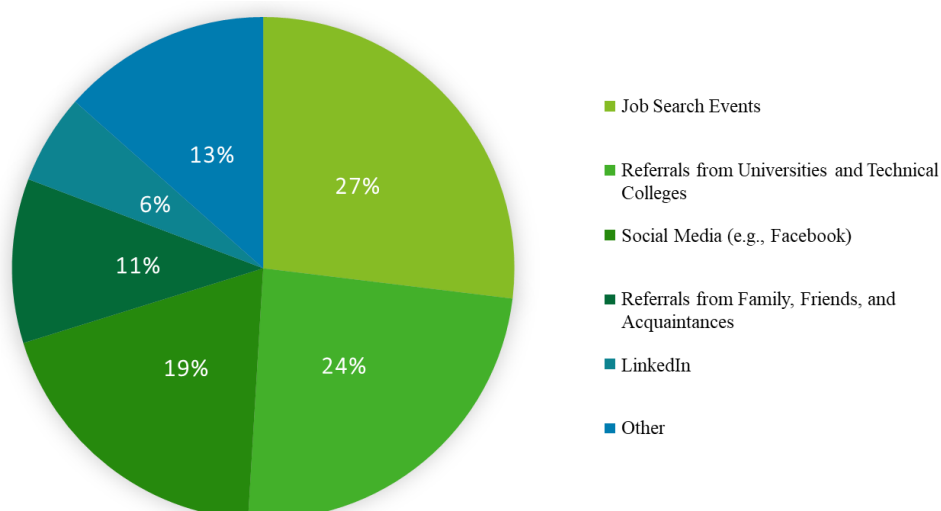
As stated in Chapter 3, Section 3. (1)(e), according to the National Statistics Office, the number of job openings in the ICT and digital industries in 2020 was reported to be 1,600. However, the number of graduates specializing in ICT and digital fields remains low compared to the demand for job openings.

To meet the growing demand for ICT and digital talent, increasing the number of students specializing in ICT and digital fields is an urgent issue. However, based on interviews with the Ministry of Education, while schools are establishing ICT and digital courses in response to industry needs, there are currently no policies or directives to increase or support the establishment of specialized ICT and digital courses.

(b) Trends in Job Hunting Activities of ICT and Digital Students

(1) Job Hunting Methods and Schedules

According to a survey conducted during the first job fair, the primary job-hunting methods for students are participation in job search events and referrals from universities or technical colleges. Unlike large-scale events such as job fairs where multiple companies exhibit and attract numerous students, the job search events in question are primarily organized by individual companies. Additionally, referrals from universities and technical colleges are facilitated through career centers. Other methods include gathering information and job hunting through social media and similar platforms.



Source: Compiled by the JICA Study Team based on the results of the 1st job fair survey

Figure 63 Job Hunting Methods of Students (n=122)

In non-ICT faculties, many students begin their job hunting after graduating in June. While a certain number of ICT faculty students also start job hunting after graduation, the majority of students concentrate their job-hunting

efforts during January to February of their fourth year at university or fifth year at technical colleges. Some proactive students even begin their job hunting as early as June of their third year at university or fourth year at technical colleges.

Furthermore, among ICT students, especially those from prestigious institutions, it is common for students to secure employment early by participating in internships during their first or second year of study. According to a student survey regarding the duration of job hunting, the most common period for job hunting is less than one month, with longer durations typically ranging between one to three months³³. Since job-hunting methods primarily involve recruitment events held by companies or introductions from schools, it is believed that the job-hunting period has become shorter as students begin interviews with companies immediately after learning about them.

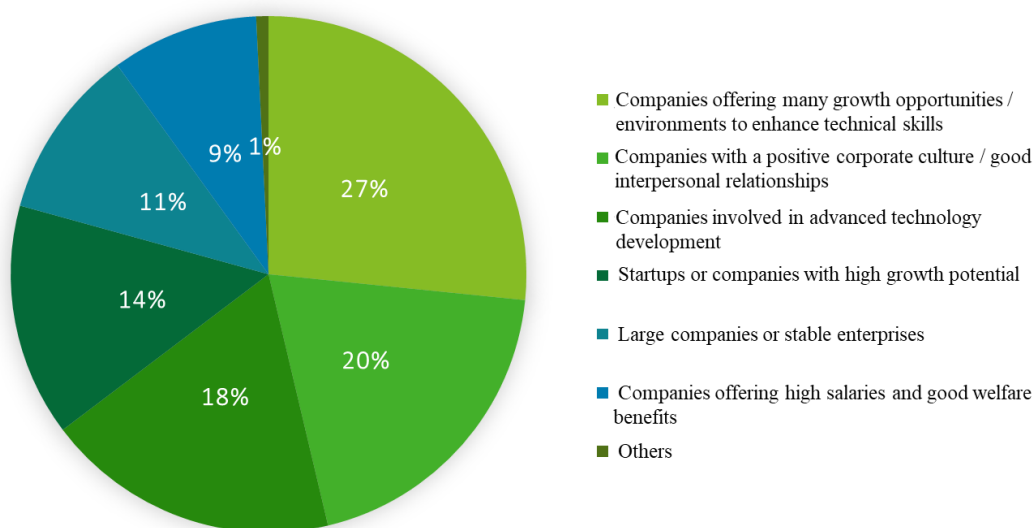
(2) Work Environment: Needs (Key Factors for Company Selection by Students) and Reality

Based on the aforementioned survey results, students place the highest importance on environments that offer growth opportunities and the ability to enhance technical skills. The second most important factor is the company's culture and interpersonal relationships, followed by the desire for a work environment where they can engage in cutting-edge technology development.

Additionally, when examining the reasons for resignations among ICT company employees, it was found that only 16% of resignations were attributed to reasons aligning with students' initial priorities, such as "wanting to improve skills" or "seeking more challenging work." This suggests that many companies do provide the work environments students initially seek during their job search.

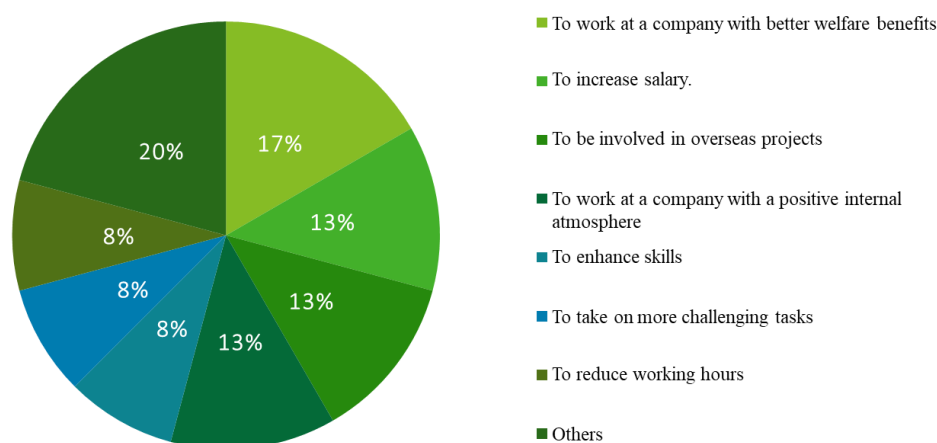
On the other hand, 30% of resignations are driven by the pursuit of better benefits and higher salaries, making it the most common reason for leaving a position. This highlights a gap in the actual provision of competitive salaries and robust welfare benefits, which leads to dissatisfaction and eventual resignations.

As noted in Chapter 7, Section 2, (3), the analysis of the first job fair survey results also indicates that students may not fully understand the importance of workplace factors such as salary, welfare benefits, company culture, and interpersonal relationships during their job search. This lack of awareness often leads to mismatched expectations and workplace dissatisfaction after joining a company, resulting in higher turnover rates.



Source: Compiled by the JICA Study Team based on the results of the first job fair survey
Figure 64 Student Needs Regarding Work Environment (n=122)

³³ Job Fair 1 Survey Results



Source: Compiled by the JICA Study Team based on the results of the first job fair survey
Figure 65 Reasons for Resignation Among Employees (n=11)

(3) Programs Offering Employment Opportunities for Students by Major Educational Institutions, Government, and Industry Organizations

As part of their initiatives, universities such as the MUST and Mandakh University hold job fairs twice a year, in spring and autumn/winter. At Mandakh University, additional efforts include introducing current students to job opportunities secured by alumni and facilitating recruitment through these connections. In addition to the influence of such employment opportunities, the MUST conducts a 16-week job preparation course for fourth-year students to promote recruitment by companies. This course provides guidance on writing resumes and developing soft skills valued by employers. Following these preparatory courses, the university organizes job fairs, implementing a comprehensive program that supports students in securing employment opportunities.

Government initiatives include activities such as job fairs organized in collaboration between the Ministry of Family, Labor and Social Protection and IOM Mongolia, as well as job fairs held during the ICT Expo conducted by the MDDIC. However, these initiatives differ from university-led job fairs in several respects: they are not exclusively targeted at students, nor are they necessarily focused on corporate recruitment as their primary objective. For instance, regarding the ICT Expo, there is no dedicated area specifically for job fairs. Instead, ICT companies exhibit their services and products aimed at consumers and businesses, and students can visit these booths and engage in conversations.

As a result, employment opportunity promotion programs in Mongolia are currently led primarily by major educational institutions such as universities.

2) Initiatives by Major Educational Institutions for ICT and Digital Talent Development

(a) Major Educational Institutions (Universities and Technical Colleges Offering ICT and Digital Courses)

Below is a list of the main universities and technical colleges offering ICT and digital courses.

Table 56 Major Educational Institutions (Universities and Technical Colleges Offering ICT and Digital Courses)

#	Institution	#	Institution
1	Mongolian University of Science and Technology, Science information computer technology school	11	Defense University, Integrated Research Institute
2	Mandakh University	12	University of Defense and Security, Research Integrated Institute
3	National University of Mongolia, Department of Information and Computer Science	13	Ikh Zasag university
4	National University of Mongolia, Department of Applied Mathematics	14	Etugen univesity
5	Institute of Technology	15	New Mongol Institute of Technology
6	Ulaanbaatar University	16	Mongolia International University
7	Mongolian National University	17	NIT Chingis-Khaan university
8	Mongolian University of Life Sciences	18	Mongol Kosen college of technology
9	Mongolian State University of Education	19	New Mongol College of Technology
10	Mongolian State university of Arts and Culture	20	MUST College of Technology

Source: JICA Study Team

(b) Initiatives by Major Educational Institutions for Talent Development (ICT, Digital, Entrepreneurs)

As part of their efforts to support student employment, leading universities such as the MUST and other top-tier institutions individually provide career assistance to their students. This section highlights the notable case of Mandakh University, which stands out for its distinctive initiatives.

Mandakh University offers lectures not only on programming and computer science but also on foundational accounting and business knowledge, emphasizing the development of students who can immediately contribute to the workforce. Many students in their fourth-year work as interns at companies, and their participation in corporate projects can be recognized as academic credits. This approach integrates human resource development into the university curriculum.

Additionally, Mandakh University hosts a programming club known as "Sandbox," which serves as a platform for cultivating practical skills. The club accepts programming orders from companies, with students working on these assignments under the guidance of faculty members. The club currently has 18 members, with a tutoring system where one teacher supports 3-4 students. For students, this provides a valuable opportunity to understand and enhance the technical skills required in the workplace. For companies placing orders, the arrangement not only offers cost-effective solutions but also serves as a chance to identify talented students.

As part of its efforts to nurture entrepreneurial talent, the MUST is implementing the “UNESCO Science-Engineering Entrepreneurship Bootcamp in Mongolia 2024” in collaboration with UNESCO (United Nations Educational, Scientific and Cultural Organization)³⁴. It was held from April 1 to April 5, 2024, with 30 students participating. However, it is unclear whether this will be a continuous initiative or what the specific program details entail.

3) Needs and Current Status Regarding ICT and Digital Talent Skills

(a) Desired Talent Profiles by Companies and Startups (Technical Skills, Soft Skills)

According to a survey conducted with companies participating in the first job fair, the most desired technical skill among students was software skills, followed by cutting-edge technologies such as AI skills. After that, web development skills, data analysis, and cybersecurity followed in almost equal proportions. Since software skills are considered general technical skills, it can be said that companies view a certain level of software development ability as the minimum required technical skill for students. In interviews with the Mogul Group, it was found that companies do not necessarily seek advanced technical skills from students but rather prioritize having them acquire skills through on-the-job training, focusing less on immediate readiness.

³⁴ MUST [Press Release](#) (Accessed on July 4, 2024)

Additionally, the soft skill most valued by companies was "adaptability and flexibility," followed by "collaboration/teamwork."

For detailed survey results, please refer to Chapter 7, Section 2. (3) "(2) Analysis of Mismatches Between Students and Companies."

(b) Students' Skills (Technical Skills, Soft Skills)

According to a survey conducted with students during the first job fair, students consider web development skills to be their strongest skill, followed by software development skills. Both are fundamental abilities for ICT engineers and can be said to be technical skills in which students themselves have confidence. Interestingly, AI development skills ranked third as a skill in which students feel they have strength. In addition to basic skills, the possession of cutting-edge technical skills suggests that Mongolian students are highly capable individuals who will support the future of Mongolia's ICT industry. It should be noted that the majority of survey respondents were top-tier students from national universities and other leading institutions, indicating that the survey results reflect the situation of Mongolia's top-level students.

The soft skill in which students feel most confident is adaptability/flexibility, followed by problem-solving ability and information-gathering ability. On the other hand, communication skills and collaboration/teamwork skills were both below 15%. This suggests that while students are confident in their soft skills when working individually, they do not place as much importance on teamwork skills required in actual workplaces. It is generally said that Mongolians tend to be individualistic, and teamwork skills are not particularly strong. These survey results back up that notion and indicate that students lack the collaborative skills required in real workplace environments.

For detailed survey results, please refer to Chapter 7, Section 2. (3) "(2) Analysis of Mismatches Between Students and Companies."

4) Support Trends of Development Partners

ADB is supporting the development and implementation of the Education Sector Mid-Term Development Plan 2021-2030, managed by the Ministry of Education. The project details are as follows. Although this is an ADB project, the majority of the funding comes from the Republic of Korea e-Asia and Knowledge Partnership Fund (hereinafter EAKPF)³⁵.

- Project Name: Supporting the Implementation of Education Sector Medium-Term Development Plan (Technical assistance)
- Duration: November 2021 – November 2023
- Support Scale: 550,000 USD (approximately 82.12 million JPY

*5,000 USD (approximately 7.46 million JPY) from ADB, and 500,000 USD (approximately 74.65 million JPY) from EAKPF.

The Ministry of Family, Labor and Social Protection and IOM Mongolia have collaborated to hold a job fair in the past ³⁶. During the Misheel Expo, a business trade fair held in Ulaanbaatar, the "Employment Fair - 2024" was co-hosted. This event was not limited to a job fair for students but broadly aimed at promoting employment opportunities and social welfare services to the general public. A total of 25 organizations, including related private companies and government agencies, participated as exhibitors. However, the roles and methods of support (such as financial assistance and technical cooperation) provided by IOM and the Mongolian government in executing this event remain unclear.

Additionally, as described in Chapter 5, Section 2. (2), "Efforts by Major Educational Institutions in Human Resource Development," UNESCO has also been working on entrepreneurial education in collaboration with the MUST. From desktop research, aside from these initiatives, no additional support from development partners related to the development of ICT and digital talent has been identified.

³⁵ ADB [Technical Assistance Report: Supporting the Implementation of Education Sector Medium-Term Development Plan] (2021)

³⁶ IOM [Press Release](#) (Referenced on July 4, 2024)

5) Japan's Support Resources

Japan's support resources that can be utilized for the development of ICT and digital talent include the following initiatives, among others.

Table 57 Japan's Initiatives to Ensure the Supply-Demand Balance of ICT and Digital Talent

Theme	Japan's Support Resource
Quantity of ICT human resource development	For students: Yes ▪ Japanese-style Joint Employment Explanatory Meeting (Job Seminar)
	For working professionals: Yes ▪ Tokyo Metropolitan Government's 'Digital College TOKYO' (provides free ICT courses and employment support for job seekers under the age of 35) ▪ Ministry of Economy, Trade and Industry's 'Re-Skill Courses' (a system where the Minister of Economy, Trade and Industry certifies specialized and practical educational training courses)"
Quality of ICT human resource development	For students: Yes ▪ Business plan competitions for students such as DX CUP ▪ Industry-academia collaboration initiatives in the ICT field ▪ Curriculum development through technical cooperation projects (currently implementing technical cooperation for cybersecurity personnel training in Mongolia)
	For teachers: Yes ▪ JICA's ICT personnel training programs through grassroots and technical cooperation projects (study abroad programs to Japan)
	For working professionals: No

Job seminars and business contests for students are being conducted as part of this study. This section introduces the following three initiatives, excluding JICA's efforts.

(a) Industry-Academia Collaboration Initiatives in the ICT Field

In Japan, a comprehensive consortium involving industry, government, and academia for ICT talent development has not been established. However, universities and private companies are collaborating individually to foster practical ICT talent. To promote innovation, it is essential not only to address the shortage of ICT professionals but also to develop individuals with practical and advanced ICT skills. For example, Shiga University has partnered with Daihatsu Motor Co., Ltd. to address the challenge of limited access to usable data within universities. This collaboration allows students to access corporate data and expertise, enabling them to develop more practical systems.

The University of Electro-Communications invites lecturers from private companies to help students better understand corporate challenges. Additionally, Daikin Industries, Ltd. has signed a comprehensive partnership agreement with Osaka University to promote talent development.

This includes not only fostering student skills but also advancing the development of AI talent within the company itself, demonstrating how collaboration with universities can enhance corporate talent development.

Daikin Industries, Ltd. & Osaka University	• In 2017, Daikin Industries, Ltd. and Osaka University entered into a comprehensive partnership agreement focusing on the field of information science. • As part of this collaboration, Daikin Industries committed a total of 5.6 billion JPY to Osaka University. Through multiple programs, including joint research initiatives, the partnership aims to foster early development of students in the field of information science and provide AI education to Daikin's engineers. Daikin also established an in-house university, the "Daikin Information Technology University," in collaboration with Osaka University, with the primary objective of nurturing internal AI talent.
Daihatsu Motor Co., Ltd. & Shiga University	• The Faculty of Data Science at Shiga University identified a challenge in the lack of access to real-world business data within the university. To address this, the university partnered with Daihatsu Motor Co. to launch a joint program called the "Shiga University TNP Grand Prix." • Daihatsu provides operational data obtained from its production facilities to the university, enabling students and researchers to jointly develop technologies for automating vehicle inspection processes using AI. • In addition to Daihatsu, the Faculty of Data Science at Shiga University collaborates with other major organizations, including Aioi Nissay Dowa Insurance, Sumitomo Mitsui Financial Group, and SMBC Trust Bank.
The University of Electro-Communications	• Starting in the 2023 academic year, The University of Electro-Communications launched a six-year integrated program for undergraduate and graduate education in Data Science (DS) and Artificial Intelligence (AI). • This program invites practitioners from over ten private companies as guest lecturers. Notable collaborators include Panasonic, Fujitsu Laboratories, Nomura Research Institute, and DeNA. The program focuses on analyzing corporate challenges and extends to developing and implementing software solutions based on the analysis results.

Source: The JICA Study Team based on various articles from Nihon Keizai Shimbun, Nikkei xTECH, Nikkan Kogyo Shimbun, and others.

Figure 66 Examples of Industry-Academia Collaboration in ICT Human Development in Japan

(b) Tokyo Metropolitan Government's "Digital College TOKYO"

As part of reskilling initiatives for working adults, Tokyo Metropolitan Government in Japan is implementing the "Digital College TOKYO" program. This digital talent development support project offers free ICT courses and employment assistance to job-seeking working adults aged 35 and under.



Source: The JICA Study Team based on information from the Tokyo Metropolitan Government's "Digital-college TOKYO" website.

Figure 67 Process of Tokyo Metropolitan Government's Digital-college TOKYO

	Contents of Course	Skill that student can acquire
Programming Course	Introduction to Software / Introduction to Programming / Basics of Binary Systems / Basics of Algorithms / Fundamentals of Software Development / Java Basics from Scratch / Practical Training in Java Basics / Basics of SQL.	- General knowledge of the IT industry - knowledge of object-oriented programming - Processing using basic syntax of the relational database language (SQL).
IT Infrastructure Course	Basics of Servers / Service Configuration / Windows Server / File Sharing / Scripting / Basics of Networking / Basic Configuration of Network Devices / Management Protocols.	- General knowledge of the IT industry - Command operations for managing and configuring Linux and networks - Foundational knowledge related to Linux and network certifications
Cloud Course	Basics of Servers / Basics of Networking / Introduction to Cloud / Overview of Azure / Azure Lab Operations / AZ-900 Exam Preparation / AZ-900 Practice Exam.	- General knowledge of the IT industry - An overview of cloud technology and practical cloud usage - Knowledge equivalent to obtaining the beginner-level Azure certification, AZ-900

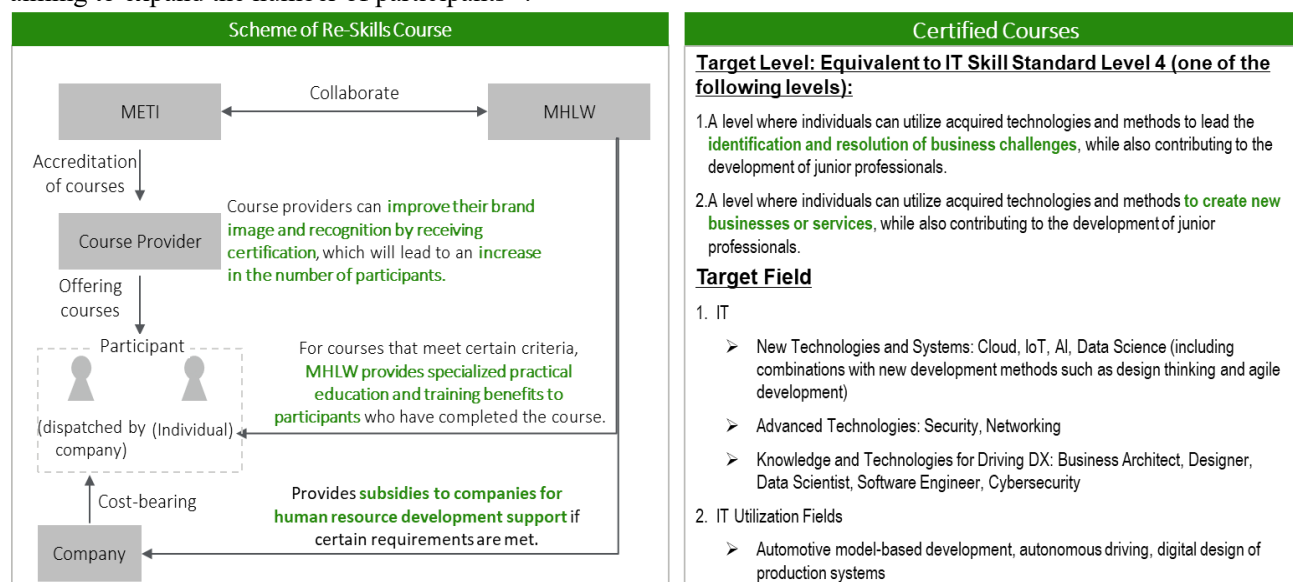
Source: The JICA Study Team based on information from the Tokyo Metropolitan Government's "Digital-college TOKYO" website.

Figure 68 Examples of Courses in Digital-college TOKYO

(c) METI's "Re-Skilling Program"

The Ministry of Economy, Trade, and Industry (METI) has established the Fourth Industrial Revolution Skill Acquisition Program Accreditation System, commonly known as the "Re-Skilling Program," to promote the acquisition and enhancement of IT skills among working adults. The Re-Skilling Program aims to achieve two objectives: (1) "Fundamental reinforcement of human resource development," with a focus on IT and data fields to adapt to the rapid transformation of industrial structures, and (2) "Enhancement of education and training programs" that enable working adults to acquire abilities and skills aligned with the Fourth Industrial Revolution while continuing their employment.

This program is a system in which the Minister of Economy, Trade and Industry certifies specialized and practical education and training courses that allow working adults to acquire advanced expertise and pursue career advancement. As of August 1, 2023, a total of 128 courses have been certified under this system. Furthermore, the program collaborates with the Ministry of Health, Labor, and Welfare (MHLW) to provide financial assistance, aiming to expand the number of participants³⁷.



Source: The JICA Study Team based on the Ministry of Economy, Trade, and Industry's "Fourth Industrial Revolution Skill Acquisition Program (Re-Skilling Program) Accreditation System - System Overview Document" (2023)

Figure 69 Overview of the Re-Skilling Program

³⁷ Ministry of Economy, Trade, and Industry's "Fourth Industrial Revolution Skill Acquisition Program (Re-Skilling Program) Accreditation System - System Overview Document" (2023)

3. Building a startup ecosystem

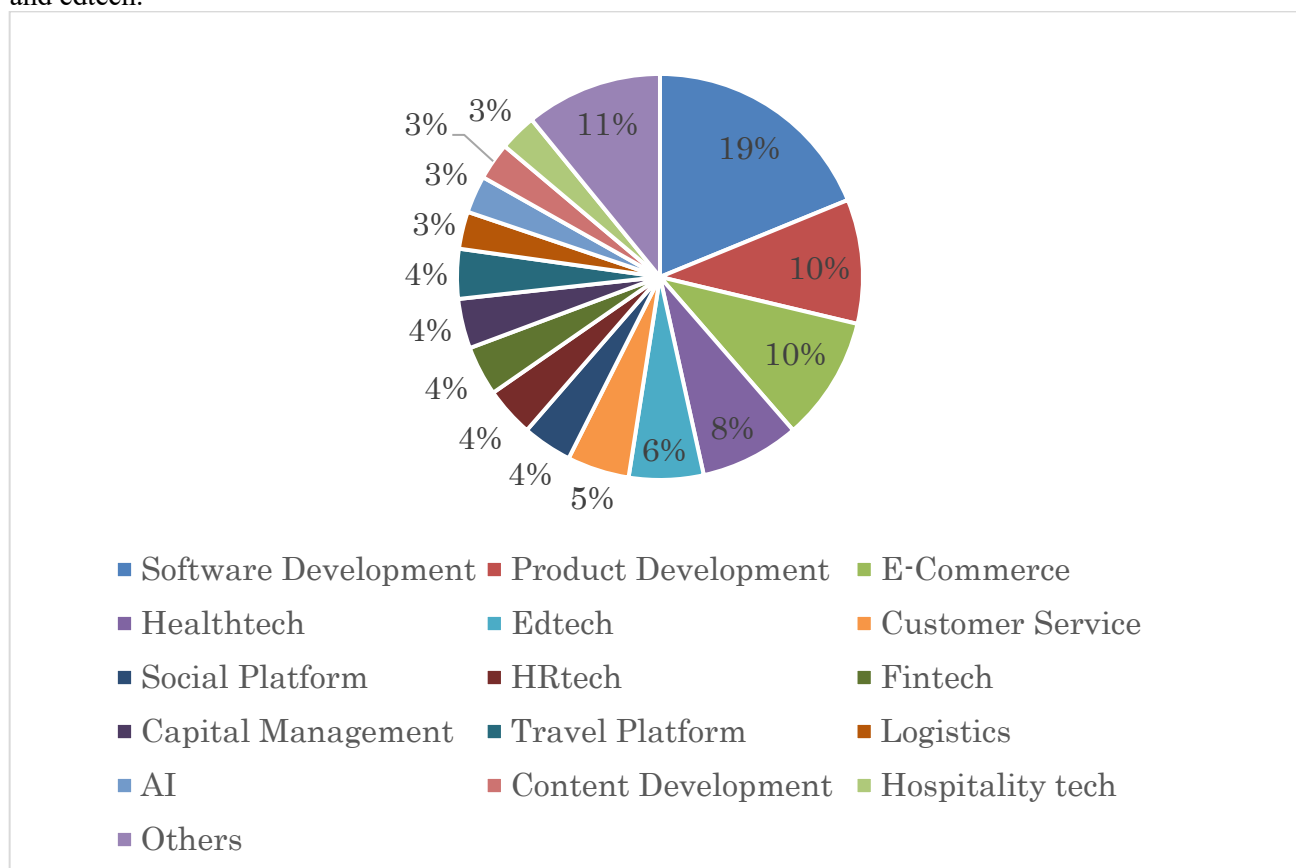
1) Startup Trends (stage, area)

(a) Stage

According to JICA START (2024) "MONGOLIAN STARTUP ECOSYSTEM 2023"³², only 3 SUs, Mongol NFT, CoinHub, and AND Global, have reached Series A, and no SUs have reached Series B.

(c) Area

According to JICA START (2024) "MONGOLIAN STARTUP ECOSYSTEM 2023"³², the most SUs in Mongolia are in the area of software development, followed by product development, e-commerce, health tech, and edtech.



Source : JICA、START (2024) 「MONGOLIAN STARTUP ECOSYSTEM 2023」

Figure 70 Area of SU

(c) Funding Amount and Funding Source

The financing environment in Mongolia is much more limited than in other countries. As described in Chapter 4, between 2020 and 2022, only 3 projects of USD 3,534,000 (approximately ¥530 million) were raised. See Chapter 4 for details.

2) Startup ecosystem environment

Among the five key elements — "Human Resources", "Business Development", "Financial Access", "Startup-friendly Laws, Regulations and Policies" and "Global/Local Network of Ecosystem players" — further analysis was conducted on the following items, which were designated as priority areas of investigation.

The following items, which were identified as priority research areas, were further analyzed.

(a) Human Resources: **1-2. Education of Entrepreneurial Human Resources**

(b) Business Development: **2-1. Large Market Size and Global Expansion Strategy**

(c) Financial Access: **1. Volume, 2. Diversity**

(d) **Startup-friendly Laws, Regulations and Policies**

(e) **Global/Local Network of Ecosystem players**

(a) Human Resources

1-2. Education of Entrepreneurial Human Resources

**This area, as outlined in Chapter 4, was identified as a priority for further analysis.*

Entrepreneurial education can generally be categorized into two phases:

- (1) Fostering Entrepreneurship, and
- (2) Demonstrating Entrepreneurship (i.e., the social practice stage).

In the Demonstration phase, the support ecosystem and programs are typically organized into three stages:

- (1) Business Idea Generation,
- (2) Startup and Commercialization, and
- (3) Business Expansion.

We conducted interviews with NUM, MUST, and the University of Finance and Economics (hereinafter UFE).

At NUM, two types of programs were identified:

- (1) Business Idea Creation, and
- (2) Entrepreneurship and Commercialization Support.

(1) In the Business Idea Creation category, the university organizes one-week hackathons, either independently or in collaboration with private banks. Bank-led hackathons also serve as recruitment opportunities for participating students. Additionally, NUM hosts a Startup Challenge, a five-month business plan competition for university and secondary school students. Senior teams are eligible to receive incubation support. At the end of the program, the products developed by each team are showcased and evaluated by visitors.

The total budget for the university-level programs is MNT 200 million (approx. JPY 8.59 million), with the first-place winner receiving MNT 30 million (approx. JPY 1.29 million). At the school level, the budget is MNT 500 million (approx. JPY 21.47 million), and the top-performing student receives MNT 100 million (approx. JPY 4.29 million) as a grant.

However, the primary objective of these programs is to strengthen team-building skills, and no commercialized outcomes have been reported so far.

(2) In the area of Entrepreneurship and Commercialization Support, while there are no formalized programs, collaborative research with private companies and ad hoc commercialization efforts are reportedly underway.

At MUST, the Innovation Technology Transfer Office operates two distinct programs:

- (1) A Startup Program for students focused on business idea development, and
- (2) A Patent Commercialization Program for faculty members aimed at launching startups based on academic patents.

In addition, three other national universities participate in collaborative programs. The student startup program runs for one year and provides mentoring to 15 teams selected from approximately 50 applicants. Mentors include graduate school faculty and employees from major corporations. The top team receives MNT 500 million (approx. JPY 21.47 million), and the second-place team receives MNT 300 million (approx. JPY 12.88 million).

The faculty-oriented Patent Commercialization Program supports professors with patented research in launching startups. Accepted applicants receive 27 days of mentoring. Currently, two startups originating from this initiative are in operation.

At UFE, the university offers a three-year Entrepreneurship and Innovation Program, combining both program-based and project-based lectures. The goal is to enable students to create a startup while still enrolled.

(b) Business Development

2-1. Large Market Size and Global Expansion Strategy

**This area, as outlined in Chapter 4, was identified as a priority for further analysis.*

A detailed analysis was conducted on accelerators, which are considered a key element in the startup ecosystem.

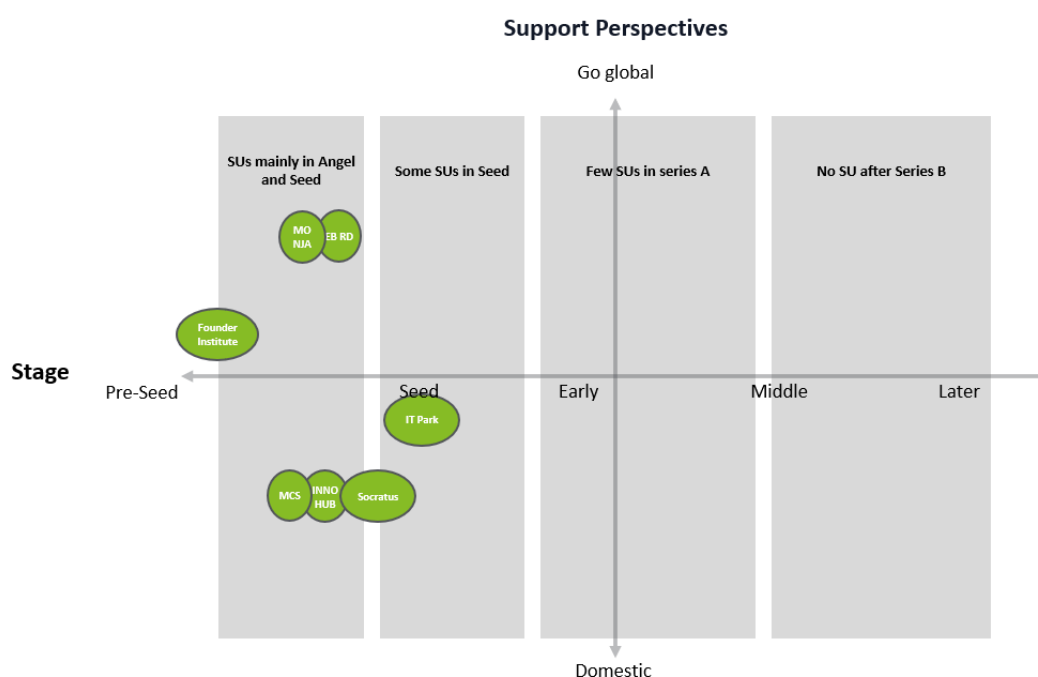
Information on each accelerator program was collected through desk research and interviews, and a positioning map was developed.

Since the type of support provided varies significantly depending on the startup's stage of development, the horizontal axis of the map represents the startup stage.

Given the limited size of Mongolia's domestic market, overseas expansion is critical for startup growth; therefore, the vertical axis represents the degree of support for international expansion.

As most Mongolian startups are in the seed stage, all current accelerator programs are positioned within the pre-seed to seed range.

Acceleration Program Positioning Map



Source: Compiled by the JICA Study Team based on the survey results

Figure 71 Accelerator Positioning Map

When judging the perspective of support on the vertical axis, the evaluation items are arranged based on the following two evaluation perspectives: whether support for overseas expansion is important or whether there is an ability to support overseas expansion. Each item is evaluated as in the table below.

Table 58 Scoring When Creating a Positioning Map

Viewpoint when creating position maps

Evaluation Perspective	Evaluation items		EBRD	Socratus Startup Studio	MCS Ventures	InnoHub	IT Park (Startup Challenge Mongolia)	Founder Institute	MONJA
The priority level of international expansion support	Do the accelerator provide input related to international expansion?		○	○	×	○	×	×	○
	Do the accelerator have a program for overseas dispatch?		○	×	×	×	○	×	○
Capability for Supporting International Expansion	own resources	Are there enough overseas mentors?	○	×	×	×	×	○	○
		Does accelerator operate internationally or have overseas branches or affiliated companies?	○ (Central and Eastern Europe)	×	×	○ (Central Asia)	×	○ (200 cities worldwide)	○ (South Africa)
	Network	Does accelerator have connections with international accelerators or consulting firms?	○ (Partnerships with domestic and overseas consulting companies)	×	○ (Alliance with EBRD)	×	○	○ (Global accelerator)	○ (Deloitte)
		Does accelerator have connections with international investors?	○	○	○	Unknown	○	○	○
Sum of the numbers of ○			6	2	2	2	3	4	6

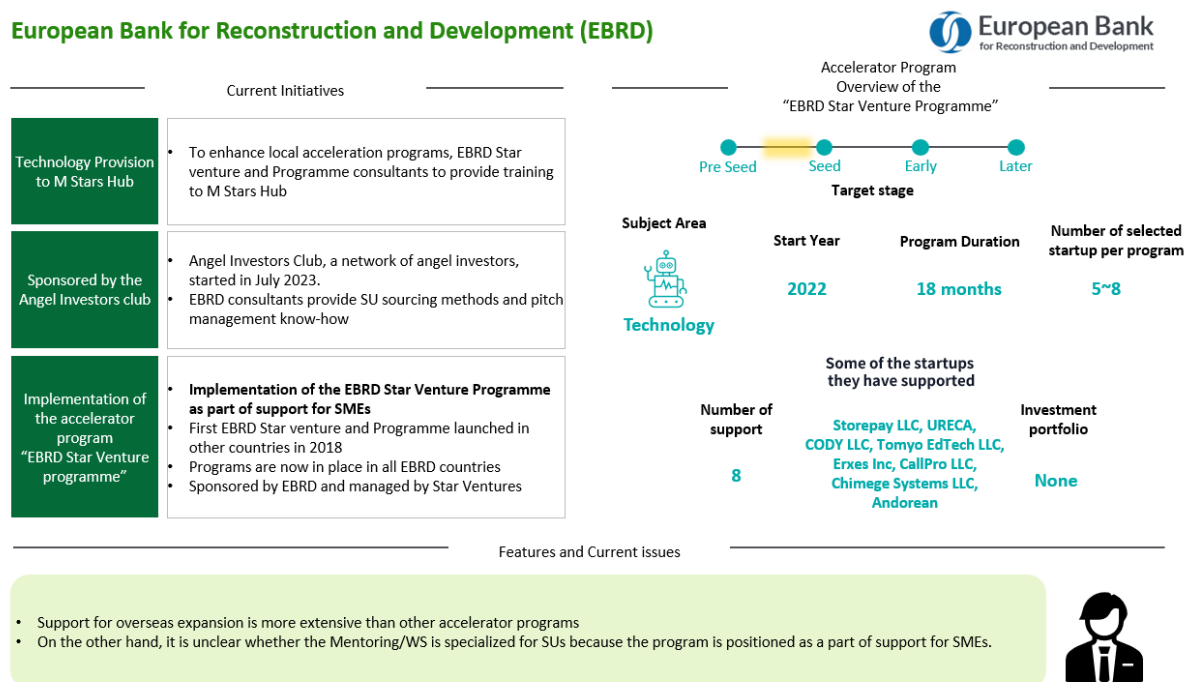
Source: Compiled by the JICA Study Team based on the survey results

Details and support for each accelerator and program are as follows. The support content in the acceleration program is arranged from the following five viewpoints.

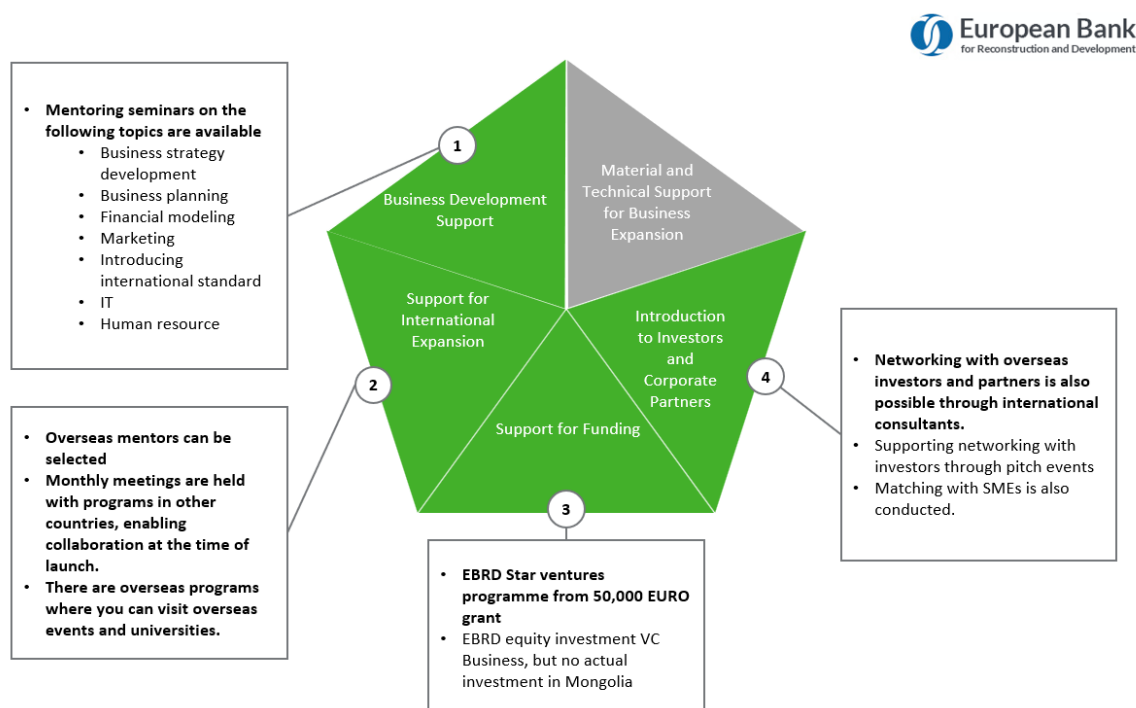
- Business Development Support
- Support for International Expansion
- Support for funding
- Introduction of Investors and Corporate Partners
- Material and Technical Support for Business Expansion

Implementation of an accelerator program as part of support for SMEs. Strengths in international mentor networks using consulting companies and overseas expansion support through cooperation with programs in other countries.

European Bank for Reconstruction and Development (EBRD)



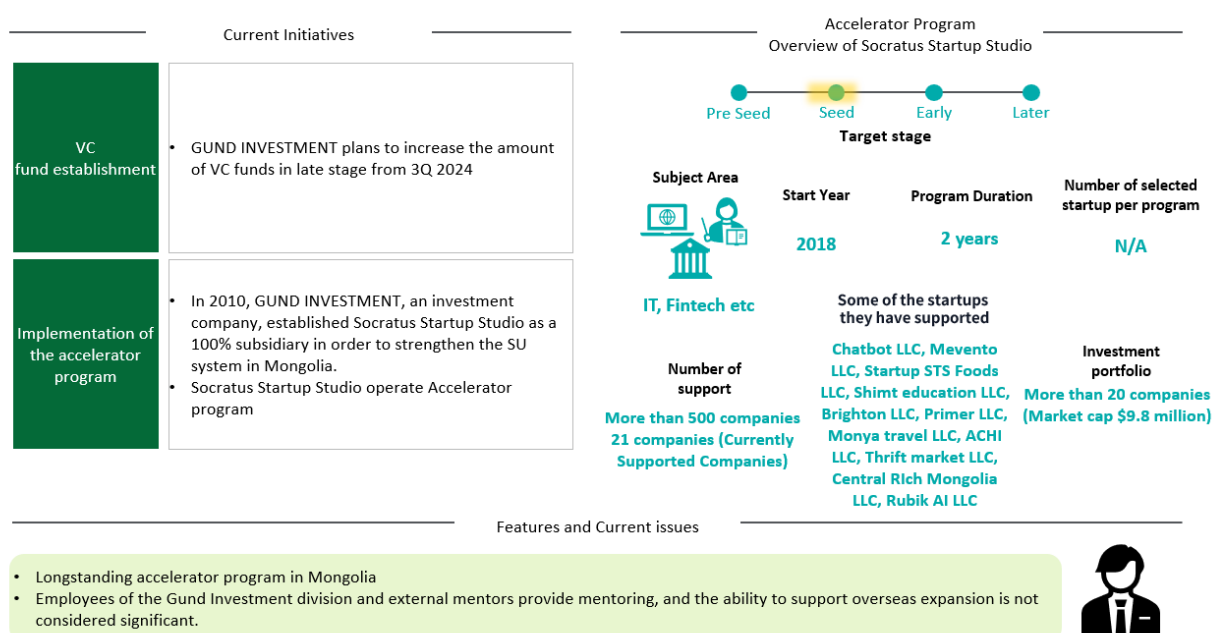
Source: Compiled by the JICA Study Team based on the survey results
Figure 72 Profile of Accelerator (EBRD)



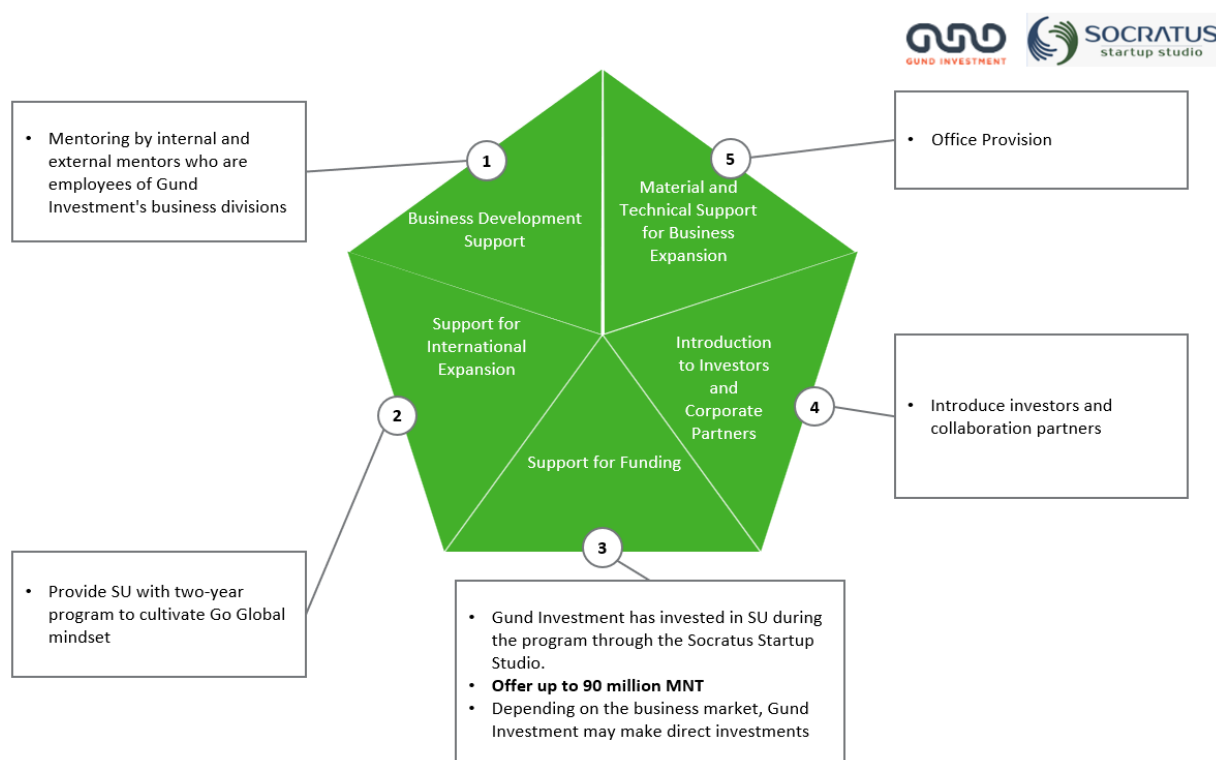
Source: Compiled by the JICA Study Team based on the survey results
Figure 73 Support content (EBRD)

GUND INVESTMENT, an investment company, provides an acceleration program through its subsidiary, Socratus Startup Studio, to strengthen the Mongolian market where we invest.

GUND INVESTMENT/Socratus Startup Studio



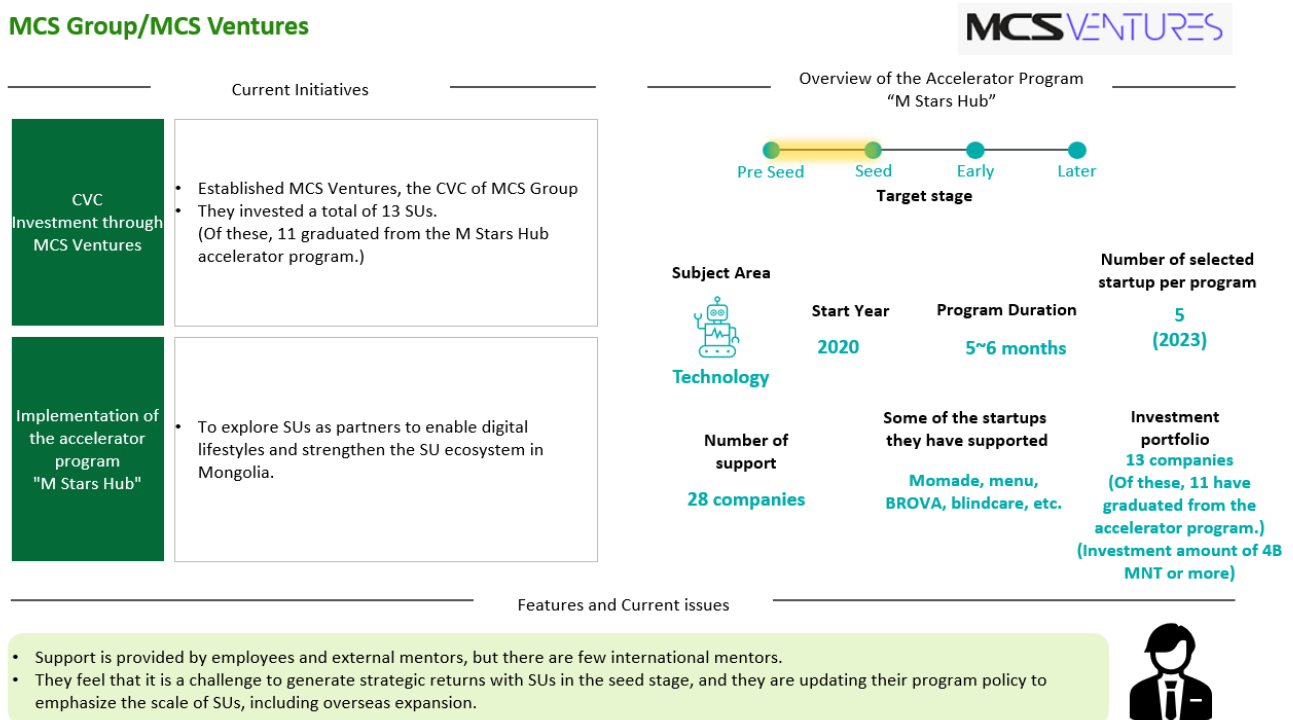
Source: Compiled by the JICA Study Team based on the survey results
Figure 74 Profile of Accelerator (Socratus Startup Studio)



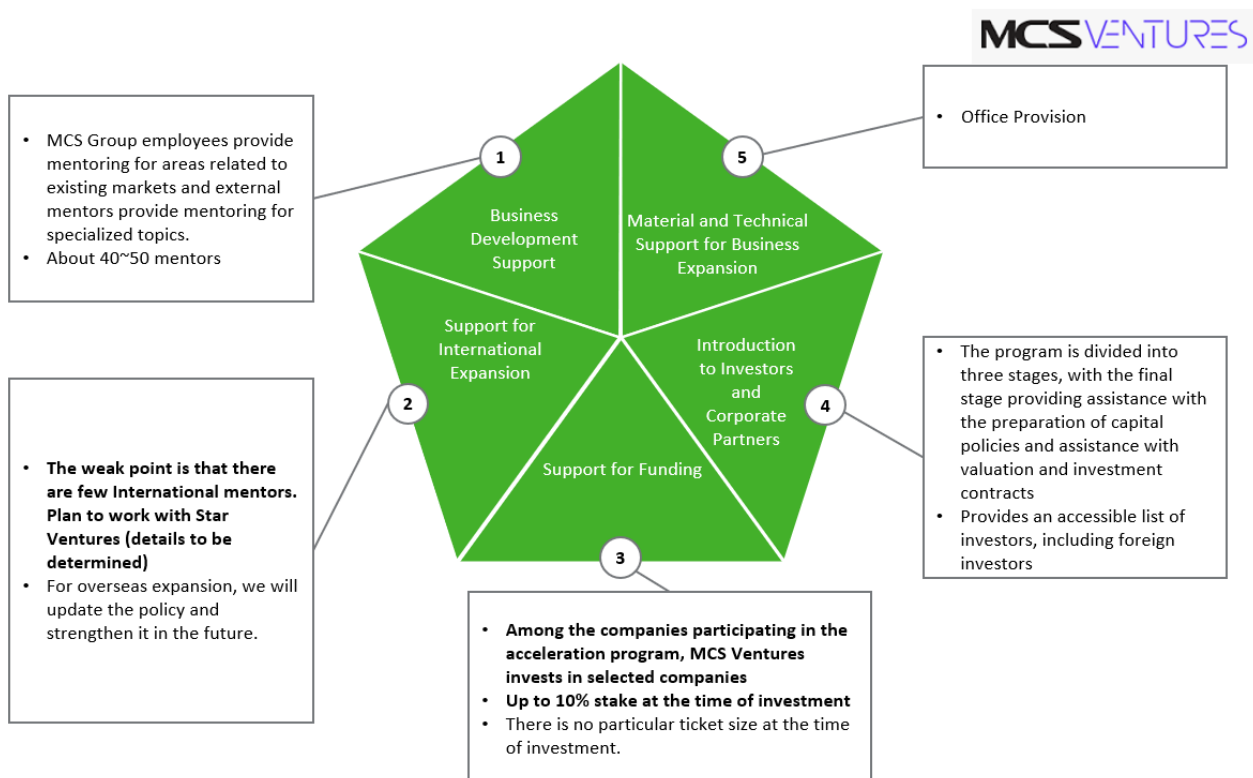
Source: Compiled by the JICA Study Team based on the survey results
Figure 75 Support content (Socratus Startup Studio)

Mongolia's first corporate accelerator operated by Mongolian conglomerate MCS Group. Implemented to strengthen Mongolia's ecosystem and achieve strategic returns.

MCS Group/MCS Ventures



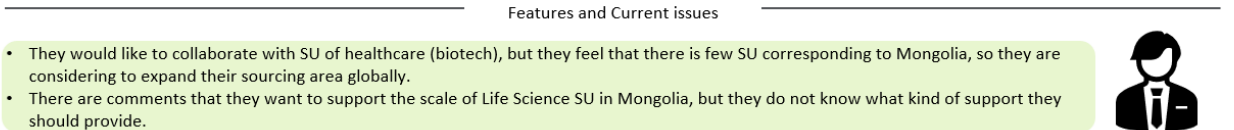
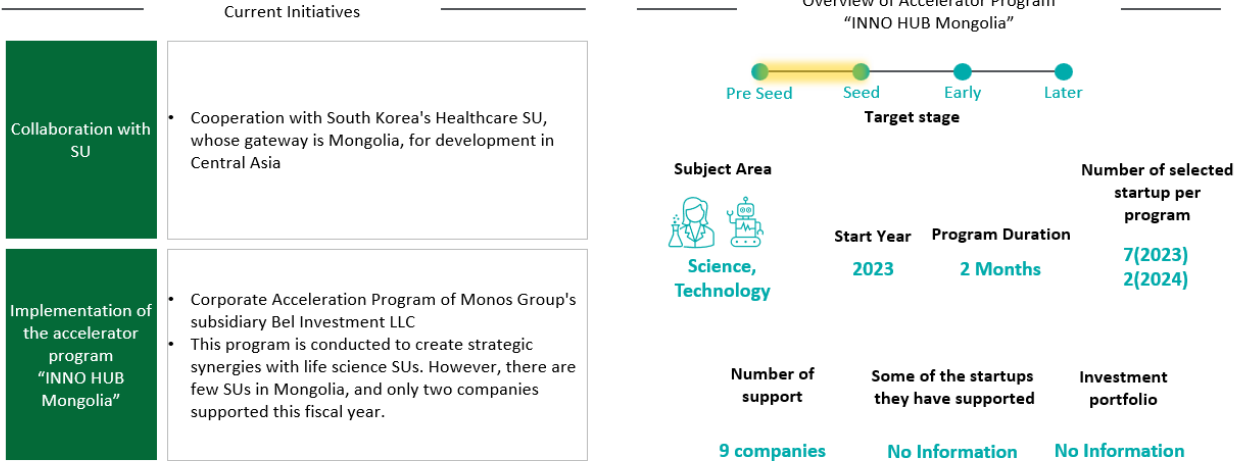
Source: Compiled by the JICA Study Team based on the survey results
Figure 76 Profile of Accelerators (MCS Ventures)



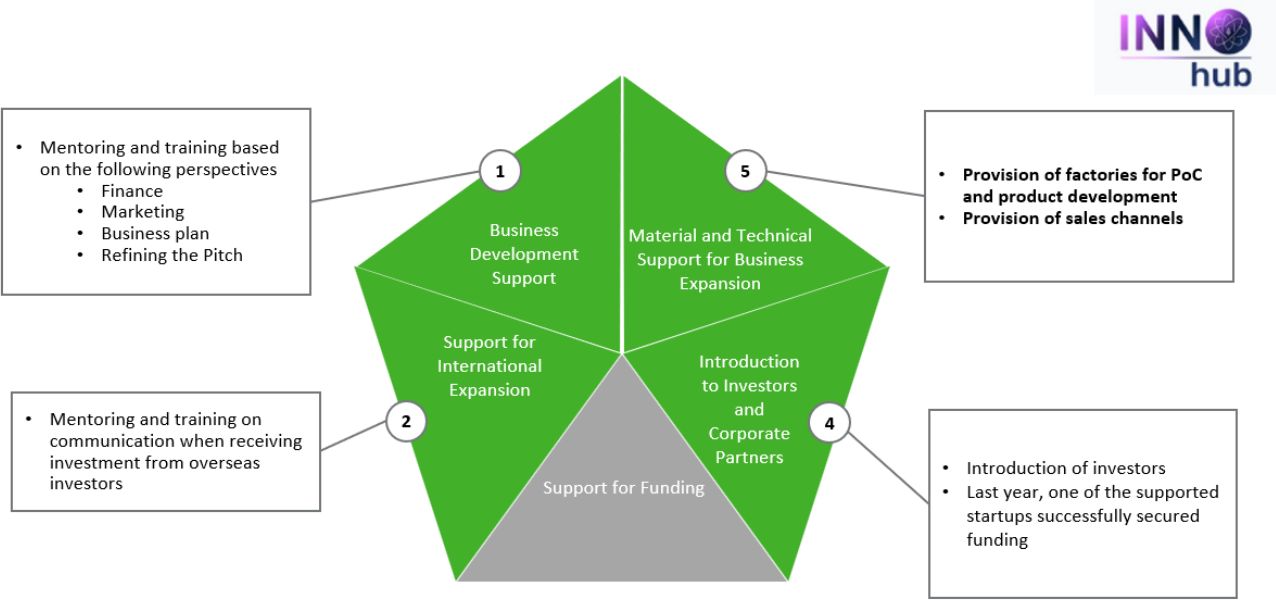
Source: Compiled by the JICA Study Team based on the survey results
Figure 77 Funding (MCS Ventures)

**A corporate accelerator run by Monos Group, a Mongolian healthcare company.
Implemented to strengthen Life Science SU in Mongolia and achieve strategic returns.**

Monos Group's subsidiary Bel Investment LLC/INNO HUB Mongolia



Source: Compiled by the JICA Study Team based on the survey results
Figure 78 Profile of Accelerator (INNO hub)



Source: Compiled by the JICA Study Team based on the survey results
Figure 79 Support content (INNO HUB)

Competition for SUs "Startup Challenge Mongolia" started in 2021 at IT Park, which promotes Mongolia's IT industry.

IT Park

Current Initiatives	
Suggestion for IT-related laws and regulations	Implementation of recommendations to the government on IT-related laws and regulations
Rental of Co-working Spaces	Offering Discounted Coworking Spaces for Startups
Implementing of "Startup Challenge Mongolia"	- Organized in Collaboration with SMS-Startup Marketing Space - The Winning Startup Will Qualify for the International Competition
Implementing of Incubator for woman and incubator for startups	- Implemented since 2002 - Only IT SU is targeted(Other areas are under discussion. To be covered from 2025) 100~200 companies have received support - Consulting on finance, laws and regulations, business development, and investment - Overseas training in the US and Turkey
Implementing of After program	- Implemented since 2020 - Currently supporting five companies - Support for the export of SU products mainly to Stan Countries

Features and Current issues

- IT Park and SMS-Startup Marketing Space jointly hold Startup challenge Mongolia, a competition for SU, from 2021
- The winner can win a prize of 100 m MNT and participate in international competitions.



STARTUP CHALLENGE MONGOLIA

Overview of Startup challenge Mongolia

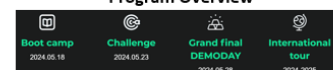


Subject Area	Start Year	Program Duration	Number of selected startup per program
All	2021	1 Month	Approx. 20 companies

Some of the startups they have supported



Program Overview

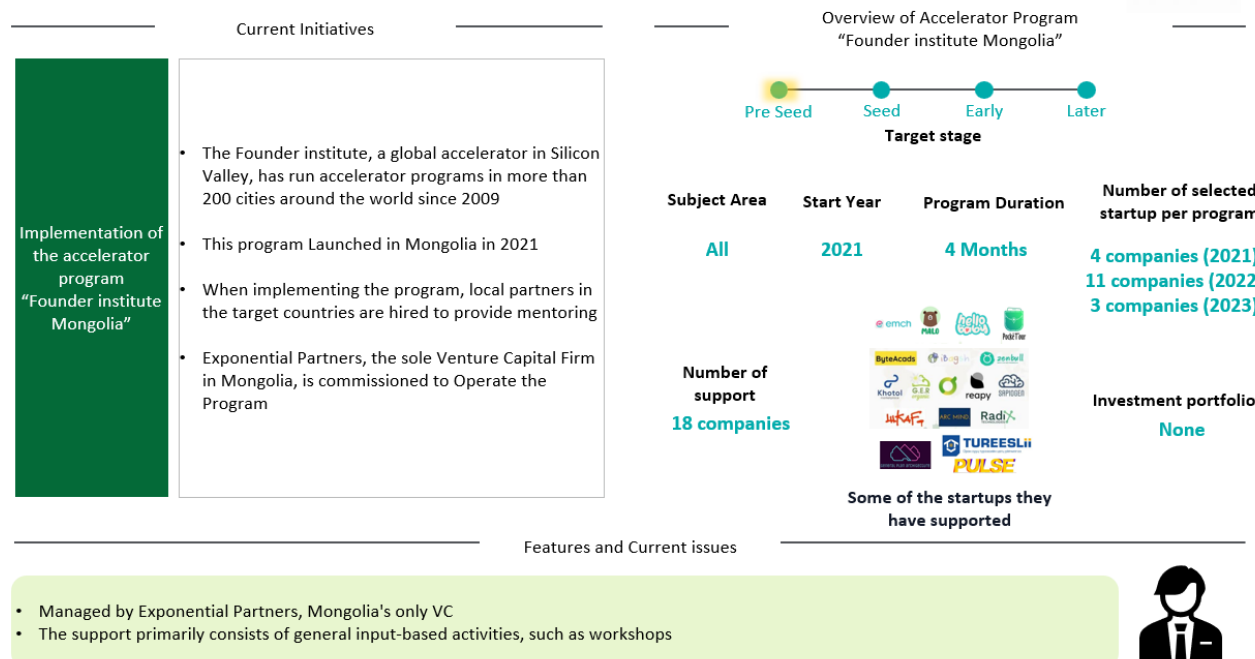


The 20 companies that passed the screening participated in Boot Camp.
The 10 companies that passed Boot Camp took part in a training called Challenge.
After the Challenge, Out of the remaining five companies
One company selected to participate in the international competition

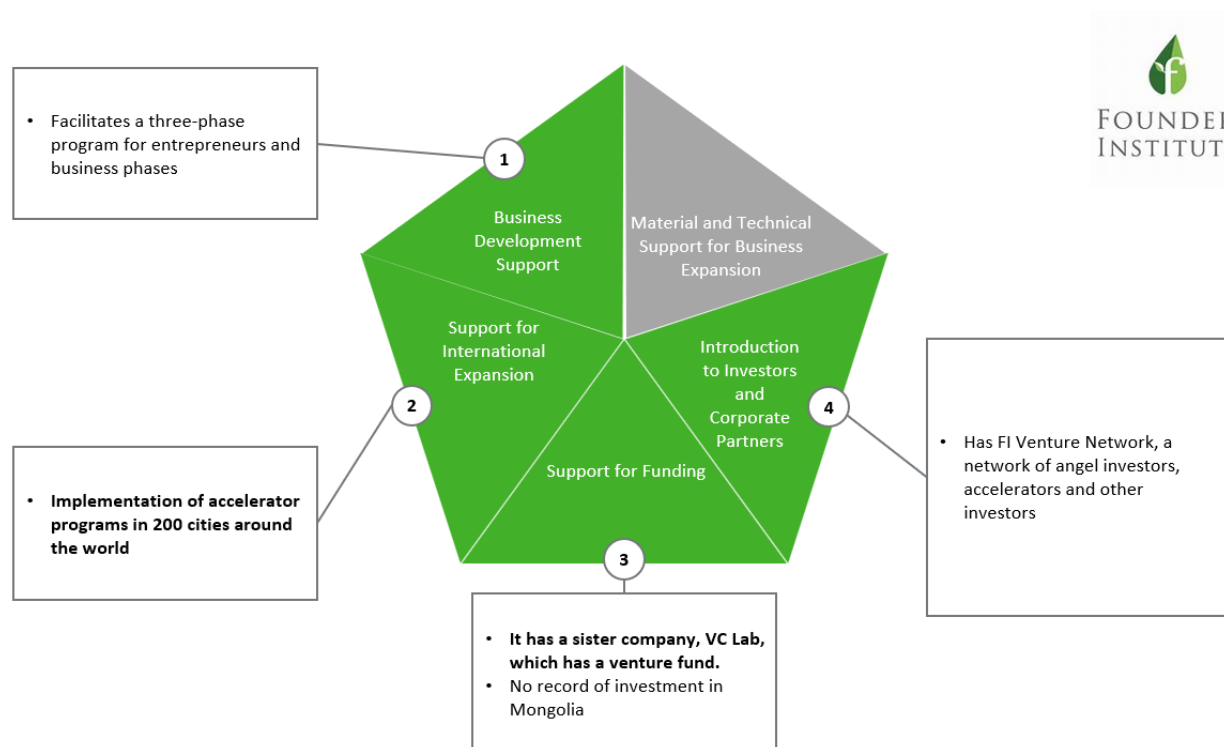
Source: Compiled by the JICA Study Team based on the survey results
Figure 80 Profile of Accelerator (IT Park)

Global accelerator Founder institute implemented accelerator program in Mongolia since 2021. They recruited Exponential Partners as Local Partner.

Founder institute



Source: Compiled by the JICA Study Team based on the survey results
Figure 81 Profile of Accelerator (Founder Institute)



Source: Compiled by the JICA Study Team based on the survey results
Figure 82 Support content (Founder Institute)

(c) Financial Access

1. Volume and 2. Diversity

**This area, as outlined in Chapter 4, was identified as a priority for further analysis.*

In terms of equity, there is an Angel Investment Club, a community of angel investors that includes dozens of angel investors who invest through regular pitches. The accelerator is funded by Socratus Startup Studio, and the operating companies/CVCs are funded by GUND INVESTMENT (more than 20 companies), MCS Ventures (more than 60 companies), ICT Group (more than 70 companies), and TESO (more than 15 companies).

As for example, Techstars, Marubeni Corporation and SBI Ven Capitals (a subsidiary of SBI Holdings in Singapore) invested in And Global in July 2021³⁸. Also, IFC is considering a \$70 k Series B investment in And Global (as of January 2025).³⁹

Carepay received a \$160 k investment from Google for Startups in November 2022. Carepay was selected as one of the top 15 in the Google for startups-Silkway Accelerator 2023 program, a joint initiative between Google and Astanahub, and participated in the 3 month accelerator program at Astanahub in Astana, the capital of Kazakhstan.

As for debt, the Tamil (E. Tamir) Credit Guarantee Fund provides credit guarantees to small and medium-sized enterprises (SME) and startups to make it easier for them to obtain loans from financial institutions. Credit guarantee funds are provided to companies that lack collateral or credit history to lower the barriers to financing. The definition of eligible startups is "Startups are new, innovative, high-growth, scalable, and often technology-based companies" with a loan period of 3 years and a maximum loan amount of 2 billion MNT (about 860 million yen).

For Grants, the national fund that provides funding for R&D projects based on technology and innovation, the Science and Technology Fund (STF), is providing funding for R&D projects in Mongolia. The Ministry of Education determines the types of research initiatives that the STF can fund. Between 2018 and 2021, a total of 1,520 research projects were funded with a total of 24 billion MNT (approximately 1.03 billion yen). On the other hand, there is no specific obligation or role to support startups, and R&D projects involving startups are covered. The World Bank is also implementing the "Entrepreneurship and Socioemotional Skills Development Project for the Most Vulnerable Youth in Rural Mongolia" which utilizes the Japan Social Development Fund (JSDF) to develop a variety of activities, including competitions for entrepreneurial ideas and the provision of small grants to implement ideas, in order to improve academic performance and to train socio-emotional skills to prepare individuals to operate as sole proprietors. The JSDF has provided a \$2750 k grant for this project⁴⁰.

3. Liquidity

**While not a designated focus area, this issue is considered important and is therefore discussed here.*

3.1 IPO

Looking at the Mongolian Stock Exchange (MSE) IPO track record, MSE has had 36 IPOs⁴¹. The names of companies listed since 2020 were matched with SUs listed in START's database to identify SUs. Sendly NBFi listed in 2022 and Innovation Investment listed in 2023. INSIDE MONGOLIA reports that Innovation INVESTMENT raised MNT 8.3 billion (about ¥356 million) at the time of its IPO⁴². In 2023, MOST Fintech listed on Ulaanbaatar Securities Exchange (USE) as Mongolia's first private company, raising MNT 5.9 billion (approximately ¥250 million).

3.2 M&A

According to JICA START (2024) "MONGOLIAN STARTUP ECOSYSTEM 2023," 19 out of 80 companies surveyed answered that they had experience of exit (sale of shares), and 95% of them were M&As for large companies. The overall valuation at the time of exit including IPO was 28.2 billion MNT (approximately 1.21 billion yen).

The total amount of initial funding is 2.3 billion MNT (98.76 million yen), so on average, the multiples at the

³⁸ PitchBook

³⁹ <https://www.dealstreetasia.com/stories/ifc-and-global-series-b-round-425800>

⁴⁰ World Bank seminar

⁴¹ [Mongolian Stock Exchange - Initial Public Offering \(mse.mn\)](https://mse.mn)

⁴² [Mongolian Fintech Companies' IPO \(insidemongolia.mn\)](https://insidemongolia.mn)

time of exit are approximately 12 times. In addition, the valuation at the time of exit for 1 company is 1.5 billion MNT (64.41 million yen), which is a small amount of money.

3.3 Secondary Market

Liquidity other than Exit includes the existence of a secondary market. According to the result of the on-site hearing, there is no secondary market at present and the exit method is limited.

(d) Startup-friendly Laws, Regulations and Policies

The policy and legal systems surrounding startups are summarized in the table below.

Policies and Initiatives	Start Year	Content
Science and Technology Fund (STF)	1993	- A national fund to contribute to the sustainable development of Mongolia by providing funds to raise Mongolia's research and development level to global standards - The types of research activities that can be funded by the STF are determined by the Ministry of Education and Science - Through 2018 and 2021, a total of 1,520 research projects were funded with a total of 24 billion MNT (approximately 910 million yen).
Investment Law	2013	- When a factory for products including nano and innovation technologies is constructed, the tariff on imported technologies and equipment is exempted during the construction period, and the value-added tax is reduced to 0%. - Non-tax incentives for investors, such as incentives for financing innovation projects and guarantees for financing the production of innovation products for export, are provided
Innovation Act	2014 (Revised in 2019)	- stipulates government obligations and activities related to innovation - There are tax incentives for startups, but the definition of startup is narrow and the target is very limited
Vision 2050	2020	- Establish ICT and innovation as one of the priority areas and aim to support and increase the contribution of this area to the economy - Ecosystem development through financing methods and support programs for startups and chemical technology development - Develop human resources by providing support programs and opportunities for entrepreneurs and researchers
ICT Industry Promotion Act	2024	- Describe the authority and responsibility of the national and local governments in promoting the ICT industry - It stipulates that the role of the government is to establish a virtual zone to support the ICT industry and to provide tax and non-tax support (Provision of subsidies for patent registration and certification of international quality and standards at the time of export) to companies registered in the virtual zone

Source: Compiled by the JICA Study Team based on the survey results

Figure 83 SU Policies

(e) Global/Local Network of Ecosystem players

Networks are categorized into two types: soft networks (e.g., events, associations, and communities) and hard networks (e.g., innovation facilities). The domestic networks are summarized as follows:

- Soft Networks
 - Events: Startup Challenge Mongolia, etc.
 - Associations: Angel Investment Club, START
 - Communities: IT Park, etc.
- Hard Networks
 - Innovation Facilities: Spaces provided by IT Park, MONOS, MCS Ventures, etc.

Overseas networks are limited. As an ecosystem, Mongolia currently has weak institutional capacity to support international networking. Startups are largely relying on personal relationships, such as independently applying for programs like accelerator programs, and are responding on an individual basis.

- Soft Networks
 - Networking opportunities are provided only to winners of the Startup Challenge organized by IT Park, and are limited to Central Asia.
- Hard Networks
 - No notable infrastructure or institutional initiatives exist to support international networking.

3) Support Trends of Development Partners

The support trends of development partners in the priority research areas related to human capital are as follows.

Table 59 Development partner support trends (Human Resources)

	Organization	Support Overview
Entrepreneurial talent	World Bank	World Bank implements "Entrepreneurship and Socioemotional Skills Development Project for the Most Vulnerable Youth in Rural Mongolia"

Source: Compiled by the JICA Study Team based on the survey results

The trend of support by development partners in the priority research areas related to products is as follows.

Table 60 Development partner support trends (Business Development)

	Organization	Support Overview
Accelerator	EBRD	Delivering the EBRD Star Venture Programme in 2022

Source: Compiled by the JICA Study Team based on the survey results

The trend of support by development partners in the priority research areas on money is as follows.

Table 61 Development Partner Support Trends (Financial Access)

	Organization	Support Overview
Supply of risk money by domestic investors	EBRD	Established an Angel investment club in 2024 to build the capacity and community of domestic angel investors
Supply of risk money to foreign investors	World Bank	World Bank grants through "Entrepreneurship and Socioemotional Skills Development Project for the Most Vulnerable Youth in Rural Mongolia"
	ADB	No activity. ADB Ventures has no equity investment activities in Mongolia

Source: Compiled by the JICA Study Team based on the survey results

In terms of policies, laws and regulations, and networks, there was no evidence of support from development partners.

4) Japan's Support Resources

Japan's support resources for Business Development include:

Table 62 Support Resources in Japan (Business Development)

	Organization	Support Overview
Accelerator	Ministry of Economy, Trade and Industry	StartupNext innovator: Entrepreneur Silicon Valley Dispatch Program. Launched in FY 2015 with the aim of fostering the next generation of innovators
	JICA	Project NINJA: Activities to support entrepreneurs to create business innovation in developing countries. Started in January 2020
	JETRO	J-Bridge: Business platform for international open innovation creation between Japanese companies and SUs and other overseas companies

Source: Compiled by the JICA Study Team based on the survey results

Here are some of Japan's financial Access resources.

Table 63 Support Resources in Japan (Financial Access)

	Organization	Support Overview
Supply of risk money by domestic investors	JICA	• Support for the establishment of public-private funds in emerging economies
	Japan Finance Corporation	• SU Support Funds: When certain conditions are met, loans are provided with a loan limit of 2 billion yen, a maximum interest rate of 2.5%, and a repayment period of 20 years or less (including a grace period of 10 years or less).
	Government VC	• DBJ Capital (Development Bank of Japan Group) and the Innovation Network Corporation of Japan (INCJ) have made direct and LP investments
	Local governments	• Start-up loans and institutional loans: Low-interest loans provided by prefectural and municipal governments when certain conditions are met
	Ministry of Economy, Trade and Industry	• Angel tax system: A system that provides preferential tax treatment to individual investors who invest in venture companies in order to promote investment in SUs
Supply of risk money by foreign investors	JICA	• Private Sector Investment Finance
Diversity (Investment)	JICA	• Support for the establishment of public-private funds in emerging economies
	Government VC	• DBJ Capital (Development Bank of Japan Group) and the Innovation Network Corporation of Japan (INCJ) have made direct and LP investments
Diversity (Loans)	Japan Finance Corporation	• SU Support Funds: When certain conditions are met, loans are provided with a loan limit of 2 billion yen, a maximum interest rate of 2.5%, and a repayment period of 20 years or less (including a grace period of 10 years or less).
Diversity (Subsidies)	SMRJ (Small and Medium Enterprises Organization)	• Monodzukuri Subsidy (Subsidy for Promotion of Productivity Improvement in Manufacturing, Commerce, and Services): A subsidy to support capital investment by SMEs to develop innovative services, develop prototypes, and improve production processes that contribute to productivity improvement. Startups can take advantage
	Local governments	• Start-up loans and institutional loans: Low-interest loans provided by prefectural and municipal governments when certain conditions are met

Source: Compiled by the JICA Study Team based on the survey results

Table 64 Support Resources in Japan (Startup-friendly Laws, Regulations and Policies)

	Organization	Support Overview
Policies and laws	Ministry of Economy, Trade and Industry	• Planning and implementation of SU-related measures: Formulation and implementation of comprehensive policies such as the five-year plan for fostering startups
	JICA	• Experience in supporting the Nigerian Startup Act

Source: Compiled by the investigation Team based on the survey results

Table 65 Support Resources in Japan (Global/Local Network of Ecosystem players)

	Organization	Support Overview
Policies and laws	JETRO	Global Acceleration Hub: Support for the global expansion of Japanese startups by partnering with leading local accelerators in advanced startup ecosystem regions around the world. Provide free briefings, mentoring and co-working spaces for Japanese startups seeking to expand overseas or raise funds overseas.
	JICA	Project NINJA: Activities to support entrepreneurs to create business innovation in developing countries. Started in January 2020

Source: Compiled by the JICA Study Team based on the survey results

4. Utilization of Open Data

1) Environment for Utilizing Open Data

(a) Status of Legal Framework Development

Regarding the recent development of the legal framework for open data in Mongolia, we confirmed the following two resolutions by the Mongolian government through a hearing with MDDIC. Through the Smart Government Project, which completed Phase 1 in 2020, initiatives to promote open data were undertaken for the first time in Mongolia, and it appears that the development of a legal framework for the utilization of open data has also begun. Additionally, within the Mongolian government, under the leadership of MDDIC, the construction of an open data portal is being advanced in a competitive manner among various ministries and agencies. It is expected that, in conjunction with the progress of the open data portal development, the legal framework will also continue to be enhanced.

Table 66 Recent Legal Trends Concerning Open Data in Mongolia

Article 12.6 of the Law on the Transparency of Public Information "Approval of the Open Data List" (June 15, 2022)	The administrators of each organization are instructed to upload the 606 data items listed to the National Integrated Open Data System.
Parliamentary Resolution on the Provision of Electronic Services (January 12, 2024)	To accelerate digital transformation, unlock the potential of information technology innovation, data analytics, and AI across all sectors of society and the economy, ensure that information owners cannot be identified in accordance with the law, and use open data in forms such as AI assistance. (Excerpt)

(b) Status of Development of Open Data Portals and Data Catalogs (National and Local)

Through web research and interviews with local stakeholders (MDDIC; National Statistics Office; Health Development Center), the following four open data portals in Mongolia have been identified so far. Additionally, an investigation into the efforts related to the open data portal in Ulaanbaatar, which showed interest in the Open Data Hackathon (PP5), revealed that there is no independent open data portal being developed by the city. All statistical information for Ulaanbaatar is published on 1212.mn.

Table 67 Open Data Portals in Mongolia (Confirmed as of July 2024)

Portal Name	Website Link	Overview
OPEN DATA GOV.MN	https://opendata.gov.mn/	The open data portal was established in 2020 as part of the Smart Government Project, a joint initiative with the World Bank. It publishes 37 datasets from six ministries and supports formats such as xlsx, csv, xml, and json. The portal is available only in Mongolian.
1212.mn	https://www.1212.mn/en	A statistical data catalog operated by the National Statistics Office of Mongolia. It publishes over 700 statistical datasets managed by the office, such as census data, in open formats (Excel/CSV/Text/JSON) that are available for public reuse. The portal supports both Mongolian and English, and the datasets are licensed under a CC-BY license (allowing commercial reuse).
Shilen.gov.com	https://shilen.gov.mn/	An inter-ministerial open data portal established in 2023. It is available only in Mongolian. Some data is visualized in graph formats.
1313.mn	https://www.1313.mn/	Open data related to the healthcare sector established by the Health Development Center.

(c) Status of Regulations (Licenses) for Secondary Use

Regarding the license regulations for open data portals in Mongolia, only the National Statistics Office's 1212.mn specifies a CC-BY license (allowing commercial reuse). No other licenses have been confirmed. For open data, it is important to clearly specify a license that allows the government to retain copyright while permitting free secondary use by third parties without prior confirmation from the copyright holder. This ensures that users can freely reuse the data according to established rules while protecting the rights of the work. Internationally, the Creative Commons licensing format is standard for open data. There are several types of Creative Commons licenses suitable for open data, with CC BY 4.0 and CC BY-SA 4.0 being the most common format internationally. The National Statistics Office of Mongolia also adopts the CC-BY license for its open data portal. However, the absence of specified licenses for other open data portals in Mongolia is a concern. If data is published on a portal without a specified license and copyright is infringed, the data may not be protected. Therefore, it is crucial to continue discussions with the relevant agencies through interviews to understand their perspectives on licensing for secondary use and to formulate future policies accordingly.

(d) Availability of Subsidy Programs

As of now, there are no confirmed subsidy programs related to open data in Mongolia. Although the possibility of providing subsidies to companies that utilize open data may be considered as the government's open data portals become more developed, it is important to note that open data is inherently available for free. Whether companies decide to use open data depends on their solution ideas and the availability of necessary data in the open data catalog. Therefore, rather than offering financial incentives at the initial stage to promote the use of open data, it is more effective for government ministries to first enhance the availability of open data. Alongside this, providing platforms such as ideathons and hackathons for companies can be beneficial. Regarding financial incentives, it is more effective to offer business validation funding to companies only after they have successfully linked their ideas with open data and produced high-quality solution prototypes.

2) Initiatives to Promote Open Data Utilization Businesses and Facilitate Private Sector Data Collaboration**(a) Trends in Workshops, Hackathons, and PoC Support for Open Data/Data Collaboration**

MDDIC planned to hold a competition for private companies on the utilization of open data in December 2023 but did not proceed with the event. The competition was intended to gather solution ideas linked to specific open data to alleviate traffic congestion in Ulaanbaatar, targeting private companies, universities, and individuals. However, only seven entries were received, falling short of the target of ten. Additionally, the Ministry was too busy to proceed with the event. It was also noted that many of the proposed ideas were based

on open data that had not been verified as available on government portals, leading to a low feasibility of the ideas. Many proposals mentioned the use of AI, but there was no verification of the availability of unstructured data like videos and photos or big data suitable for machine learning as government open data, making prototype development within the hackathon seem challenging.

In organizing the hackathon and PoC, MDDIC worked closely with the JICA Study Team to ensure a high-quality event, reflecting on previous experiences. Specifically included weekly meetings with the JICA Study Team and IT Park to track progress, provision of a co-host logo, attendance at the hackathon and PoC, and support in evaluating prototypes. Based on the results of this hackathon and PoC, the Ministry assessed the high level of participants and agreed to continue promoting initiatives to accelerate the use of open data by private companies and the general public. This includes the regular organization of open data hackathons and workshops to promote the use of open data by both the public and private sectors. No specific workshops or hackathons related to data collaboration have been confirmed.

(b) Business Cases Utilizing Open Data/Data Collaboration Platforms

Currently, there are no confirmed business cases in Mongolia that utilize open data. One reason for this could be that the establishment of open data portals in Mongolia began only after 2020, and the existence and effectiveness of these portals have not yet been widely recognized among Mongolian private companies. On the other hand, the development of government data collaboration platforms in Mongolia has been progressing. The e-Mongolia application, which is used for administrative procedures, has opened its API functionality to private companies. As a result, there are cases where Mongolian private companies are utilizing the administrative IT infrastructure and data through e-Mongolia for business purposes. A specific example, revealed through interviews with e-Mongolia, is that private companies are responsible for installing and managing kiosk machines that can complete various administrative procedures in coordination with e-Mongolia.

3) Human Resource Development Environment for Open Data Utilization

(a) Current Status of Data Analytics and Data Science Personnel Development (Companies, Universities)

According to an interview with MDDIC, there is a research lab for AI and data science at the MUST. In gathering information locally, we conducted an interview with an Associate Professor from the MUST to understand the environment for developing data science personnel in Mongolia. The university's School of Information and Communication Technology, specifically the Faculty of Computer Science, offers a curriculum related to AI, which primarily focuses on the foundational theories of AI. The university does not possess big data internally; instead, they use computers equipped with GPUs specialized for deep learning to analyze data provided by external health institutions and open-source AI databases like Kaggle. This indicates that while the Mongolian government's open data may not be specifically utilized, the broad concept of "open data" is already being employed in AI model construction and data analysis at the MUST through web-based open databases. Although there is no specialized training for personnel focused solely on open data, the use of open data is integrated into AI-related lectures within the Computer Science faculty. For the purpose of utilizing open data in marketing by private companies, the development of data analytics and data science personnel within companies is crucial. However, as highlighted in this project's hackathons, it is essential not only to use open data as a decision-support tool in business but also to integrate open data into the solutions that users interact with by linking internet-based open data with applications using API functionalities, as seen in many examples from Japan and other countries. Therefore, it is important to develop personnel with skills in data analytics, data science, and application development, including front-end and back-end engineering skills.

(b) Status of Data Management Personnel Training (Government Ministries)

According to interviews with representatives from MDDIC, each ministry has its own engineers who manage the open data portals and personnel responsible for organizing the data. While MDDIC takes the lead on cross-ministerial initiatives related to open data, the actual operations are handled by each individual ministry. It has also been noted that the quality of open data portals varies among ministries, with many of the ministries not even having an open data portal. This suggests that there is a disparity in the skills of personnel responsible for data management and portal operation across different ministries. Nevertheless, the training of personnel within the ministries who are responsible for collecting, organizing, and publishing data on open data portals is particularly crucial. There are generally three major steps involved in the process of actually publishing open

data. First is data collection, where the focus is on how to collect data that meets the needs of third parties such as private companies, which is critical for promoting the use of open data. To achieve this, it is necessary for those who hold the data to accurately understand the needs of users through workshops and other means that involve both public and private sectors. Second is data preprocessing, which involves organizing the data to ensure that there are no missing or erroneous entries, making the data more user-friendly. Lastly, there is the formatting step, where it is important to support various file extensions (such as csv and json in addition to xlsx) to consistently provide data that is compatible with the users' development environments. From the results of the interviews conducted locally with entities like the city of UB, it was found that technical personnel within the government who are involved in open data are primarily concentrated in the National Statistics Office of Mongolia, which operates 1212.mn, the most advanced open data portal with a substantial amount of data. On the other hand, given the competitive nature of open data portal development among ministries, it is necessary to establish a system where staff involved in open data management from the National Statistics Office of Mongolia are assigned to data source institutions like Ulaanbaatar City and the Health Development Center. By sharing knowledge on data collection and processing, this system would help mitigate the disparity in skills among ministries and enhance the technical capabilities related to open data management across ministries.

4) Support Trends of Development Partners

(a) Open Data

From 2015 to 2020, the World Bank implemented the "Smart Government Project" with the Cabinet Secretariat of Mongolia as its counterpart. The development goal of this project was to improve the provision and quality of online public services for Mongolian citizens and businesses. As part of the project, Mongolia's first open data portal, OPENDATA.GOV.MN, was established. This portal publishes 37 datasets from six ministries, including the Ministry of Finance, in formats such as xlsx, csv, xml, and json. The project defines open data as "data for development" and operates the portal with the aim of promoting effective use by third parties. The portal is built on CKAN, an open-source data management system widely used for constructing open data catalog sites. Furthermore, since 2023, the Smart Government Project has entered its second phase with MDDIC as the new counterpart. Among its seven major scopes, initiatives to promote open data continue from the previous phase.

(b) Data Integration

In the field of data integration in Mongolia, support activities by development partners have been confirmed only for the ADB through interviews with e-Mongolia and web information collection. ADB has been providing technical cooperation support for the renewal of e-Mongolia, which was established in 2020, from 2022 to 2025. In line with the Mongolian government's goal of digitizing 90% of government services by 2024, e-Mongolia is expected to enhance its platform functions to accommodate the anticipated increase in user demand, which is projected to exceed one million users. Through its technical cooperation, ADB aims to improve the accessibility and performance of e-Mongolia. Specifically, ADB monitors and improves the design of the user interface and user experience of the e-Mongolia platform. From the perspective of performance, ADB supports the evaluation of data requirements for data integration with other agencies, advises on the engineering of integration processes, and conducts benchmarking based on best practices from other countries in the provision of existing and planned e-Mongolia services.

5) Japan's Support Resources

Through the results of our research, it has become clear that the architecture utilizing the X-Road data exchange layer (XYP) for inter-ministerial data integration in Mongolia is already in operation, indicating that efforts in this area are highly advanced. Therefore, from the perspective of data integration, it is considered challenging to provide unique Japanese support to Mongolian government agencies. On the other hand, regarding data integration between industries in the private sector, there is potential to offer support based on the advanced data-sharing practices of Japanese companies. For example, advanced initiatives such as KDDI's "Geotra," the satellite data trading platform "Tellus," and NTT's medical data integration infrastructure could serve as references for similar efforts in Mongolia. To achieve this, it is crucial first to investigate the current situation and challenges of Mongolia's key industries and consider the most suitable data-sharing approaches for Mongolian industries and private companies. Regarding open data, Japan has numerous open data catalog sites, such as the Ministry of Internal Affairs and Communications' open data portal "e-Stat," Tokyo Metropolitan

Government's "TOKYO OPEN DATA," and the Regional Economy Society Analyzing System (RESAS) by the Ministry of Economy, Trade, and Industry and the Cabinet Office. Additionally, many open data portal sites have been established at the municipal level. Although prior verification of each portal is necessary, it is believed that Japan has accumulated significant know-how that could be useful for constructing open data portals in Mongolia. Furthermore, in Japan, many catalogs, including RESAS, feature visualized open data with excellent infographics, making them being easily understood and engaged by users. By incorporating these elements of Japanese open data portals, it is possible to increase the number of open data users in Mongolia. Based on the above, it is recommended first to capture the needs of private companies regarding open data portals through hackathons in this project. Considering the resources of the ministries, select particularly referable examples of Japanese open data portals and propose their application to improve open data portals in Mongolia.

Chapter 6 Benchmarking Country Survey

To formulate initial hypotheses for supporting the enhancement of Mongolia's ICT and digital industry, SU support, and the utilization of open data, it is useful to collect and analyze information from benchmark countries. Therefore, a survey of relevant benchmark countries was conducted. This report outlines the implementation methods and the results of the information collection from the benchmark countries.

1. Implementation method

1) Selection of Survey Target Countries

For each survey item, countries such as Estonia and Singapore were selected as target countries based on the criterion of whether they are implementing initiatives that provide insights for Mongolia. Surveys and analyses were conducted accordingly.

Table 68 Survey Content of Benchmark Countries

Survey Items	Main Initiatives of Each Country		
	Estonia	Singapore	Other countries
Trends of ICT/Digital Industry and Startup	- Focus on ICT and Digital Industry Promotion Based on the Digital Strategy and Initiatives for Offshore Base Development - Establishment of a Startup Ecosystem Centered Around Tallinn	Initiatives for the Development of a Digital Smart City Incorporating AI and Cybersecurity Based on the Smart Nation Initiative	Israel: Cross-Government Innovation Policy Promotion System by the Innovation Authority
Environment Analysis of ICT/Digital Industry and Startup Human Resource	Development of ICT and Digital Talent, Including Engineers, Since the 1990s	- Continuous Startup Talent Development Centered Around Key Universities - Development of Advanced Human Resources, Vocational Retraining Programs, and Human Resource Development in Collaboration with Global IT Companies Based on Skills Future	(Israel: While the skill level of the workforce is high, there is a unique aspect due to the conscription system which facilitates intensive talent development and skill acquisition.)
Utilization of Open Data	Development of an Open Data Portal and Improvement of Dataset Coverage and Availability Based on e-Estonia	Data Utilization Measures for the Realization of the Smart Nation Initiative	United Kingdom: Improvement of Public Services through Enhanced Access to Open Data by Private Companies

Source: Created by the JICA Study Team

2) Basic Information Collection Survey Items

The basic information collection survey for each benchmark country was conducted by dividing it into four categories as shown in the diagram below: 1. ICT and digital industry trends, 2. ICT and digital industry human resource environment, 3. SU trends and human resource environment, and 4. Utilization of open data.

1. ICT・Digital Industry Trends Government-related policies regarding the promotion of the ICT and digital industry Analysis of ICT and digital enterprises (number of enterprises, enterprise scale, specific examples of enterprises, acceptance status from abroad, growth trends, etc.) Analysis of the invitation of overseas ICT and digital enterprises Analysis of the potential for developing digital smart cities	3. Startup Trends and Human Resource Environment Government-related policies regarding the promotion of startups and human resource development Analysis of the startup ecosystem (R&D, financing mechanisms, social recognition, current state of investments from domestic and international sources, providers and content of incubation programs/acceleration programs, entrepreneurial communities/innovation hubs, industry-academia collaboration) etc.
2. ICT・Digital Industry Human Resources Environment Government-related policies regarding human resource development in the ICT and digital industry Analysis of ICT and digital human resource development (universities, vocational training schools, private companies, etc.) (training content, training period, etc.) Analysis of the following items for ICT and digital enterprises/startups • Human Resource Availability • Human Resource Capabilities • Human Resource Growth Rate • Educational and Employment Background • Employment Motivation • Working Environment • Wage Levels	4. Utilization of Open Data Government-related policies and the status of legal framework development regarding the utilization of open data Overview of E-Mongolia (development history, owned datasets, service overview, etc.) Trends in business utilization of open data

Organize qualitative information through interviews

Figure 84 Basic Information Collection Survey Items

2. Summary of Survey Results

1) Achievements of Each Country in Promoting ICT and Digital Industries

(a) Estonia

Estonia has achieved the status of a digital nation where 99% of administrative services are online and has produced numerous leading ICT companies. The success of Estonia is attributed to the cultivation of excellent ICT talent, collaboration between industry, government, and academia, and the establishment of a highly secure data exchange infrastructure. Furthermore, the focus on the Estonian ICT industry has been bolstered by the implementation of e-government and the global expansion of startups like Skype. (See the figure below for details.) According to data from the World Bank, both the export value of ICT services and the proportion of ICT services in the total service exports have been increasing annually. As of 2022, the former stands at 2.44 billion USD (approximately 364.3 billion yen), and the latter at 21.63%.



Source: Compiled by the JICA Study Team from various survey results

Figure 85 Results of Estonia's ICT and Digital Industry Promotion

(b) Singapore

Given its limited domestic market size and resources, Singapore has actively sought foreign investment. In addition to its geographical advantage, strong political leadership has established Singapore as the commercial hub of Southeast Asia, providing a foundation for the promotion of the ICT industry and startups. Under this background, the development of the ICT and digital industries has progressed, and today, Singapore is globally ranked among the top for e-Government and smart cities, being recognized as a successful example of digitalization. The key factors contributing to this success include the government's strong leadership in driving digitalization and the successful attraction of foreign companies. (See the figure below for details)



Source: Compiled by the JICA Study Team from various survey results

Figure 86 Achievements in Promoting Singapore's ICT and Digital Industries

(c) Israel

Due to the heightened focus on national defense stemming from tensions with neighboring countries, Israel has deepened its ties with the United States in relation to Middle Eastern issues. Against this backdrop, Israel has successfully become a hub for the R&D centers of multinational and high-tech companies, achieving the world's highest ratio of R&D expenditure to GDP. The key factors for this success include the government's thorough preferential treatment for high-tech companies and R&D projects, as well as the significant demand from the government for ICT and digital technologies related to national defense. On the other hand, despite its high level of technological prowess, Israel's evaluation in smart city development is not high. This could be due to the lack of a national strategy in this area. (See the detailed chart below)



Source: Compiled by the JICA Study Team from various survey results

Figure 87 Achievements in the Promotion of Israel's ICT and Digital Industries

2) Achievements of Each Country in ICT and Digital Talent Development

(a) Estonia

Estonia boasts high digital skills among its population, with 8.4% of graduates holding degrees in the ICT field and ICT specialists comprising 6.2% of the workforce, both above the EU average. The high level of ICT talent can be attributed to factors such as the former Soviet Union's emphasis on science and technology education, which fostered sufficient talent in these fields, and the presence of the Institute of Cybernetics in Estonia during the Soviet era. However, it is also believed that the nation's concerted efforts to strengthen ICT education—such as the introduction of digital-related classes in primary education, the development of practical ICT curricula in higher education, and support for the commercialization of research at universities—have significantly contributed to the production of high-level ICT professionals. (See the diagram below for details.)

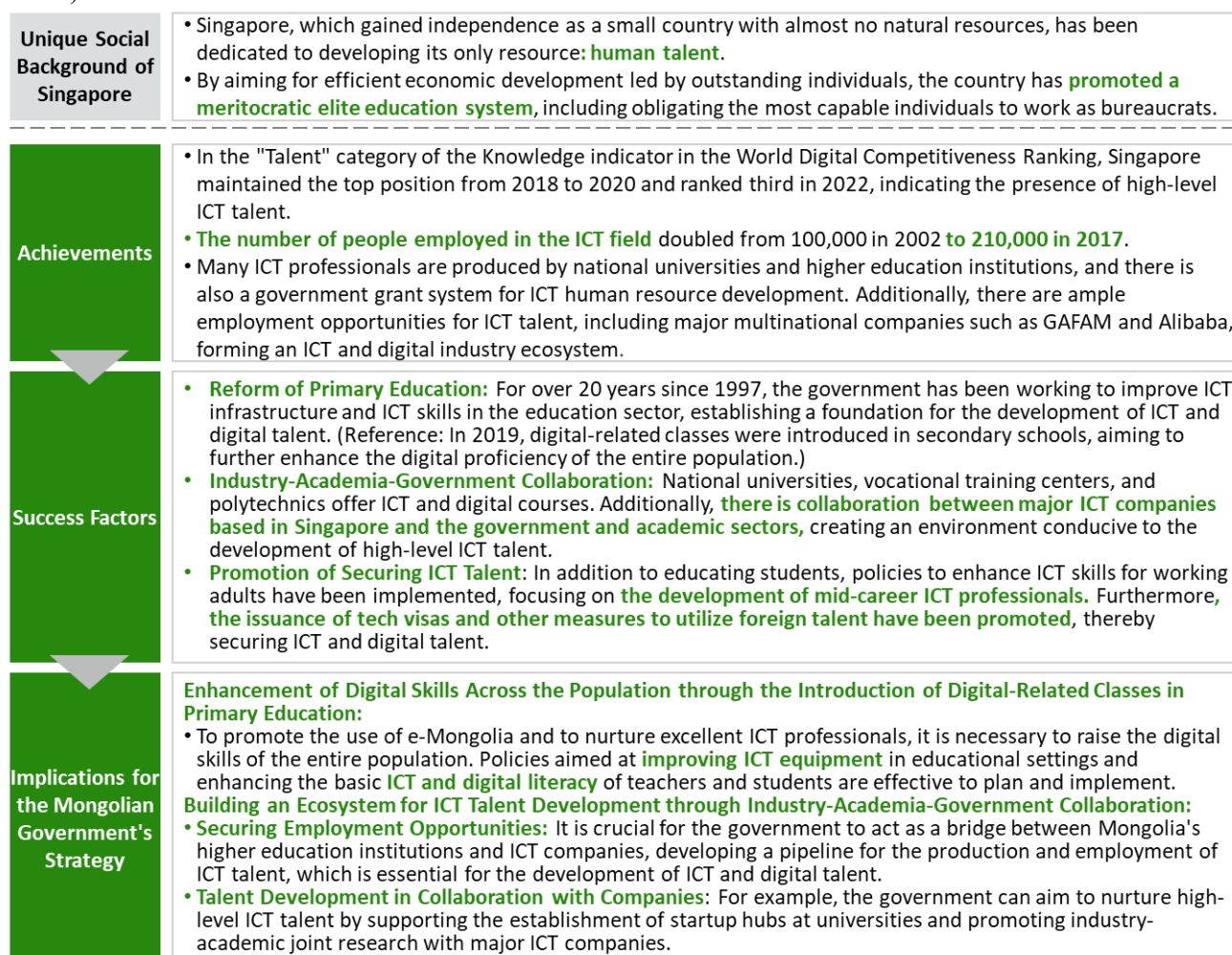


Source: Compiled by the JICA Study Team from various survey results

Figure 88 The Achievements in ICT and Digital Talent Development in Estonia

(b) Singapore

Singapore, a small country with almost no natural resources, has focused on developing its only resource: human talent, and has promoted a meritocratic elite education system. Since 1997, the government has been promoting ICT education, improving ICT infrastructure in educational settings, and training teachers. As a result, the level of ICT talent in Singapore has received high international recognition. Additionally, the number of employees in the ICT sector has doubled over 15 years, contributing to the formation of an ICT and digital industry ecosystem. Factors contributing to this success include primary education reform, support for industry-academia-government collaboration, and the attraction of ICT talent from overseas (see the diagram below for details).



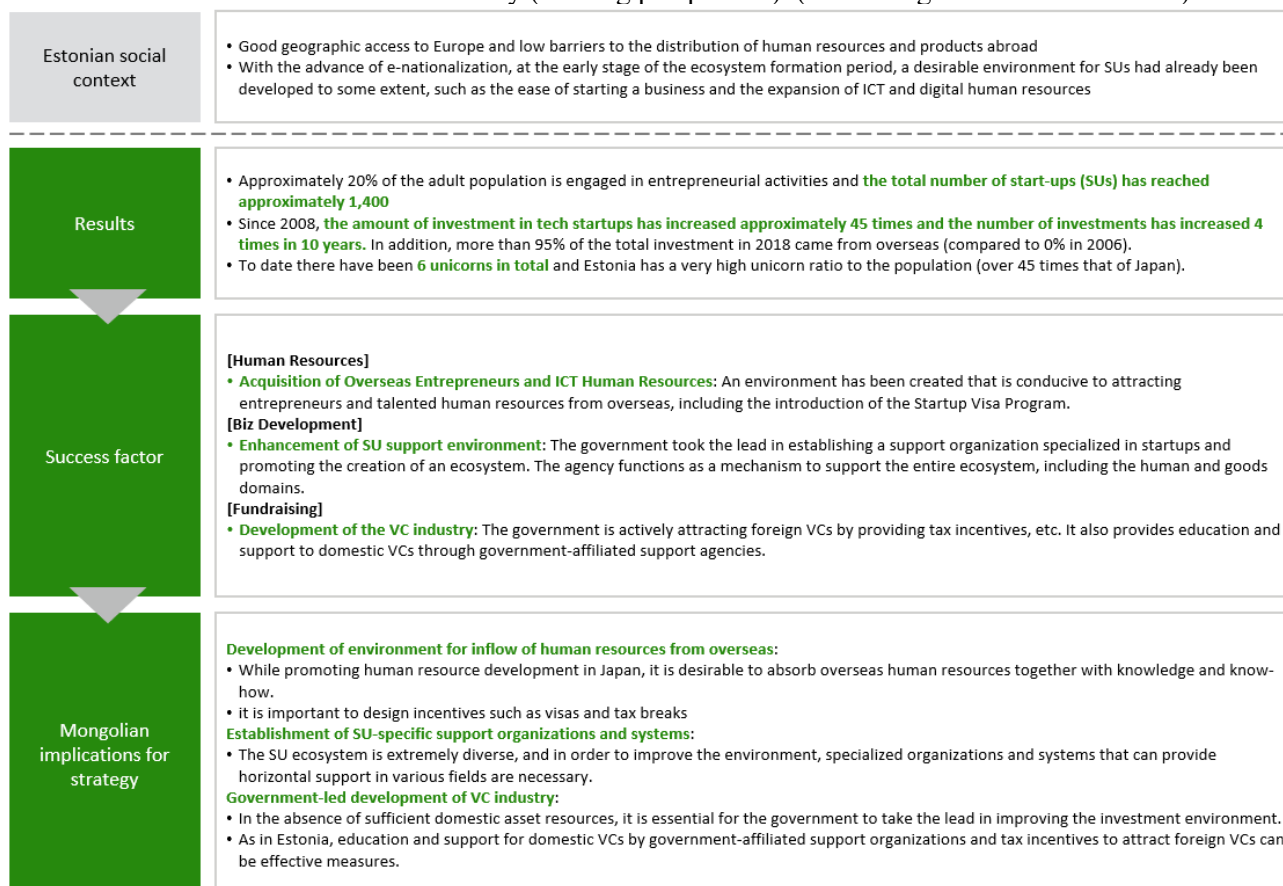
Source: Compiled by the JICA Study Team from various survey results

Figure 89 Achievements in ICT and Digital Talent Development in Singapore

3) Achievements of Countries in Building Startup Ecosystems

(a) Estonia

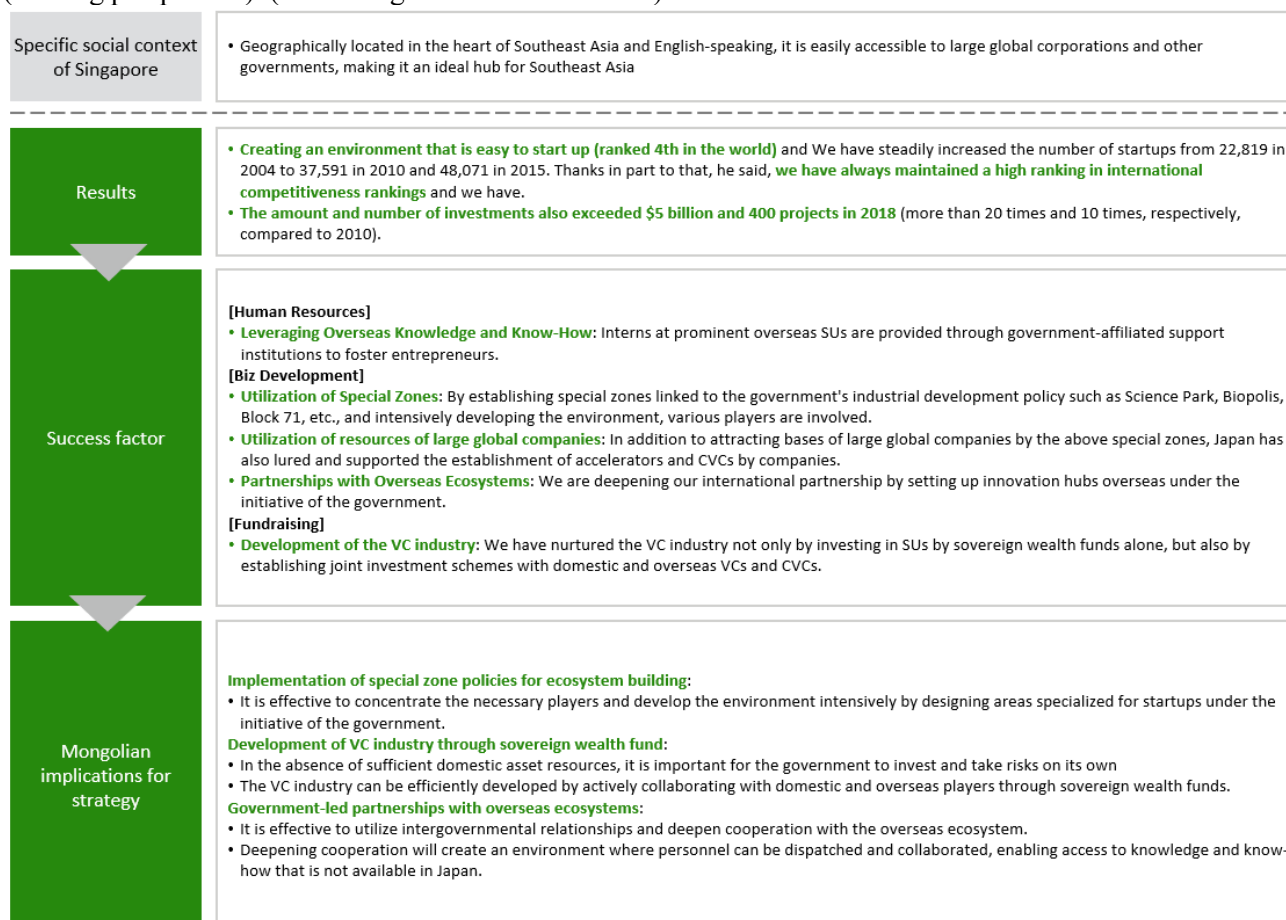
Estonia has good access to Europe geographically and provides an ideal environment for SUs in terms of ease of starting a business and securing ICT and human resources. In this environment, the number of SUs and the amount of investment in SUs has increased, resulting in the creation of six unicorns. Success factors include the development of an environment to attract entrepreneurs and human resources (human perspective), the contribution of SU support organizations to the development of an ecosystem (product perspective), and the attraction and incentives for the VC industry (funding perspective). (See the figure below for details.)



Source: Summarized by the JICA Study Team based on various survey results
Figure 90 Results of SU Promotion in Estonia

(b) Singapore

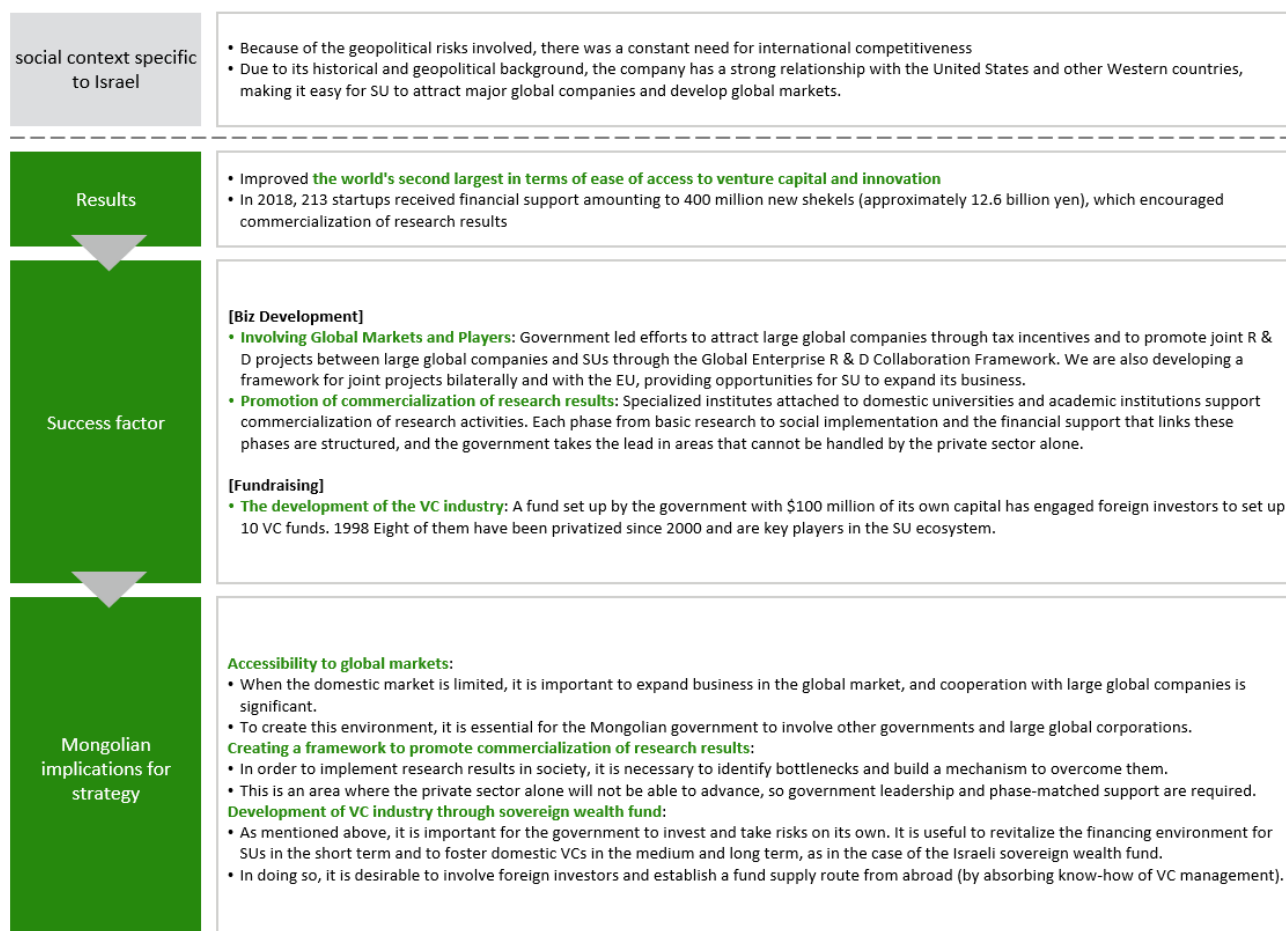
Singapore is geographically and linguistically accessible to large global companies and serves as a hub in Southeast Asia. In addition, the development of an environment that facilitates business start-ups has resulted in more than 5 billion USD (approximately 746.6 billion yen) and 400 investments in SUs in 2018. The success factors include the utilization of overseas knowledge and know-how (human perspective), the utilization of resources of special zones and global companies (product perspective), the deepening of cooperation with overseas ecosystems (product perspective), and the development of VC mainly through sovereign wealth funds (funding perspective). (See the figure below for details.)



Source: Summarized by the JICA Study Team based on various survey results
Figure 91 Results of SU Promotion in Singapore

(c) Israel

While geopolitical risks demanded international competitiveness in Israel, the country's deep ties with Western countries, particularly the United States, made it easy for the country to attract foreign companies and for SUs to expand overseas. Against this background, it has gained international acclaim for its ease of obtaining venture capital and its ability to innovate. Success factors include government-led efforts to attract foreign companies, support for overseas expansion by domestic companies, promotion of commercialization of research results, and establishment of government-affiliated VC funds. (See the figure below for details.)

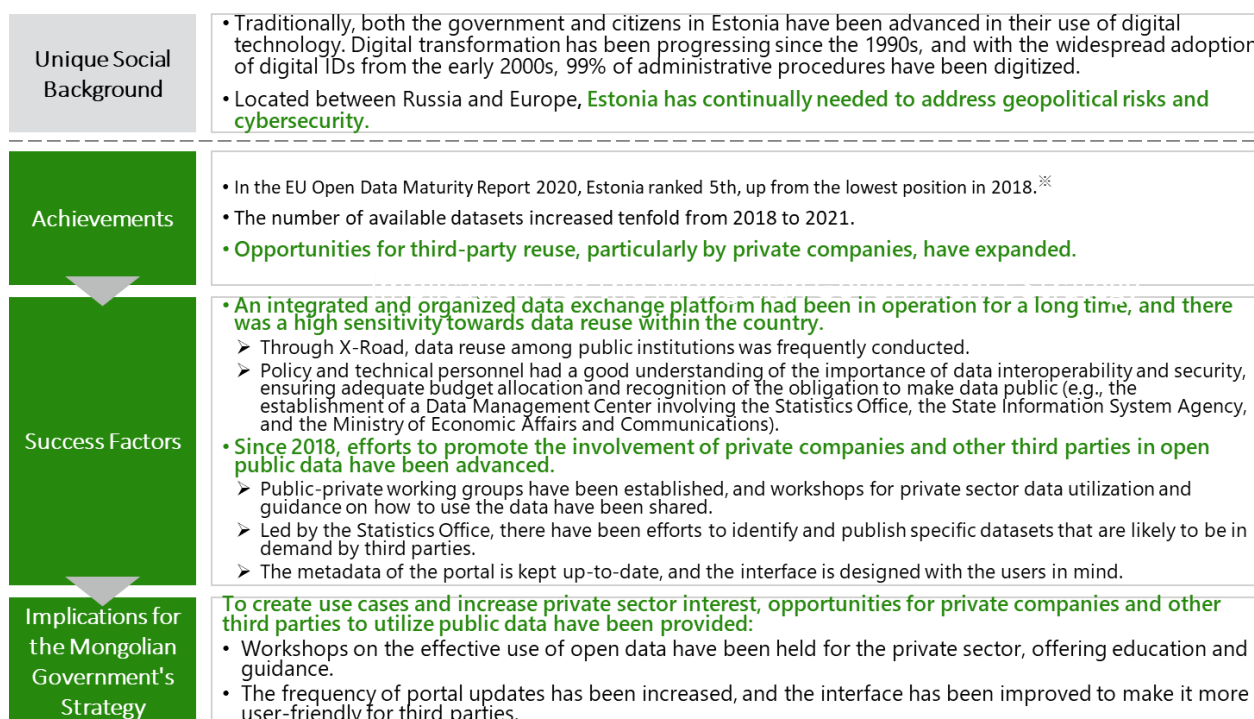


Source: Summarized by the JICA Study Team based on various survey results
Figure 92 Results of SU Promotion in Israel

4) Achievements of Each Country in the Utilization of Open Data

(a) Estonia

Estonia, with high geopolitical needs for cybersecurity, promoted e-Estonia as a measure to maintain government functions in case of physical territorial occupation after independence. As part of this initiative, a secure inter-agency (partially public) data exchange platform, X-Road, was established to advance the online provision of public services. Against this backdrop, X-Road has facilitated the smooth exchange of data, particularly among public institutions, and the seamless integration of closed data. However, despite the initially limited utilization of government data as open data for the public, the sensitivity of the Estonian government and private sector towards data integration and utilization, as well as the private sector's trust in the government, is high. With the establishment of an open data portal and efforts to promote the use of open data for the private sector since 2018, the utilization of public data by private companies has also advanced (see the diagram below for details).



Source: Compiled by the JICA Study Team from various survey results

Figure 93 Achievements of Open Data in Estonia

(b) Singapore

Given its limited resources, Singapore has long positioned ICT as a pillar of its economic growth. In 2014, the Smart Nation Initiative was formulated with the aim of addressing social issues highlighted by data and digital technologies. As a result of these efforts, the open data portal has evolved, and numerous applications utilizing public data have been developed. One of the factors contributing to this success is the clear definition of the purpose of utilizing open data (see the diagram below for details).

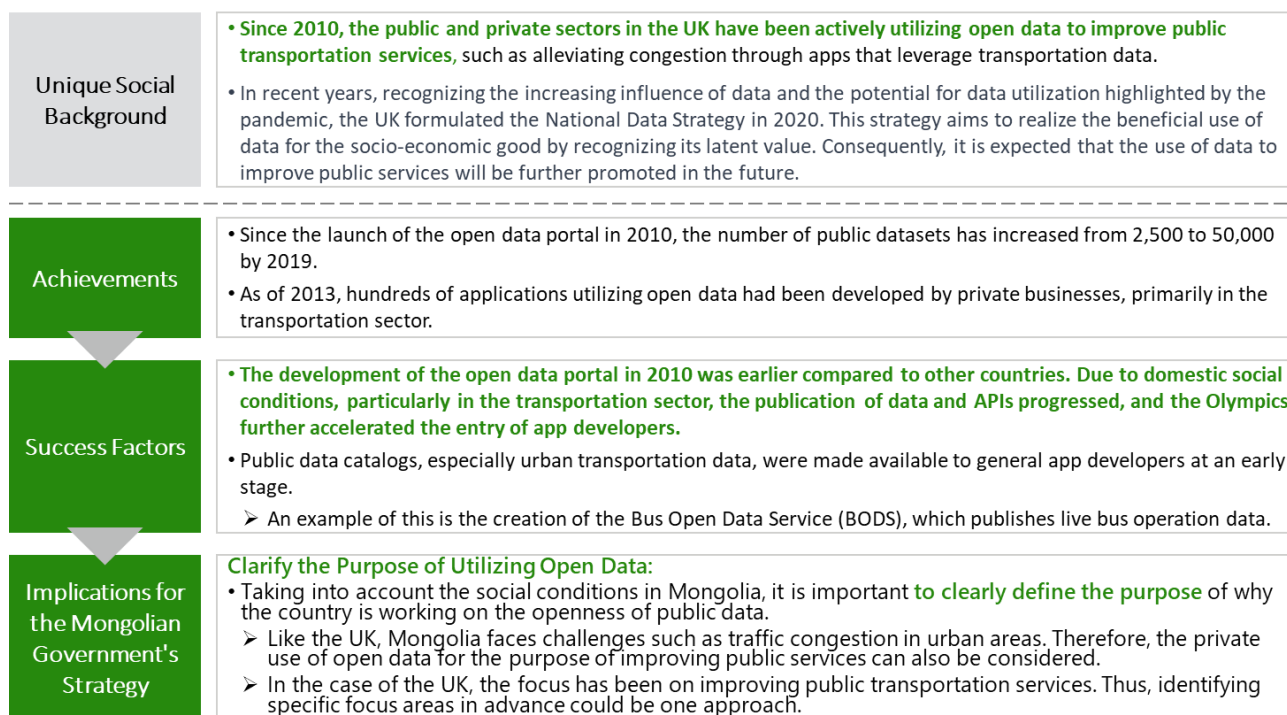


Source: Compiled by the JICA Study Team from various survey results

Figure 94 Achievements of Open Data in Singapore

(c) UK

In the UK, the utilization of open data by both the public and private sectors has been promoted since 2010 to improve public transportation services. With the formulation of the National Data Strategy in 2020, it is expected that the use of data to improve public services will be further promoted in the future. Against this backdrop, the number of public datasets has increased since the launch of the open data portal, and hundreds of applications utilizing open data have been developed. Compared to other countries, the early development of the open data portal and the high domestic demand have led to the entry of app developers, which can be considered a factor in its success (see the diagram below for details).



Source: Compiled by the JICA Study Team from various survey results
Figure 95 Achievements of Open Data in The U.K.

Chapter 7 Implementation of Pilot Projects

Five pilot projects were implemented with the aim of gaining practical lessons for formulating strategies to promote the ICT and digital industries in Mongolia, as well as for developing JICA's support measures.

1. Pilot Project (1): Study and Implementation of Japan-Mongolia ICT and Digital Industry Business Matching Support

In this pilot project, business matching between Mongolian ICT and digital industries and startups and local governments, commercial associations, and private companies in Japan was conducted. Selected Mongolian companies with high potential to collaborate as offshore development destinations, implement joint projects, and create reverse innovation to Japanese private companies, and planned mission to Japan.

1) Implementation policy

As a Pilot Project (1) (PP (1)), Japan-Mongolia ICT and Digital Industry Business Matching Support (“Japan Mission”) was conducted twice during this project period, with the aim of examining the opportunities that Mongolian ICT and digital industry companies can find when considering overseas expansion, the challenges they face, the feasibility of effective collaboration methods other than offshore development orders, and the effects of the promotional tools that have been created, using Japanese expansion as a theme.

After the completion of the first program, we conducted a review of the interviews with the participants and made improvements that were reflected in the plan for the second program. After the completion of the second program, we summarized the lessons learned during the entire program and summarized them in Table 77, “Evaluation after PP (1)”.

The overview of PP (1) is as shown below.

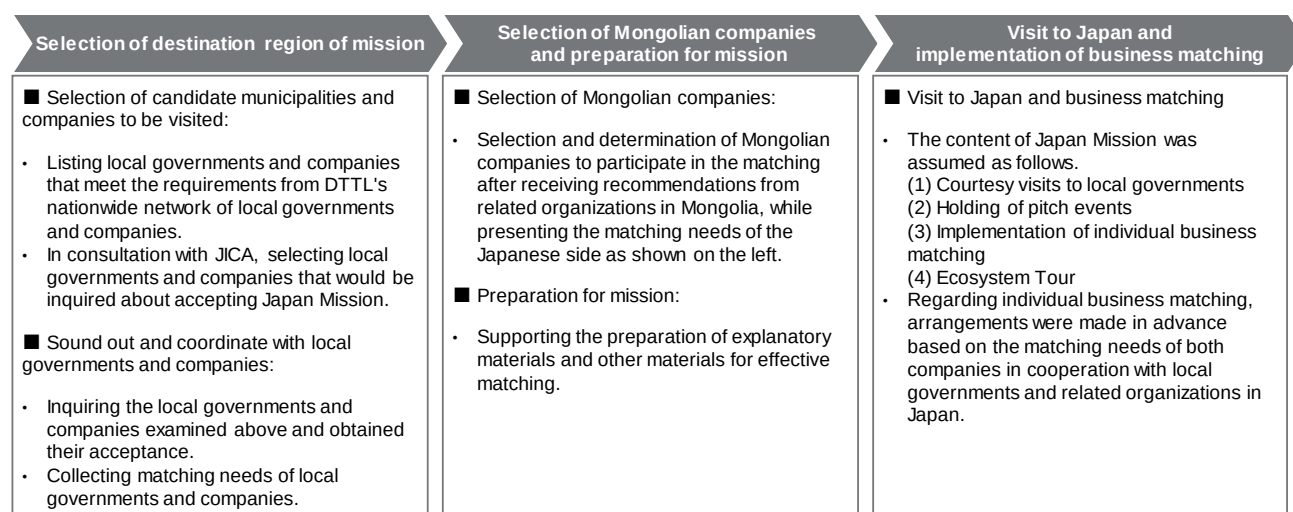


Figure 96 Overview of PP (1) (1 Cycle)

2) The 1st batch of Japan Mission

(a) Content of the plan

The outline of the plan for the first of two Japan-Mongolia ICT and Digital Industry Business Matching conducted during the survey period is shown below.

Table 69 Outline of the 1st batch of Japan Mission

Purpose	1. Promoting Mongolia's ICT industry in Japan (raising awareness) 2. Promotion of matching between Mongolian ICT companies and Japanese companies 3. Promoting cooperation with regions with potential needs for ICT companies and human resources in Mongolia 4. Extraction of issues and points for improvement in Japan-Mongolia business matching in the future through the above activities
Schedule	Sunday, June 25, 2023 - Saturday, July 1 * Travel between Mongolia and Japan included
Visited	Tokyo and Fukuoka *Refer to the following pages for the process.
Participants	• Ministry of Digital and Communications Development (including the Minister) • Startup companies (8 companies) • Other observers and interested parties (Details of the participants will be discussed later.) [Mongolian ICT companies to participate] ✓ ICT companies and organizations wishing to seek business partners in Japan ✓ The forms of cooperation are assumed to include services in Japan, outsourcing of offshore development, joint research and development, and personnel exchange.

The MDDIC and eight Mongolian startups were invited to Japan. We visited companies and organizations in 2 areas, Tokyo and Fukuoka, where ICT and digital industries are concentrated in Japan, and conducted ecosystem tours, pitch events, and individual matching. Details are shown in the tables and figures below.

Candidate areas were selected based on (1) the degree of development of the startup ecosystem (accumulation of startups, etc.), (2) the degree of accumulation of matching candidates (investors, major companies, etc.), and (3) the status of cooperation with the overseas startup ecosystem and the status of measures for overseas startups (startup visa, etc.).

In order to improve the quality of promotion and matching in Japan, the following support was provided to the participating companies before, during and after the mission.

- Prior: Interviews were conducted to identify candidates for individual matching and to brush up pitch decks.
- During implementation: Individual matching was accompanied by members of the JICA Study Team to facilitate discussions.
- After: Interviews were conducted to confirm progress after the Japan Mission, give advice on issues, and confirm next steps.

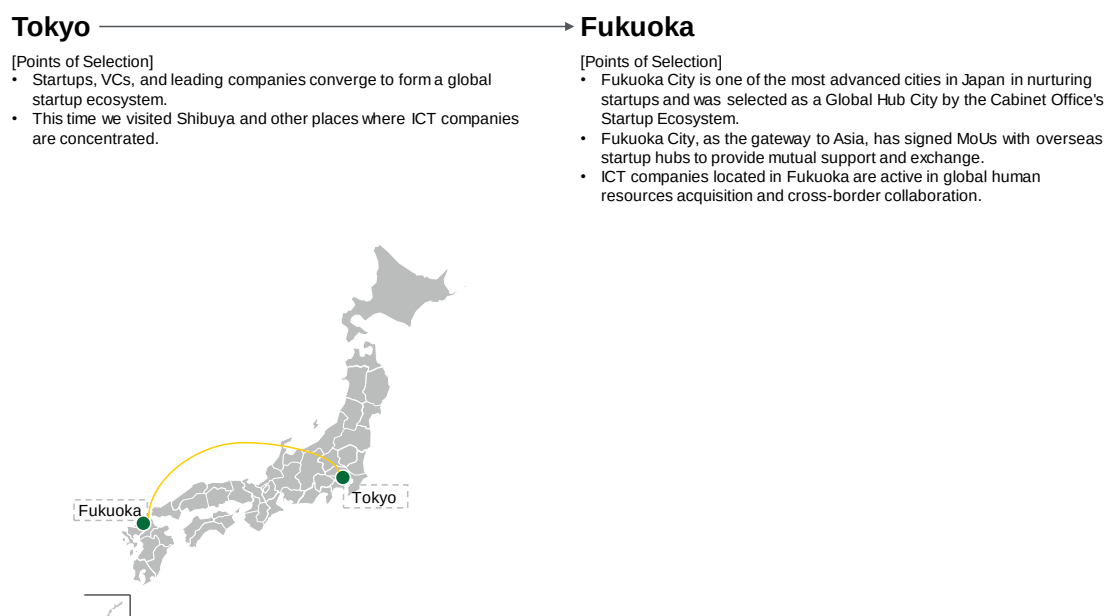


Figure 97 Destination of the 1st batch of Japan Mission and Points of Selection

Table 70 Program of the 1st batch of Japan Mission

Schedule	Time	Location	Content	Remarks
Sunday, June 25	07:45-13:40	Tokyo	[Move] UB → Narita	
Monday, June 26	all day	Tokyo	Visits to relevant organizations	• Visited the Mongolian Embassy, KDDI, and Tokyo One-Stop Center
Tuesday, June 27	AM/PM	Tokyo	Tokyo Ecosystem Tour	• Visited Shinagawa Ward, Gotanda Valley and Shibuya Ward
	18:00-21:00	Tokyo	Startup Pitch from Mongolia @Shibuya QWS	• Held pitch event aimed at matching with large companies and startups in Tokyo • Conducted promotion of Mongolian ICT industry
Wednesday, June 28	AM	Tokyo	individual matching	• Adjusted according to the matching needs of each company (1 ~2 companies per one Mongolian company)
	Afternoon	Tokyo	[Transfer] Haneda → Fukuoka	
Thursday, June 29	AM/PM	Fukuoka	Fukuoka Ecosystem Tour	• Visited Fukuoka D.C. LINE Fukuoka in Fukuoka City • Visited Fukuoka Growth Next, an incubation facility
	16:00-18:00	Fukuoka	Startup Pitch from Mongolia @Fukuoka Growth Next	• Held pitch event aimed at matching with large companies and startups in Fukuoka • Conducted promotion of Mongolian ICT industry
Friday, June 30	All day	Fukuoka	individual matching	• Adjusted according to the matching needs of each company (2 ~3 companies per one Mongolian company)
Saturday, July 1	10:20-12:10	Fukuoka	[Move] Fukuoka → Narita	
	14:40-19:15	Tokyo	[Move] Narita → UB	

Participating ICT companies were selected in accordance with the following processes and perspectives.

- Participating ICT company selection process:
 - Recruitment and application acceptance of participating companies at IT Park in early April 2023. Accepted applications from 30 companies.
 - The list was narrowed down to 10 companies based on the application details, and the JICA Study Team conducted on-site interviews from April 24th to 28th, 2023. Seven companies were selected in addition to a MONJA winner, Clinica.
- Perspectives of selection:
 - Traction of products and services (Services that have not launched or have low traction were less likely to be successful in business matching and therefore received lower ratings).
 - Consistency between the matching needs of candidate companies and the Japanese market and companies.
- Selection result:
 - In addition to the MONJA winner, Clinica (ID 5 in the table below), 7 companies (ID 6~20) were selected.

Table 71 Participants of the 1st batch of Japan Mission

	Category	Organization/ Company	Title
1	Government	Ministry of Digital Development and Communications	Minister
2	Government	Ministry of Digital Development and Communications	Adviser to Minister
3	Government	Ministry of Digital Development and Communications	Director
4	Government	National IT Park	Director
5	ICT Company	Clinica	CTO
6	ICT Company	AND Solutions Pte. Ltd.	Head of Sales
7	ICT Company	Gerege Systems LLC	CEO
8	ICT Company	Gerege Systems LLC	Chairman
9	ICT Company	GerTech Inc.	CEO
10	ICT Company	GerTech Inc.	COO
11	ICT Company	GerTech Inc.	
12	ICT Company	High Payment Solutions LLC	Chief Investment Officer
13	ICT Company	High Payment Solutions LLC	Deputy Director
14	ICT Company	Nasha Tech LLC	Founder & CEO
15	ICT Company	Powered LLC	CEO
16	ICT Company	Powered LLC	COO
17	ICT Company	Powered LLC	CIO
18	ICT Company	Tapatrip PTE LTD	CTO
19	ICT Company	Tapatrip PTE LTD	Developer
20	ICT Company	Tapatrip PTE LTD	Senior engineer
21	Observer	MobiCom corporation LLC	Specialist
22	Observer	DX Mongolia	Deputy Chair Director
23	Observer	National University of Mongolia	Head of Department of Information and Computer Sciences

In selecting participating ICT companies, the evaluation criteria included "Traction of products and services". Thus, companies that had already launched products and services in the early years or later were basically selected. We believe that these criteria worked because we were able to arrange individual matching with Japanese companies and investors, and they were able to acquire a pipeline.

The outline and program of the pitch event are shown in the following figure.

Tokyo: June 27, 2023

Title	Digital x Nomad : Mongolian Startup Pitch
Host	Organizer: Japan International Cooperation Agency (JICA) Support: KDDI ∞ Labo
Date and time	Tuesday, June 27, 2023, 18:00 to 21:00
Implementation method	Offline only (no online delivery)
Venue	Shibuya QWS Scramble Hall (15th Floor, Shibuya Scramble Square (East Building), 24 12, Shibuya 2-chome, Shibuya-ku, Tokyo)
Participants	- Target: Large companies, investors, startups, etc. - Capacity: approximately 100 participants - Application: 114 people - Attendance: 89 people
Program	- Opening remarks (JICA) (5 minutes) - Introduction to Mongolia's ICT startup ecosystem (15 minutes) - Mongolian Startup Pitch (65 minutes: (5 minutes pitch + 1 minute Q & A) x 8 companies) - Possibility of doing business with Mongolia (Mongolian Japanese Human Resources Development Center) (10 minutes) - Business introduction by local telecommunications giant MobiCom (5 minutes) - DXCUP2023 and Mongolia ICT Human Resource Development Initiative (DX Mongolia) (5 minutes) - Closing Remarks (5 minutes) - Exchange at the venue (exchange of business cards, etc.) (20 minutes) - Social gathering (50 minutes)



Introduction of Mongolian ICT startup ecosystem



Startup pitch Gerege Systems LLC



Startup pitch GerTech Inc.



Startup pitch Powered LLC



Possibility of doing business with Mongolia
Mr. Ko Nakamura, Mongolian Japanese Human Resources Development Center



Business introduction by MobiCom
Tatsuya Hamada, Global Consumer Business Development Division, KDDI

Figure 98 Outline of Pitch Event (Tokyo) in the 1st batch of Japan Mission

Table 72 Program of Pitch Event (Tokyo) in the 1st batch of Japan Mission

Time	Content	Speaker	Remarks
18:00 -18: 05 (5 minutes)	Opening remarks	Mr. Shinichi Tanaka, Director of Mongolia Office, Japan International Cooperation Agency	
18:05 -18: 20 (15 minutes)	Introduction of Mongolian ICT startup ecosystem	Mr. Uchral, Minister of Digital Development and Communications	
18:20 -19: 25 (65 minutes)	Pitch by 8 companies *Each company takes 8 minutes (Pitch: 5 minutes, Q & A: 1 minute)	1. AND Solutions Pte. Ltd. (Japanese) 2. Clinica (English) 3. GerTech Inc. (Japanese) 4. Gerege Systems LLC (English) 5. Nasha Tech LLC (Japanese) 6. High Payment Solutions LLC (English) 7. Tapatrip PTE LTD (Japanese) 8. Powered LLC (English)	Simultaneous translation available
19:25 -19: 35 (10 minutes)	Possibility of doing business with Mongolia	Mr. Ko Nakamura, Expert of Mongolian Japanese Human Resources Development Center	
19:35 -19: 40 (5 minutes)	Business introduction by local telecommunications giant MobiCom	Mr. Tatsuya Hamada, Deputy General Manager, Global Consumer Business Development Division, KDDI	
19:40 -19: 45 (5 minutes)	DXCUP2023 and Mongolian ICT Human Resource Development Initiatives	Mr. Tuguldur Battbayar, DX Mongolia	
19:45 -19: 50 (5 minutes)	Closing address		
19:50 -20: 10 (20 minutes)	Exchange at the venue (exchange of business cards, etc.)		
20:20 -21: 00 (40 minutes)	Social gathering at the venue		

Fukuoka: June 29, 2023

Title	Digital x Nomad : Mongolian Startup Pitch
Host	Organizer: Japan International Cooperation Agency (JICA) Support: KDDI ∞ Labo
Date and time	Thursday, June 29, 2023, 16:00 to 18:00
Implementation method	Offline only (no online delivery)
Venue	Event Space of Fukuoka Growth Next (Daimyo 2-6-11, Chuoh Ward, Fukuoka City, Fukuoka Prefecture)
Participants	- Target: Large companies, investors, startups, etc. - Capacity: approximately 40 participants - Application: 45 people - Attendance: 34 people
Program	- Opening remarks (JICA) (5 minutes) - Introduction to Mongolia's ICT startup ecosystem (15 minutes) - Mongolian Startup Pitch (65 minutes: (5 minutes pitch + 1 minute Q & A) x 8 companies) - Possibility of doing business with Mongolia (Mongolian Japanese Human Resources Development Center) (10 minutes) - Closing Remarks (5 minutes) - Exchange at the venue (exchange of business cards, etc.) (20 minutes)



Introduction of Mongolian ICT startup ecosystem
Zolaya Jargalsaikhan, Director, National IT Park



Startup pitch
AND Solutions Pte. Ltd.



Startup pitch
Clinica



Startup pitch
High Payment Solutions LLC



Startup pitch
Nasha Tech LLC



Startup pitch
Tapatrip PTE LTD

Figure 99 Outline of Pitch Event (Fukuoka) in the 1st batch of Japan Mission

Table 73 Program of Pitch Event (Fukuoka) in the 1st batch of Japan Mission

Time	Content	speaker	Remarks
16:00 -16:05 (5 minutes)	Opening remarks	Mr. Shinichi Tanaka, Director of Mongolia Office, Japan International Cooperation Agency	
16:05 -16:20 (15 minutes)	Introduction of Mongolian ICT startup ecosystem	Ms. Zolaya Jargalsaikhan, Director, National IT Park	
16:20 -17:25 (65 minutes)	Pitch by 8 companies *Each company takes 8 minutes (Pitch: 5 minutes, Q & A: 1 minute)	1. AND Solutions Pte. Ltd. (Japanese) 2. Clinica (English) 3. GerTech Inc. (Japanese) 4. Gerege Systems LLC (English) 5. Nasha Tech LLC (Japanese) 6. High Payment Solutions LLC (English) 7. Tapatrip PTE LTD (Japanese) 8. Powered LLC (English)	Simultaneous translation available
17:25 -17:35 (10 minutes)	Possibility of doing business with Mongolia	Mr. Ko Nakamura, Expert of Mongolian Japanese Human Resources Development Center	
17:35 -17:40 (5 minutes)	Closing address	MC	
17:40 -18:00 (20 minutes)	Exchange at the venue (exchange of business cards, etc.)	-	

Publicity materials for the first pitch event were publicized using the following flyers and JICA website, and mailing lists of related organizations and SNS. We also publicized information to the community of the sponsor organization and the venue.



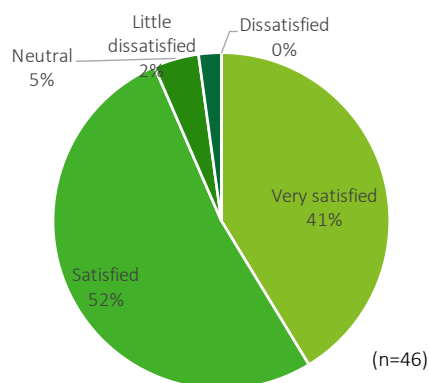
Figure 100 Flyer of Pitch Event in the 1st Japan Mission

(b) Questionnaire

After the event, a link to the survey was emailed to applicants. As a result, a total of 46 questionnaire responses (Tokyo venue: 37, Fukuoka venue: 9) were collected. The results of the questionnaire are as follows.

Overall Satisfaction with the Event

- The total of "Very satisfied" and "Satisfied" was 93%, and overall the participants were satisfied.



Satisfaction with each program

- The total of "Very satisfied" and "Satisfied" reached nearly 90% for "Mongolian Startup Pitch", "Possibility of doing business with Mongolia", and "Business introduction by local telecommunications giant MobiCom (Tokyo venue only)".
- On the other hand, the total of "Very Satisfied" and "Satisfied" was about 60% for the other programs, and they need to be improved next time.

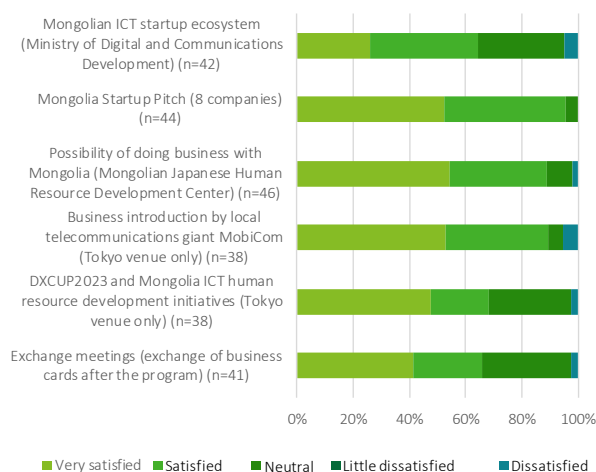
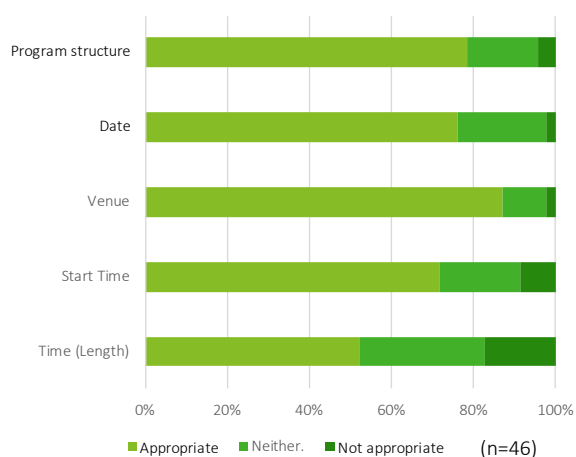


Figure 101 Results of the Questionnaire on Pitch Event in the 1st batch of Japan Mission (1)

- About 80% of respondents answered "Appropriate" for each item.
- On the other hand, about 50% of the respondents answered "Appropriate" for "time (length)." According to the open-ended responses, the reasons given were that the social gathering time was shortened due to excessive time, and that there were many programs other than pitches.



- "Interest in Mongolia", "Interest in Mongolia's startup ecosystem", and "Interest in the business of startups" were the top answers.
- As for the purpose, "Inspection/observation" was the most common, indicating a wait-and-see attitude. On the other hand, they were more interested in "business alliance" with Mongolian companies than "investment" or "use of services."

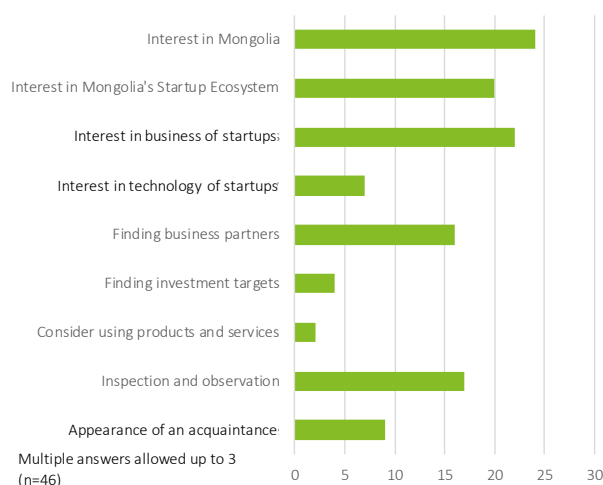
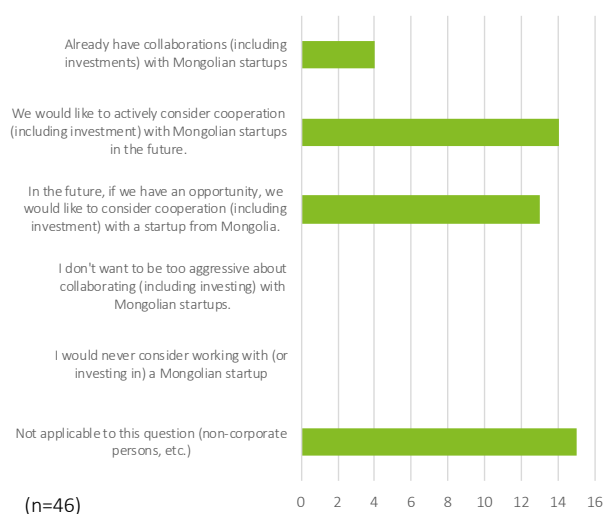


Figure 102 Results of the Questionnaire on Pitch Event in the 1st batch of Japan Mission (2)

- We have generally received positive responses regarding collaboration (including investment) with startups from Mongolia.



- The most common challenge was "Few opportunities to learn about Mongolian startups".
- "Response to local legal system" and "Differences in business practices" follows, and responding to the local business environment and local enterprises is considered to be a challenge.

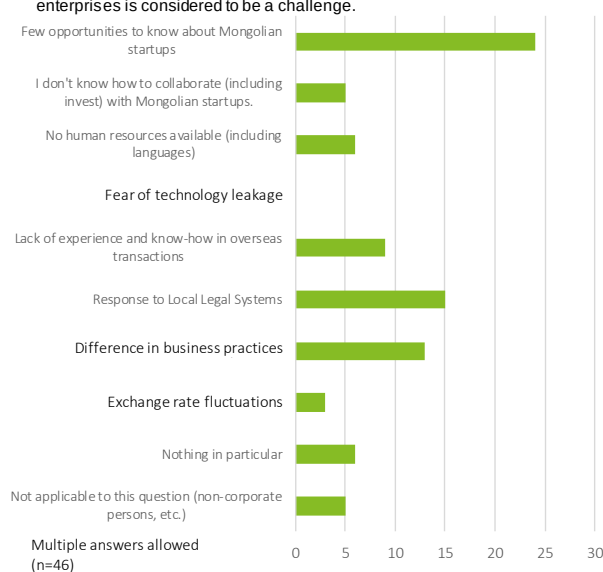


Figure 103 Results of the Questionnaire on Pitch Event in the 1st batch of Japan Mission (3)

(c) Evaluation

The evaluation on Pilot Project (1) after the first batch of Japan Mission is as follows.

Table 74 Evaluation on PP (1) after the 1st batch of Japan Misison

Evaluation Items		Outcomes	Challenges	Suggestions and countermeasures for the next batch
Achievement of Objective		The pitch event was able to attract approximately the expected number of visitors, leading to increased awareness of Mongolia's ICT industry. We were able to match Mongolian ICT companies with Japanese companies through individual matching and pitch events. We were able to promote inter-regional cooperation within the Ecosystem Tour, especially with Shinagawa Ward.	Creation and diffusion of Mongolian ICT industry promotion tools although we were unable to utilize them due to the early implementation. In order to further improve the matching accuracy, (1) preparation on the Mongolian side (market understanding, etc.), and (2) clarification of the target of attracting customers. Deepening inter-regional cooperation (continuous exchange that does not end with a single event)	Development and diffusion of Mongolian ICT industry promotion tools. Provision of prior training to participating companies on market understanding and entry preparation. Approaches to target audiences such as pitch events. Reconciling needs between Mongolia and Japan.
Resource	Structure	Mission itself was carried out without any problem.	Since it was carried out under the initiative of Japan due to personnel changes in Mongolia, it was a challenge to build the structure in Mongolia.	Conduct with Mongolia (IT Park) from planning and preparation of mission.
	Expenses	Participating companies from Mongolia paid their own expenses, so they were more independent and proactive.	None in particular.	Assume to conduct in similar policies of the 1st batch.
Preparations	Visiting area	We were able to deepen regional cooperation with Shinagawa Ward.	None in particular.	Considering the results of future monitoring, we will consider whether to visit Tokyo and Fukuoka, the same as the first visit, or a different area for the second visit. It is considered desirable to visit a region with a certain economic scale (at least equivalent to that of Ulaanbaatar) where there are companies that can be

				matched, and a startup ecosystem that can meet financing needs.
	Participating companies	From the viewpoint of selecting the participating companies in the first batch, "the traction of products and services" and "the consistency between the matching needs of the candidate companies and the Japanese market and companies" were considered to be functioning.	Comment from IT Park that the selection process should be shown more openly and clearly to IT companies.	Joint implementation with Mongolia (IT Park) from the planning and preparation of the mission.
	Program structure	Based on the comments from the participants, the structure of ecosystem tour, pitch event, and individual matching was considered to be working.	None in particular.	The structure of ecosystem tour, pitch event, and individual matching was also considered in the second batch.
	Other	-	Creation and dissemination of Mongolian ICT industry promotion tools, although they could not be used due to the early implementation.	Creation and dissemination of Mongolian ICT industry promotion tools.
Operation	Ecosystem tour	Visited to Gotanda Valley by the Mongolian government, started coordination on a demonstration experiment in Shibuya, considered expanding into Fukuoka, etc.	None in particular.	We had the impression that private sector exchanges were more active in exchanging opinions, and considered increasing the elements of visits and exchanges with private companies.
	Pitch events	Pitch events were able to attract as many participants as planned, creating a lively exchange. In some cases, cooperation with major Japanese companies is being considered. Nasha Tech in Mongolia started a partnership in the education field with ARC in Japan, and later invested in Nasha Tech.	Fewer VCs and other investors participated than expected due to the overlapping schedule with a large-scale SU event.	In order to gather participants that meet the matching needs of each company, it is necessary to check whether there is any overlap with other events.

	Individual matching	Conducted a total of 34 individual matches in Tokyo and Fukuoka. Tapatrip in Mongolia agreed to a service partnership with SmartRyde, an airport pick-up service provider, and implemented an API connection to use SmartRyde's service on Tapatrip's travel arrangement platform.	The time in Tokyo was particularly tight.	Enough time frame to allow extra time.
	Other	-	There is a concern that an excessive number of participants will result in difficulties in management and an increased burden on the host.	It is assumed that the number of companies and the number of participants per company will be limited to a maximum of approximately 30.
After implementation	Follow-up	Continued consideration of cooperation, etc.	Some cases require facilitation between Japanese and Mongolian companies.	Consideration of establishing follow-up and matching mechanisms (e.g., utilization of Mongolian human resources in Japan)
	Other	As a secondary result, cooperation between Mongolian companies has been generated through the Japan Mission. Specifically, Nasha Tech adopted Hipay's QR payment as a payment service within their product.	A system that does not end as a one-off even and continuous efforts are necessary.	In conjunction with regional cooperation, we will consider continuous efforts other than the Japan Mission.

3) The 2nd batch of Japan Mission

a) Content of the plan

The outline of the second batch of the Japan-Mongolia ICT and Digital Industry Business Matching conducted twice during the survey period is shown below.

Table 75 Outline of the 2nd batch of Japan Mission

Purpose	1. Promotion of Mongolian ICT industry in Japan 2. Matching between Mongolian ICT companies and Japanese companies/investors 3. Promoting cooperation with regional ecosystem in Japan
Schedule	Sunday, September 8, 2024 - Sunday, September 15, 2024 * Including flight between Mongolia and Japan
City to visit	Tokyo and Hokkaido
Activities	Selected Mongolian companies will participate in the following activities in 2 cities: • Ecosystem tour • Pitch event • Individual meetings (arranged based on the matching needs of each company)
Mission members	• Selected ICT companies (5 companies) • Winner of Startup Challenge Mongolia 2024 (2 companies) • Startups in the 4th cohort of MONJA accelerator program (3 companies) • National IT Park and observers
Organizer	Japan International Cooperation Agency (JICA) and National IT Park Mongolia

IT Park under the MDDIC and 10 Mongolian startups were invited to Japan. They visited local governments and companies in Tokyo and Sapporo, where ICT and digital industries are concentrated in Japan, and conducted ecosystem tours, pitch events, and individual matching.

Details are shown in the figure and table below. As in the first batch, we selected candidate areas based on (1) the degree of development of the startup ecosystem (accumulation of startups, etc.), (2) the degree of accumulation of matching candidates (investors, major companies, etc.), and (3) the state of cooperation with the overseas startup ecosystem and the state of development of measures for overseas startups (startup visa, etc.). As for the matching, we selected Sapporo in consideration of cooperation with another event.

In order to improve the quality of promotion and matching in Japan, the following support was provided to the participating companies before, during and after the mission.

- **Prior:** Interviews were held to identify potential candidates for individual matching and to brush up pitch decks. In addition, seminar on collaboration with Japanese companies was held in conjunction with the PP (3), Acceleration Program.
- **During implementation:** Individual matching was accompanied by members of the JICA Study Team to facilitate discussions.
- **After:** Conducted interviews to confirm progress after the mission to Japan, gave advice on issues, and confirmed next steps

Tokyo

- Startups, VCs and leading companies converge to form a global startup ecosystem.
- This time, it is planned to visit districts where ICT companies are concentrated.

< Pitch Event Venue: Tokyo Innovation Base >

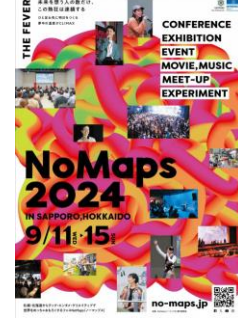


Source: [Tokyo Innovation Base](#)

Hokkaido & Sapporo City

- Hokkaido and Sapporo City established an organization to promote startup, STARTUP HOKKAIDO, in collaboration among public, private and academia.
- They focus on Agri- & Food-tech, Space and Environment & energy.
- Sapporo City cooperates with Ulanbaataar City.

< Pitch Event: Collaboration with NoMaps >



Source: [NoMaps](#)

Figure 104 Key points in selecting destinations for the 2nd Japan Mission

Table 76 Overall Schedule of the 2nd batch of Japan Mission

Date	Time	Location	Content
Sept 8 (Sun.)	07:45-13:40	Tokyo	• Flight from UB to Tokyo (Narita)
Sept 9 (Mon.)	AM	Tokyo	• Kick-off at Deloitte Japan
	PM	Tokyo	• Tokyo ecosystem tour: Shibuya City • Tokyo ecosystem tour: Tokyo Stock Exchange
Sept 10 (Tue.)	AM	Tokyo	• Tokyo ecosystem tour: Sega Sammy & Shinagawa City
	PM 18:00-21:00	Tokyo	• Tokyo ecosystem tour: Tokyo Innovation Base • Mongolian Startup Pitch @ Tokyo Innovation Base
Sept 11 (Wed.)	Whole day	Tokyo	• Individual meeting (each company)
Sept 12 (Thur.)	10:30-12:05	Tokyo/ Sapporo	• Flight from Tokyo (Haneda) to Hokkaido (New Chitose)
	PM	Sapporo	• Sapporo ecosystem tour: Sapporo City & Hokkaido Prefecture
Sept 13 (Fri.)	AM	Sapporo	• Sapporo ecosystem tour: AWL, Inc
	13:00-13:50 PM	Sapporo	• Mongolian Startup Pitch @ NoMaps (event) • Individual meeting (each company)
Sept 14 (Sat.)	AM	Sapporo	• Free time
	15:10-16:50	Sapporo/ Tokyo	• Flight from Hokkaido (New Chitose) to Tokyo (Haneda)
Sept 15 (Sun.)	14:40-19:15	Tokyo	• Flight from Tokyo (Narita) to UB

The ICT companies to participate in the mission were selected based on the following processes and perspectives.

- Participating ICT Companies:
Participating ICT companies were selected from the following three categories based on discussions with IT Park.
 - Two companies selected in Startup Challenge Mongolia 2024, a business competition for Mongolian startups aiming for overseas, organized by IT Park.
 - Three companies selected for the fourth cohort of the MONJA accelerator program in the Pilot Project (3).
 - Five companies selected by public offering (The selection process is described below).
- Selection Process of Participating ICT Companies (5 companies) through Public Offering:
 - From late May to early June 2024, we recruited and accepted applications from participating companies through IT Park and local accelerators. We accepted applications from 24 companies.
 - We narrowed down the number of applicants to 9 companies and conducted an online interview in late June 2023. IT Park and the JICA Study Team conducted scoring and selected five companies.
- Perspectives of selection:

There was no big change from the first batch, but it was arranged as follows based on the discussion with IT Park.

1. Track record of product/service (= readiness to expand business to overseas market)
 2. Experience of international business (= capability to expand business to overseas market)
 3. Concreteness of matching needs (= readiness to have matching with Japanese corporates and investors)
 4. Bonus points: This startup can contribute to promote Mongolian ICT and Digital industry to Japan.
- Selection result:
 - We selected five companies whose category is "Selected in general process" in the table below.

The table below shows all the participants including IT Park, startups selected by Startup Challenge Mongolia 2024 (2 companies) and MONJA accelerator program (3 companies).

Table 77 Participants of the 2nd batch of Japan Mission

Category	Organization/ Company	Title
1Co-organizer	IT Park Mongolia	Director
2Co-organizer	IT Park Mongolia	Senior Manager of Investment Operations
3SCM winner	Carepay LLC	Co-Founder & COO
4SCM winner	Honmono Comics	Co-Founder, CEO
5SCM winner	Honmono Comics	Co-Founder, CTO
6Selected in general process	Infinite Solutions LLC	Chairman
7Selected in general process	Infinite Solutions LLC	CEO
8MONJA	Mazaal AI	CEO
9Selected in general process	Nomadic Bear Games LLC	Co-Founder & CEO
10Selected in general process	Nomadic Bear Games LLC	Advisor
11Selected in general process	ONDO Space LLC	CEO of ONDO Holding LLC
12MONJA	SEM LLC	CEO, Founder
13MONJA	Smart Contract Mongolia LLC	Co-Founder, CIO
14MONJA	Smart Contract Mongolia LLC	Co-Founder, CEO
15Observer (partly join)	Smart Contract Mongolia LLC	COO
16Observer (partly join)	Smart Contract Mongolia LLC	CTO
17Selected in general process	Tab Solution Co.,Ltd	CEO
18Selected in general process	Tab Solution Co.,Ltd	Project Manager
19Selected in general process	Tetra FX Studio	CEO
20Selected in general process	Tetra FX Studio	

The outline of the pitch event, which was the main event of the second batch of Japan Mission, is described below.

< Tokyo: September 10, 2024 >

Title	Digital x Nomad : Mongolian Startup Pitch 2024
Organizer	JICA, National IT Park Mongolia
Date and time	Tuesday, September 10, 2024, 18:00~21:00
Implementation method	Offline only
Venue	Tokyo Innovation Base (Sushi Tech Square 2F, 3-8-3 Marunouchi, Chiyoda-ku, Tokyo)
Participants	Target: Companies, investors, startups, etc. • Application: 95 people • Attendance: 53 people
Other	• Japanese-English simultaneous interpretation available



Figure 105 Outline and Program of Pitch Event (Tokyo) in the 2nd batch of Japan Mission

Time	Content
18:00 -18:10 (10 minutes)	Opening address Ms. Zolzaya Jargalsaikhan, Director, IT Park Mongolia Mr. Keigo Nakamura, JICA Mongolia Office
18:10 -18:25 (15 minutes)	Introduction to Mongolia Startup Ecosystem Ms. Shurentsetseg Mintegdorj, Senior Manager, IT Park Mongolia
18:25 -18:35 (10 minutes)	Case of Co-creation between Mongolian Startups and Japanese Companies Mr. Yoji Nakamura, Representative Director, Tanashi Pharmaceutical Co., Ltd. Mr. Bat-Erdene Khatanbold, Representative Director, GerTech Inc.
18:35 -20:15 (100 minutes)	Mongolian Startup Pitch (10 companies) • Tab Solution Co., Ltd. (Japanese) • Smart Contract Mongolia LLC (English) • Honmono Comics LLC (English) • Mazaal AI Inc. (English) • ONDO Space LLC (English) • Infinite Solutions LLC (English) • Nomadic Bear Games LLC (English) • Carepay LLC (Japanese) • SEM LLC (English) • Tetra FX Studio (English)
20:15 -20:20 (5 minutes)	Closing Remarks
20:20 -21:00 (40 minutes)	Exchange at the venue

< Sapporo: September 13, 2024 >

Title	Digital x Nomad : Mongolian Startup Pitch 2024
Organizer	JICA, National IT Park Mongolia
Date and time	Friday, September 13, 2024, 13:00~13:50
Implementation method	Offline only
Venue	ACU (ASTY 45, Kita 4-jo 5-chome, Chuo-ku, Sapporo-shi, Hokkaido) *Conducted as a session of another event (NoMaps)
Participants	Target: Companies, investors, startups, etc. • Attendance: 34 people *No advance application was accepted for this pitch event application was accepted as a whole event.
Other	• Japanese-English simultaneous interpretation available



Time	Content
13:00 -13:05 (5 minutes)	Opening address Ms. Zolzaya Jargalsaikhan, Director, IT Park Mongolia
13:05 -13:15 (10 minutes)	Introduction to Mongolia Startup Ecosystem Ms. Shurentsetseg Mintegdorj, Senior Manager, IT Park Mongolia
13:15 -13:45 (30 minutes)	Mongolian Startup Pitch (10 companies) • Tab Solution Co., Ltd. (Japanese) • Smart Contract Mongolia LLC (English) • Honmono Comics LLC (English) • Mazaal AI Inc. (English) • ONDO Space LLC (English) • Infinite Solutions LLC (English) • Nomadic Bear Games LLC (English) • Carepay LLC (Japanese) • SEM LLC (English) • Tetra FX Studio (English)
13:45 -13:50 (5 minutes)	Closing Remarks

Figure 106 Outline and Program of Pitch Event (Sapporo) in the 2nd batch of Japan Mission

In preparation for the pitch event, (1) we produced a website for the overseas promotion of Mongolia's digital industry (including a pitch event landing page) (in three languages including Mongolian, Japanese and English), (2) we produced a pamphlet (in two languages, Japanese and English), and (3) we added Japanese subtitles to a promotional video produced by IT Park, which was utilized for public relations.



Innovation with Mongolia

Welcome to the official platform to connect innovation between the Mongolian digital industry and global players.

This initiative, spearheaded by the National Information Technology Park (NITP) of Mongolia in collaboration with the Japan International Cooperation Agency (JICA), aims to promote Mongolian IT and digital sectors on a global scale.

Our mission

Our mission is to connect international digital talents, innovation, and investment opportunities through digital transformation. By leveraging the strengths of both the Mongolian and Japanese digital industries, we are committed to advancing Mongolian digital and digital economies into the global market.



Mongolian Startup Pitch

Welcome to the official platform to connect innovation between the Mongolian digital industry and global players.

This initiative, spearheaded by the National Information Technology Park (NITP) of Mongolia in collaboration with the Japan International Cooperation Agency (JICA), aims to promote Mongolian IT and digital sectors on a global scale.

Our mission

Our mission is to connect international digital talents, innovation, and investment opportunities through digital transformation. By leveraging the strengths of both the Mongolian and Japanese digital industries, we are committed to advancing Mongolian digital and digital economies into the global market.



Mongolia Digital Sector Overview

Welcome to the official platform to connect innovation between the Mongolian digital industry and global players.

This initiative, spearheaded by the National Information Technology Park (NITP) of Mongolia in collaboration with the Japan International Cooperation Agency (JICA), aims to promote Mongolian IT and digital sectors on a global scale.

Our mission

Our mission is to connect international digital talents, innovation, and investment opportunities through digital transformation. By leveraging the strengths of both the Mongolian and Japanese digital industries, we are committed to advancing Mongolian digital and digital economies into the global market.

Our mission

Our mission is to connect international digital talents, innovation, and investment opportunities through digital transformation. By leveraging the strengths of both the Mongolian and Japanese digital industries, we are committed to advancing Mongolian digital and digital economies into the global market.



Top Page Pitch Event Landing Page Mongolia Digital Sector Overview
Figure 107 Website for Mongolian Digital Industry Overseas Promotion
 (English version above) (<https://digitalnomad.itpark.mn/>)



Cover



Introduction to Mongolia's Digital Sector



Introduction to
Attractiveness of Mongolia
as a Partner



Introduction to IT Park

Figure 108 Pamphlet (Japanese version above)



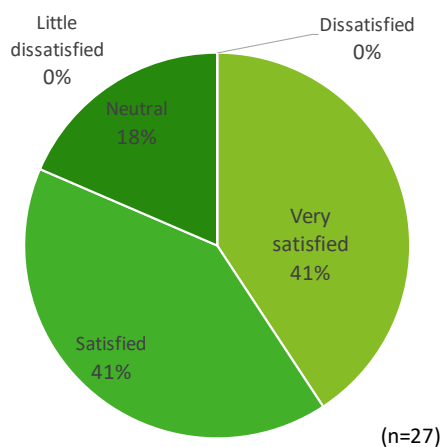
Figure 109 Promotional Video with Japanese Subtitles

b) Questionnaire

After the pitch event, a survey link was sent by email to the event participants. As a result, a total of 27 questionnaire responses (Tokyo venue: 23, Sapporo venue: 4) were collected. The results of the questionnaire are as follows.

Overall Satisfaction with the Event

- The total of "Very satisfied" and "Satisfied" was 82%, and overall the participants were satisfied.



Satisfaction with each program

- The total of "Very satisfied" and "Satisfied" is particularly high for "Mongolian Startup Pitch" which is 88%.
- In addition, "Introduction of the Mongolian Startup Ecosystem" was given by 82%, "Case of co-creation between Mongolian startups and Japanese companies" by 75%, and "Exchange events (exchange of business cards after the program)" by 74%.

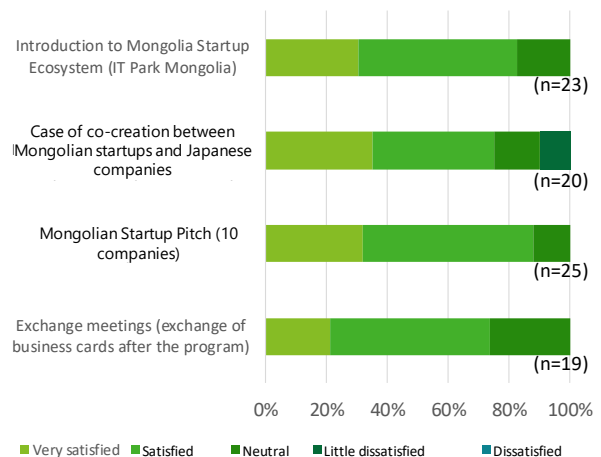
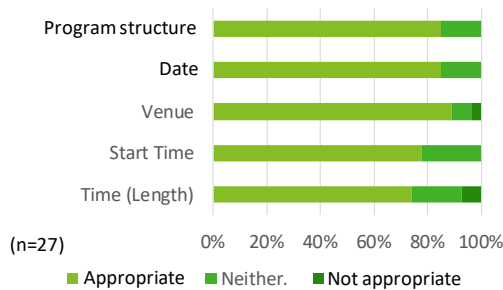


Figure 110 Results of the Questionnaire on Pitch Event in the 2nd batch of Japan Mission (1)

Opinions on the management of this event

- More than 80% of the respondents answered "Appropriate" regarding "Program structure", "Date" and "Venue".
- More than 70% of respondents answered "Appropriate" for "Start time" and "Time (length)". Participants at the Sapporo venue commented that the time was short.



Reasons for participation in this pitch event

- "Interest in Mongolia", "Interest in Mongolia's startup ecosystem", and "Interest in the business of startups" were the top answers.
- The purpose of the participation was mainly "Inspection and observation," which suggests that they do not yet have a concrete image of collaboration.

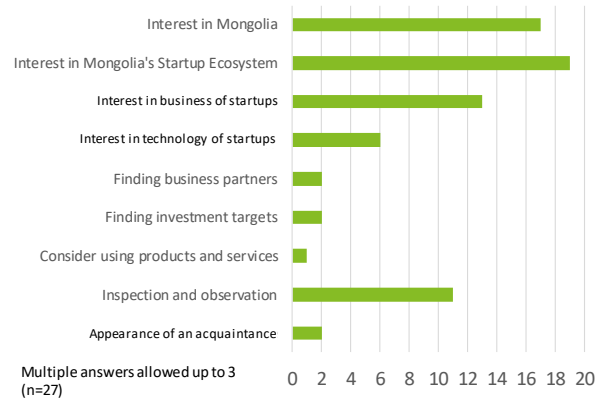
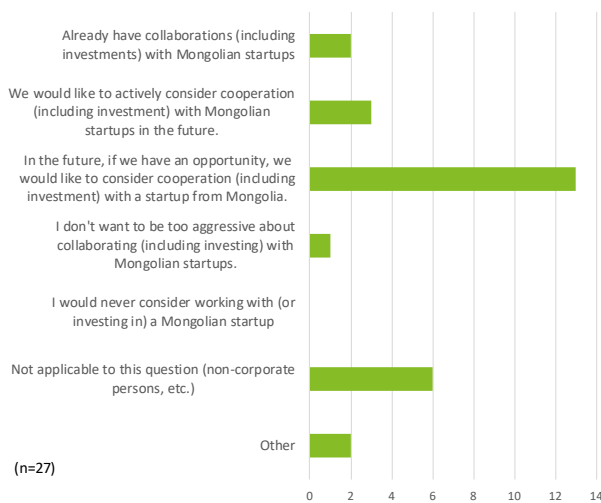


Figure 111 Results of the Questionnaire on Pitch Event in the 2nd batch of Japan Mission (2)

Review status of collaboration with Mongolian startups (including investment) after participating in pitch event



Challenges in collaboration with Mongolian startups (including investment) (If there is no collaboration or investment, answers assuming the case in which it is conducted)

- The most common challenge was "No opportunity to know Mongolian startups."
- Other challenges include human resources, local legal systems, and business practices.

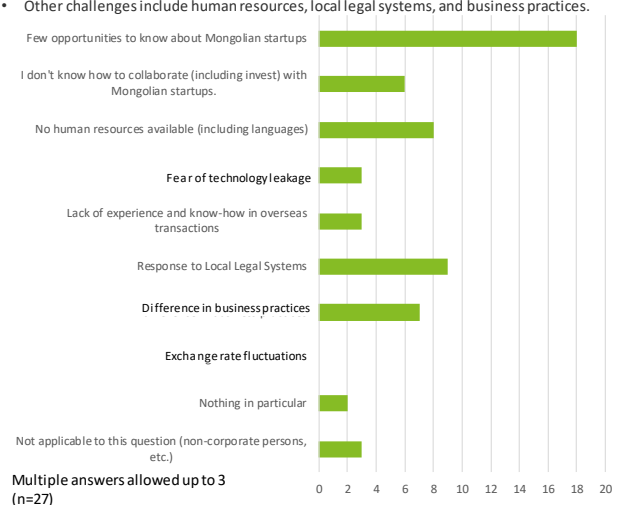


Figure 112 Results of the Questionnaire on Pitch Event in the 2nd batch of Japan Mission (3)

c) Evaluation

The evaluation after the second batch of Japan Mission is as follows.

Table 78 Evaluation on PP (1) after the 2nd batch of Japan Mission

Evaluation items		Achievements based on challenges from the previous batch	Outcomes
Achievement of Objectives		• Creation and dissemination of Mongolian ICT Industry Promotion Tools. • Conducting seminars for participating companies on preparation for entry in cooperation with MONJA.	• Ecosystem tour: We confirmed the significance of visiting two regions in terms of comparing different markets in Japan. They also received positive feedback such as learning about the Japanese market and technology through the ecosystem tour. On the other hand, depending on the maturity of the business and the characteristics of the product or service, it may not be necessary to visit two regions. If similar programs are implemented in other businesses in the future, it will be necessary to consider making visits to multiple regions optional. • Pitch events: The number of participants for pitch events was smaller than expected in Tokyo (95 applications and actual 53 people) and Sapporo (actual 34 people). Although we publicized the event through several channels, it is necessary to consider other measures such as cooperating with other events because Mongolia alone has limited ability to attract customers due to the numerous events. • Individual matching: A total of 37 individual matches were conducted in Tokyo and Sapporo. In November 2024, ONDO Space signed an MoU with iSpace in Japan. It is the content that Mongolian companies expect the most, and it is highly evaluated. On the other hand, as a company, the more matching opportunities there are, the better. Creating more matching opportunities along with attracting audiences for pitch events is a future issue. • Other: Cooperation among Mongolian companies that participated in the first Japan Mission has been established, as was confirmed at the time of the first mission. Specifically, it was developed and launched minigame within the mobile app of Golomt Bank, a leading Mongolian bank, after Japan Mission that combines Honmono's content with Nomadic Bear Games' game.
Resource	Structure	• Implemented with Mongolian side (IT Park) from planning and preparation of mission.	• The mission itself was carried out without problem. • Overall ownership of IT Park was demonstrated through planning, company selection, and creation of promotional tools.
	Expenses	• Conducted with the same policy in the first batch.	• Participating companies in Mongolia increased their autonomy by paying their own expenses.
Preparations	Visiting area	• Sapporo was selected as the destination	• Mongolian side was able to further deepen cooperation with Shinagawa Ward.

		region because it has companies with a certain economic scale (at least as large as Ulaanbaatar) that can be matched with other companies and has a startup ecosystem that can meet financing needs. • A large-scale event, NoMaps, was held at the time of the visit, so cooperation at a pitch event was assumed.	• We confirmed the significance of visiting two regions in comparing different markets in Japan.
	Participating companies	• Conducted with Mongolian side (IT Park) from the planning and preparation of mission.	• The selection criteria of participating companies, "track record of products and services" and "consistency between the matching needs of candidate companies and the Japanese market and companies" were appropriate.
	Program structure	• Conducted with the same policy in the first batch.	• Based on comments from participants, we believe that the structure of ecosystem tour, pitch event, and individual matching worked well.
	Other	• Created and disseminated promotional tools for Mongolia's ICT industry.	• (1) Production of a website for overseas promotion of Mongolia's digital industry (including a pitch event landing page) (in three languages including Mongolia, Japanese and English), (2) Production of pamphlets (in two languages, Japanese and English), and (3) Added Japanese subtitles to a promotional video produced by IT Park, which was used for public relations.
Operation	Ecosystem tour	• There was the impression that private sector exchanges were more active in exchanging opinions, and we considered increasing the elements of visits and exchanges with private sector companies.	• When we visited Shibuya and other places, private sector companies from various regions participated, and we were able to activate exchanges.
	Pitch events	• In order to attract participants that meet the matching needs of each company, it was necessary to check whether there was any overlap with other events.	• The number of participants for pitch events was smaller than expected in Tokyo (95 applications and 53 actual attendance) and Sapporo (34 actual attendance). Although we publicized the event through multiple channels, we need to consider other measures such as capitalizing on other events because Mongolia alone has limited ability to attract customers due to the numerous events.

	Individual matching	• Enough time frame was secured to allow extra time.	• A total of 37 individual matches were conducted in Tokyo and Sapporo. In November 2024, ONDO Space signed an MoU with iSpace in Japan. It was the content that Mongolian companies expect the most, and it was highly evaluated. On the other hand, as a company, the more matching opportunities there are, the better. Creating more matching opportunities along with attracting customers for pitch events is a future issue.
	Other	• The number of participants per company was limited to a maximum of about 30.	• Although the number of companies increased from the first mission, the overall number of participants was kept low and the management was efficient.
After implementation	Follow-up	• Additional online matching was conducted.	• Continued consideration of collaboration, etc.
	Other	• Consideration of ongoing initiatives other than Japan Mission in conjunction with inter-regional cooperation.	• Communication with local governments in Japan on future cooperation methods.

4) Suggestions for support measures

At this point, here are some suggestions for support:

- Consideration of an integrated system from preparation for entry into Japan to follow-up: In order to promote business matching between Japan and Mongolia, it is necessary to make consistent efforts to effectively utilize matching opportunities by fully understanding the market and preparing for business expansion in the form of an acceleration program, and to obtain results through follow-up (creating successful cases of matching). It is necessary to discuss with IT Park, who has been appointed by the MDDIC to take charge of the overseas expansion of the ICT and digital industry in Mongolia, and to take concrete action on this.
- Promotion of inter-regional cooperation: In order to make business matching an ongoing effort rather than a one-off event, it is important to promote inter-regional cooperation between ICT and startup ecosystems. For example, mutual exchange and dispatch of missions between companies in Japan and Mongolia, and mutual use of co-working spaces in both regions by companies in both regions can be considered to improve mutual recognition in both regions and to create an environment in which it is easy to enter. This will enable Mongolian ICT companies to gain a foothold in Japan not only through events but also through cross-ecosystem collaboration.
- Consideration of utilizing Mongolian human resources in Japan: Mongolian human resources in Japan can contribute to the development of Mongolian ICT companies in Japan in various ways. Utilization of overseas Mongolian human resources is implemented in the United States in the form of the Silkroad Innovation Hub (a community of entrepreneurs and engineers from Central Asia and Mongolia in San Francisco, supporting startups from Central Asia and Mongolia that are considering expanding to the West Coast.), and it is necessary to consider a similar mechanism in Japan.

2. Pilot Project (2): Consideration and Implementation of the ICT and Digital Talent Job Seminar

In this pilot project, a joint job fair was held with the aim of matching companies engaged in ICT and digital-related businesses with students studying in the same field. The first job seminar was held on December 7, 2023, on the campus of the MUST, with 19 companies and approximately 200 students participating in the event. The second job seminar was held on August 17-18, 2024, at Sukhbaatar Square as part of the Japan Festival. The

changes from the first seminar were that it was conducted as part of another event and that participation fees were collected from the companies. In the second job seminar, 9 companies exhibited.

1) Implementation Policy

(a) Objective

The ICT and Digital Talent Job Seminar aims to provide employment opportunities for students and talent acquisition opportunities for companies, as well as to identify and examine solutions for the mismatches and their causes that arise between companies and students.

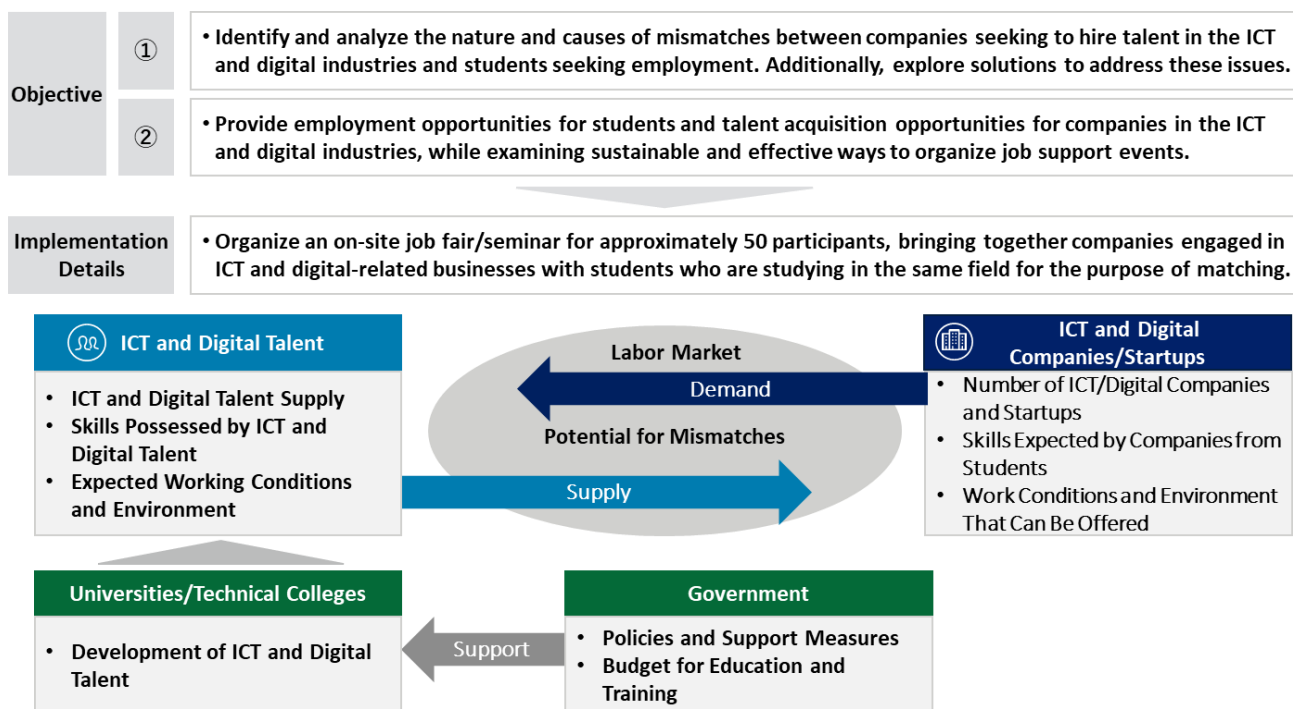


Figure 113 General Outline of the ICT and Digital Talent Job Seminar

(b) Implementation Process

In accordance with the two objectives, we conducted the job seminar, administered, and analyzed surveys, and held discussions within the WG to continuously address mismatches and examined effective employment support methods. During the survey period, we held the job seminar twice to implement the PDCA (Plan-Do-Check-Act) cycle, refining hypotheses regarding talent mismatches and exploring effective approaches to job seminars.

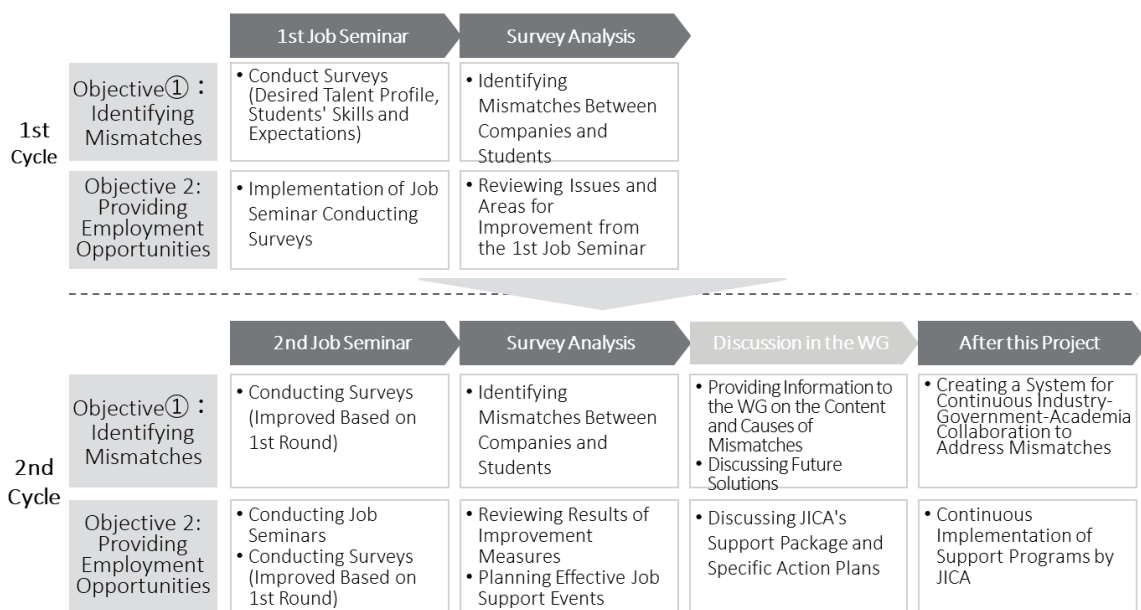


Figure 114 Actions by Objective

To ensure the event is meaningful for both students and companies, the program for the first job seminar was designed after conducting preliminary interviews with relevant organizations. The specific actions and key points for each process are shown in the diagram below.

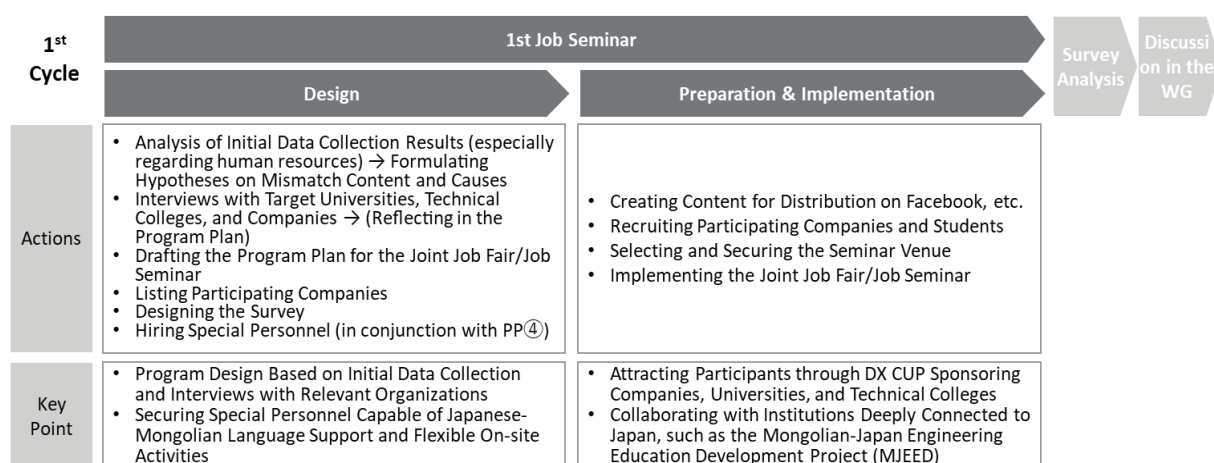


Figure 115 Implementation Process of the 1st Job Seminar

In Mongolia, many companies and organizations primarily use phone communication rather than email. Therefore, we secured local personnel to facilitate close communication by phone, enabling smooth collaboration with local relevant organizations and advancing the event preparations.

2) Implementation of the 1st ICT & Digital Talent Job Seminar

(a) Overview of the Program

Based on the results of interviews with educational institutions, companies, and MJEED, which conducts its own job seminar annually, the program was designed as shown in the table below.

Table 79 Overview of the 1st ICT & Digital Talent Job Seminar Plan

Event Name	ICT/Digital Job Fair
Date	Thursday, December 7, 2023, 11:00 - 17:00 (Doors open at 10:45)
Venue	Building 8, 12th Floor, MUST
Organizer	Japan International Cooperation Agency (JICA)
Co-Organizers	Mongolia-Japan Center for Human Resources Development (hereinafter MOJC), Mongolian Foundation for Science and Technology (hereinafter MFST), MUST
Target Students	• Major: ICT course students • Year: University 3rd-4th year, Technical College 4th-5th year • Participation Purpose: Applying for internships or full-time positions. However, students from other majors and years are also welcome to participate.
Target Companies	Main employers of ICT major students, such as telecommunications, system/software development, banks.
Program	1) Booth Exhibition Room: Individual company booths • Companies are responsible for the content of their booth presentations and the method of exhibition. • Whether to accept CV submissions on the day (paper/email/QR code) is up to the companies. However, participating companies are requested in advance to explain their hiring process and contact information for applications, even if they do not accept CV submissions on the day. 2) Seminar Room: Individual company presentations • 15-minute company introduction presentations per company. • Content is free, but companies are requested in advance to explain their overall business, HR aspects, and practical matters.

The initial proposed date for the event was Sunday, December 11, the day after the DX CUP. However, JETRO's IT mission was scheduled to visit Ulaanbaatar from December 7 to 9, and there was a request from participating companies of the mission to join the job seminar. Therefore, the event was moved to a weekday, Thursday, December 7. Although there was a concern that students might not be able to attend the event due to classes on a weekday, the event was scheduled to be held throughout the day so that students could participate between their classes.

(b) Co-Organizing Organizations

This event was co-organized by three institutions: MOJC, MFST, and MUST.

MOJC

MOJC has extensive experience and know-how in organizing various events, such as study abroad fairs. Additionally, since MOJC could be a potential candidate for taking over this pilot project in the future, we requested their co-organization. MOJC provided support in publicizing the event on Facebook, introducing participating companies, and providing personnel for the day of the event.

MFST

MFST organizes the ICT Expo annually and holds job seminars as part of this event. Although the ICT Expo is not primarily targeted at students, making it difficult to evaluate the effectiveness of the job seminar itself, MFST has some experience and know-how in organizing job seminars. Additionally, MFST has connections with educational institutions and can effectively publicize the event to universities, and it could be a potential candidate for taking over this pilot project in the future. Therefore, we requested their co-organization.

Since MFST had not independently planned job seminars, their know-how could not be leveraged for this event directly. Also, we could not secure their cooperation in providing personnel free of charge. However, MFST directly invited participation from over 15 universities with ICT courses, which greatly contributed to the number of attendees.

MUST

MUST has a track record of co-hosting job seminars with MJEED. The university has venues with sufficient

capacity, equipment, and know-how for setting up booths.

Therefore, we requested their co-organization mainly to provide the venue and to publicize the event to their students. Additionally, the venue is in the center of Ulaanbaatar, making it easily accessible for students, which was another reason for its selection. Furthermore, by collaborating with the university's career center, we were able to gather information about the students' job-hunting situations.

(C) Participating Companies

We invited companies that participated in MJEED's past job seminars, sponsors/supporting companies of PP(4) DX CUP, companies recommended by MOJC, and companies participating in the JETRO tour. As a result, the following 19 companies participated. Regarding Chimege Systems and MIRAI, they voluntarily contacted us to participate after seeing our post on Facebook, rather than being invited by us.

Table 80 Participating Companies in the 1st ICT & Digital Talent Job Seminar

Participating Companies		Booth Exhibition Time	Presentation Implementation
Telecommunications	Mobicom corporation	11:00~17:00	✓
	Unitel	11:00~17:00	✓
Banks	Trade and Development Bank of Mongolia	11:00~17:00	✓
Fintech	And Global	11:00~17:00	-
System/Software Development	Gerege system	11:00~17:00	✓
	Tab Solution	11:00~17:00	✓
	Nasha Tech	11:00~17:00	✓
	Dentsu Data Artist Mongol	11:00~17:00	✓
	Mogul Group	11:00~17:00	✓
	GrapeCity	11:00~17:00	✓
	Chimege Systems	11:00~17:00	✓
Human Resource Introduction to Japan	CAL	11:00~17:00	✓
	BRAIST	11:00~17:00	✓
	MIRAI	11:00~17:00	✓
	Shinagawa City/Katsumata Electric Works	15:00~17:00	✓
Human Resource Introduction to Japan (JETRO Tour Participating Companies)	Telefight	15:00~17:00	✓
	Guur	15:00~16:00	-
	Treasury	15:00~16:00	-
Others	DX Mongolia	15:00~17:00	✓

Among the companies we invited to exhibit, only three did not participate. This result indicates that the demand for job seminars from companies is high.

(d) Event Notification to Students

The event was publicized to students through three methods: 1) Posts on Facebook, 2) Requests for notification to career centers of universities and technical colleges, and 3) Calls to universities from MFST.

On Facebook, a dedicated page titled "ICT/Digital Job Fair" was created, and the event was announced on November 1, 2023. This announcement provided information about the event's date and time, venue location, and participating companies, and requested the completion of an Online Survey as part of the registration process.

Although a survey will be conducted after the event to analyze the mismatch between companies and students and to improve the event, it was anticipated that the response rate from students might be low. Therefore, an

online survey before the event was conducted to both grasp the number of participants and analyze mismatches.



Figure 116 Facebook Page Banner

On Facebook, each participating company sequentially provided information about their company overview, available positions, whether they would accept CVs on the day of the event, and the content of their presentations until the event day. It should be noted that all posts on Facebook were made primarily in Mongolian.

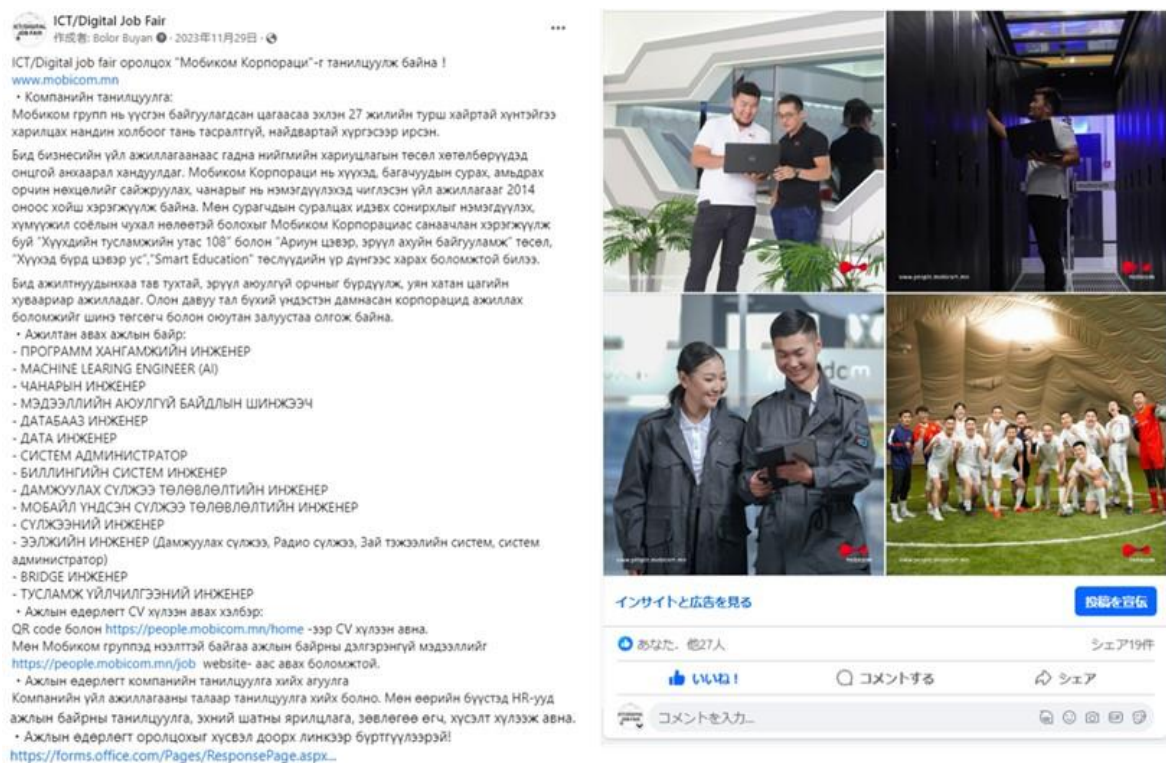


Figure 117 An Example of a Company Introduction Post (Mobicom Corporation)

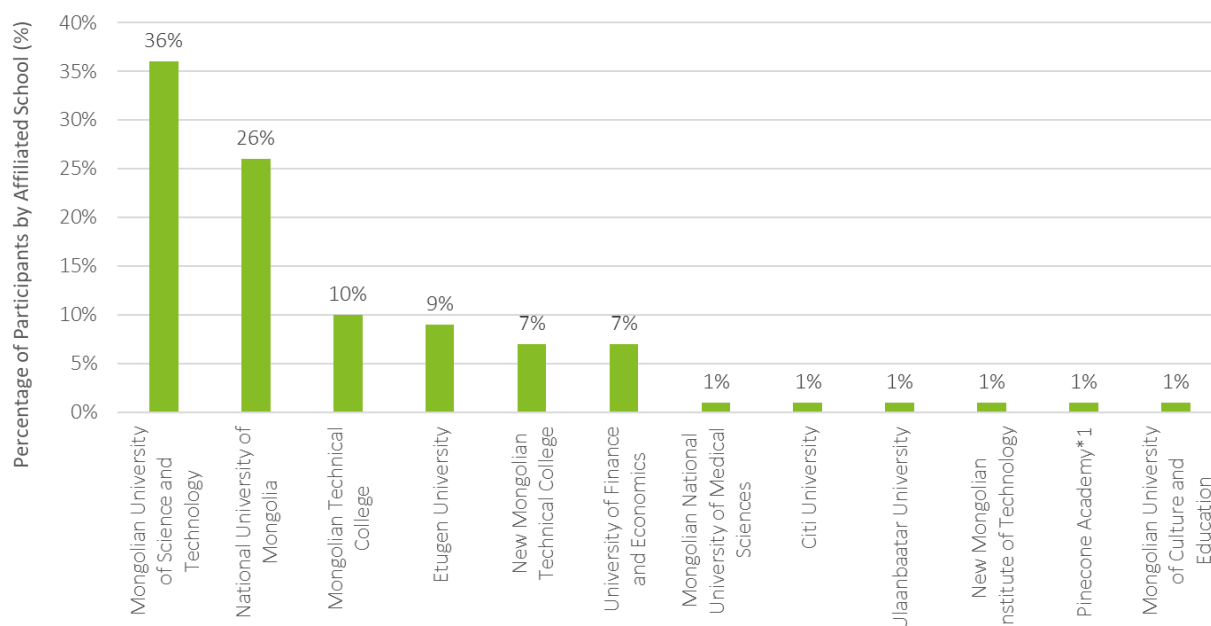
In addition to Facebook, we individually contacted the NUM, the MUST, and the three Mongolian technical colleges via email or phone to request that they notify their students about the event.

Furthermore, MFST listed universities with ICT courses and contacted each relevant university to encourage student participation. This allowed us to publicize the event to universities that the JICA Study Team could not reach.

(e) Participating Students

There were 122 pre-registrations, and the number of attendees on the day of the event was approximately 200 based on visual counts. While the attributes of the participants may differ between those who responded to the pre-event survey and the actual attendees, we believe that the pre-event survey responses provide a rough understanding of the trends. The attributes of the participants according to the pre-event survey are as follows. Among the participants, students from the MUST, the event venue, were the most numerous, followed by students from the NUM. Although the number of technical college students was small, all ICT department students from Mongolian technical colleges participated.

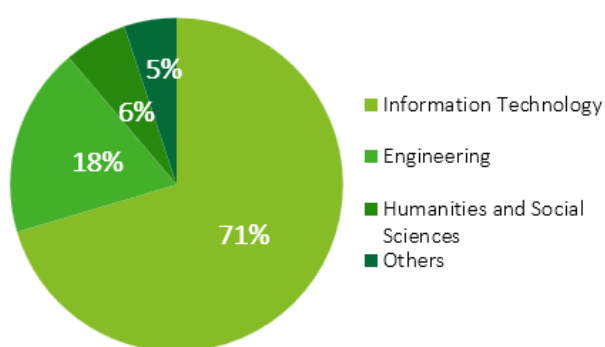
Additionally, although there were no pre-registrations, over 50 students from the technical college affiliated with the MUST participated after their evening classes.



Source: JICA Study Team

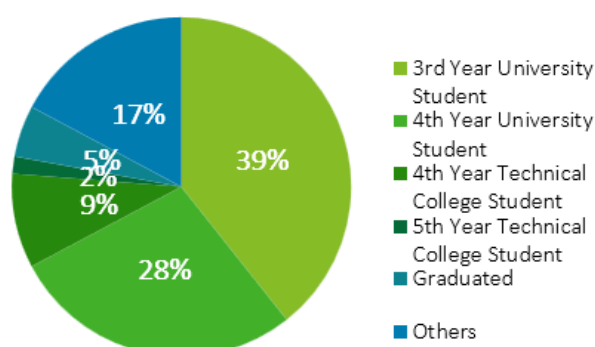
Figure 118 Pre-Event Survey Results: Affiliated Schools

The majors and academic years of pre-registered participants are as shown in the figure below.



Source: JICA Study Team

Figure 119 Pre-Event Student Survey: Majors (n=122)



Source: JICA Study Team

Figure 120 Pre-Event Student Survey Results: Academic Years (n=122)

(f) Operation of the Job Seminar on the Day

(1) Student Participation

On the day of the event, a total of approximately 200 students attended. The time periods with the highest number of participants were around lunchtime, from 11:30 AM to 2:30 PM, and after 4:00 PM, when technical

college students' classes had ended.

To increase the number of visitors after the event started, we continuously posted updates about the venue on Facebook on the day of the event. However, the posts were primarily photos. Therefore, for the next event, live streaming each company's presentation and establishing an environment where people living in rural areas can also watch online could be considered as an option.

(2) Company Presentations

Initially, we planned to conduct each company's presentation according to the following schedule, starting from 11:15 AM. Each company was allocated a 15-minute slot, consisting of a 10-minute presentation and a 5-minute transition time to the next company. For companies sponsoring or supporting the DX CUP, two presentation slots were allocated.

Time	Presenting Companies	Time	Presenting Companies
10:45 ~	Opening	14:00 ~ 14:15	Mobicom corporation
11:15 ~ 11:30	Mobicom corporation	14:15 ~ 14:30	(TBD) ※
11:30 ~ 11:45	Unitel	14:30 ~ 14:45	(TBD) ※
11:45 ~ 12:00	Chimege Systems	14:45 ~ 15:00	Dentsu Data Artist Mongol
12:00 ~ 12:15	Trade and Development Bank of Mongolia	15:00 ~ 15:15	Gerege system
12:15 ~ 12:30	DX Mongolia	15:15 ~ 15:30	Nasha Tech
12:30 ~ 12:45	Gerege system	15:30 ~ 15:45	Tab Solution
12:45 ~ 13:00	Tab Solution	15:45 ~ 16:00	CAL
13:00 ~ 13:15	Nasha Tech	16:00 ~ 16:15	BRAIST
13:15 ~ 13:30	Dentsu Data Artist Mongol	16:15 ~ 16:30	MIRAI
13:30 ~ 13:45	Mogul Group	16:30 ~ 16:45	Telefight
13:45 ~ 14:00	GrapeCity	16:45 ~ 17:00	Shinagawa City/Katsumata Electric Works

※ Slots for Companies That Cancelled or Did Not Present at the Last Minute

Figure 121 Timetable for Company Presentations (Initial Schedule)

However, since the number of visitors was low from the opening until around 11:30 AM on the day of the event, we delayed the start time of the presentations to 12:00 PM, when students began to gather. Consequently, we reduced the number of presentations to one per company (and changed the order of presentations) and reorganized the timetable. As a result, we were able to start the first company's presentation with the seminar room nearly full.



State of the Seminar Room During the 1st Company's Presentation



Presentation by the Company: Chimege Systems (1st Company)



Presentation by the Company: Unite



Presentation by the Company: Gerege Systems

Figure 122 State of the Seminar Room on the Day

(3) Company Booth Exhibitions

Initially, most of the participating students attended the individual company presentations in the seminar room, resulting in few visitors to the booths. Therefore, we included breaks between company presentations to encourage movement to the individual booths. As a result, active interactions between students and companies took place in both the seminar room and the booth exhibition room. At the individual booths, students could directly interact with engineers and HR representatives, which we believe helped them form a clearer image of working at the companies. Additionally, many companies accepted CVs, and a total of 68 CVs were submitted to the 11 companies that responded to the post-event survey. Please refer to the attached document for the number of CVs received by each company.

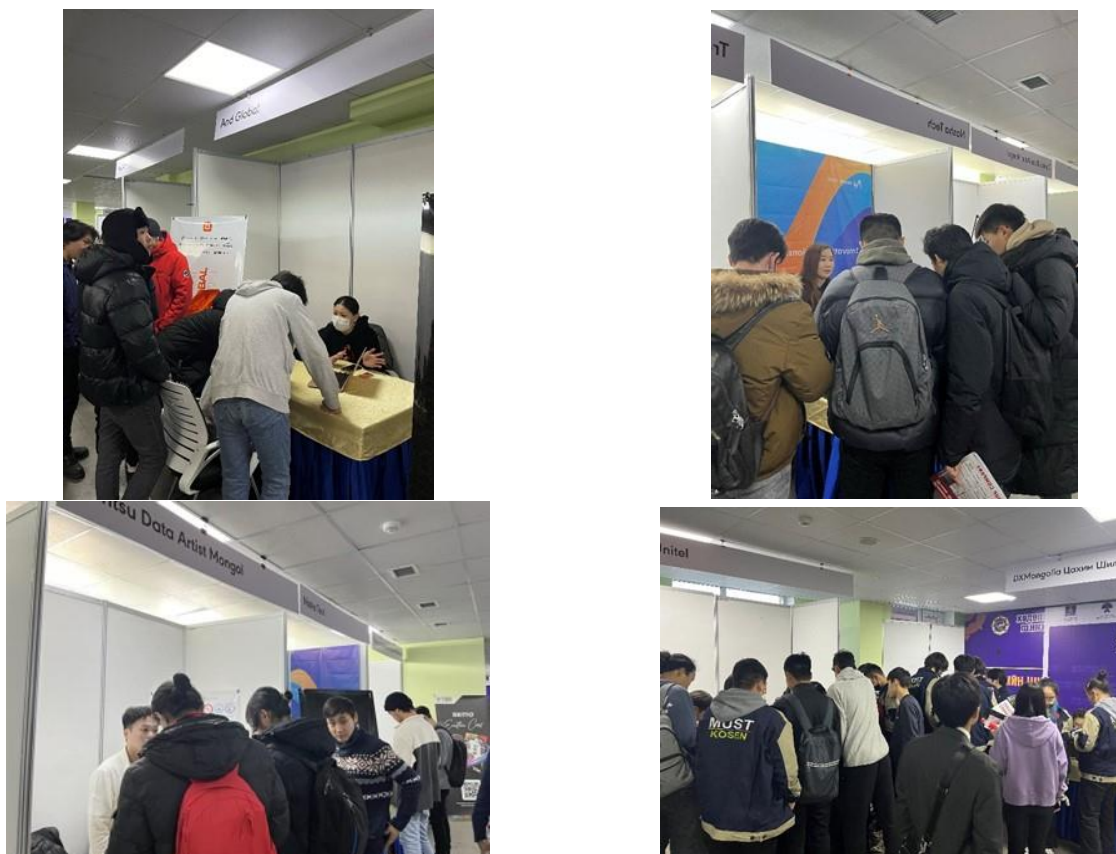


Figure 123 State of the Booth Exhibition Room on the Day

3) Analysis of the Survey for the 1st ICT & Digital Talent Job Seminar

(a) Survey Implementation Method

The survey was conducted using Microsoft Forms. For the pre-event survey directed at students, responses were collected along with pre-registration via Facebook and other platforms. The post-event survey was conducted by placing QR codes at the event venue for on-the-spot responses on the day of the event, and by sending survey links via email to students who had pre-registered.

For companies, both the pre-event and post-event surveys were conducted by sending survey links via email. The number of respondents to the surveys is as follows. It should be noted that despite multiple follow-ups via email and phone calls, responses from five companies were not obtained for the post-event survey, resulting in a different number of respondents compared to the pre-event survey.

Table 81 Number of Survey Respondents

	Students	Companies
Pre-event Survey	122 respondents	16 companies
Post-event Survey	26 respondents	11 companies

(b) Analysis of Mismatches Between Students and Companies

The survey analyzed whether there were mismatches between the types of talent companies are seeking and the skills of students, as well as between students' expectations of companies and the actual situation. The key points of the mismatch situation are as follows.

(1) Key Point of the Mismatch

Technical Skills

- Students feel they lack skills, while companies are generally satisfied with the students' level.
- There is no mismatch between the technical skills that companies need and those that students excel in.

Soft Skills

- Students do not place much importance on soft skills, whereas companies are not satisfied with the students' level of soft skills.
- There is a mismatch between the soft skills that companies need and those that students excel in.

Workplace Environment

- Companies do not have a clear understanding of the type of workplace environment that students are seeking.
- Students do not have a clear understanding of the importance of the workplace environment, resulting in many cases where they feel a mismatch after joining a company and subsequently leave.

(2) Mismatch in the Perception of the Importance of Technical Skills and Soft Skills

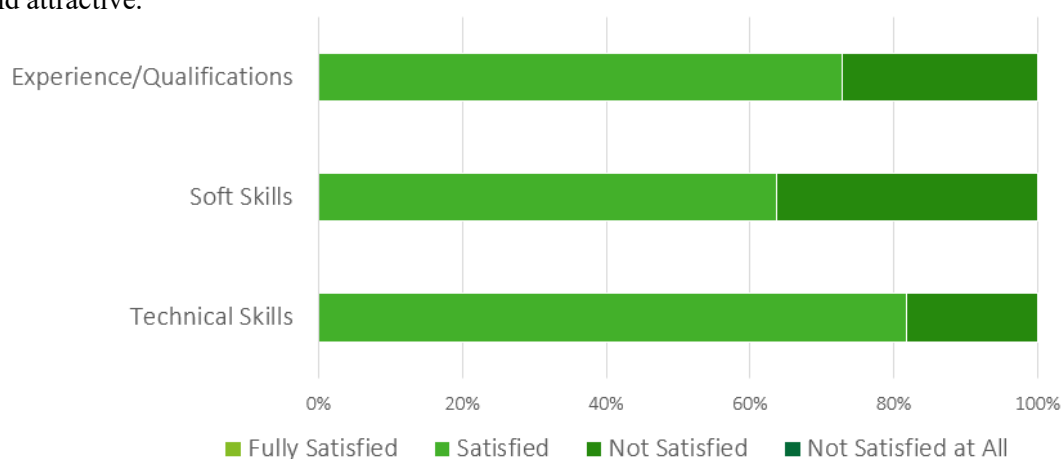
Technical Skills

In a post-survey conducted with students, it was found that approximately 70% of students felt that their skills and experience were insufficient when it came to securing employment with companies they found appealing. Among these, the most common response (31%) was a lack of practical experience, such as work experience or internships. Additionally, many students believed they lacked technical skills, such as practical technical abilities (17%) or IT/technology-related certifications (11%). On the other hand, a post-survey conducted with companies revealed that over 70% of companies believed the students they hired met the required standards in terms of experience and certifications, and over 80% of companies felt the same regarding technical skills. From these findings, it can be concluded that while students perceive themselves as lacking in experience and technical skills, in reality, many of them meet the standards sought by companies.

However, this does not necessarily mean that students possess a high level of technical skills sufficient to be immediately effective. Based on interviews with local companies, it was found that the ICT industry is experiencing a shortage of skilled workers. Therefore, companies are hiring students who meet a certain level of technical proficiency and then training them over several years after employment. For example, Digital Works, a company within the Mongolian ICT giant Mogul Group that handles business automation services, hires not only new graduates but also inexperienced professionals, and focuses on their development post-hire.

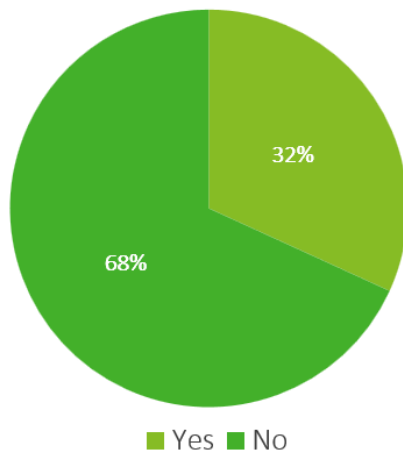
Soft Skills

Regarding soft skills, just under 40% of companies believe that students do not meet the required standards. However, only 11% of students reported that they felt their soft skills were insufficient to join the companies they found attractive.



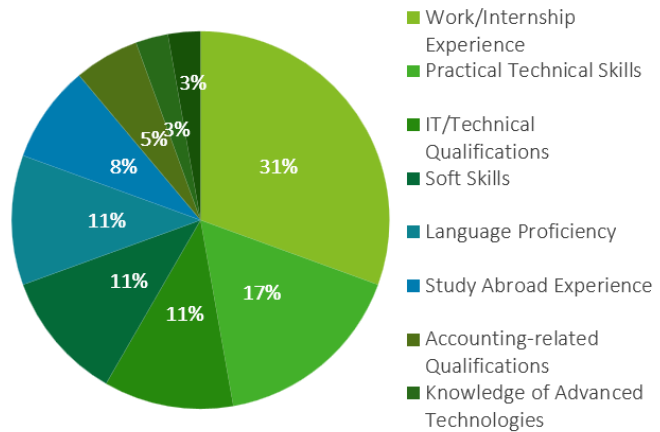
Source: JICA Study Team

Figure 124 Post-Event Survey for Companies: Do the Hired Students Meet the Skills and Experience Required by the Company? (n=11)



Source: JICA Study Team

Figure 125 Post-Event Survey for Students: Do You Feel Your Current Skills and Experience Are Sufficient for Employment? (n=26)



Source: JICA Study Team

Figure 126 Post-Event Survey for Students: Skills and Experience You Believe You Are Lacking (n=26)

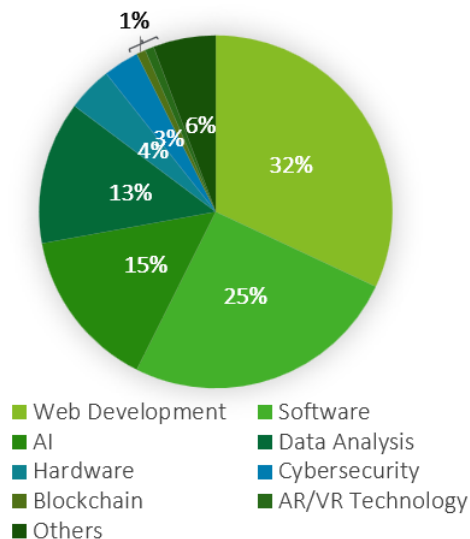
Summary

As mentioned above, there is a mismatch where students believe they lack technical skills, while companies feel that students lack soft skills. It can be assumed that students do not understand or have not had the opportunity to understand that companies value not only technical skills but also soft skills. Job seminars, where students and companies can exchange information, can be considered an effective venue for students to learn the skills they need.

(3) Specific Skill Mismatches

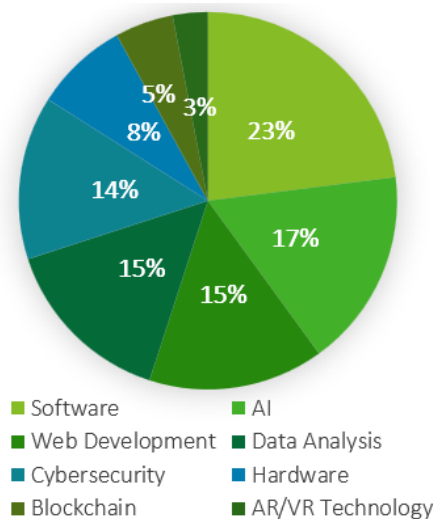
Technical Skills

As a hypothesis before conducting the survey, it was thought that there might be a mismatch between the skills that students possess and the skills that companies require. Surveys were conducted regarding both technical skills and soft skills. The results revealed that there is no significant gap between the technical skills that students possess and the technical skills that companies require.



Source: JICA Study Team

Figure 127 Pre-Event Survey for Students: Technical Skills You Consider Your Strengths (n=122)

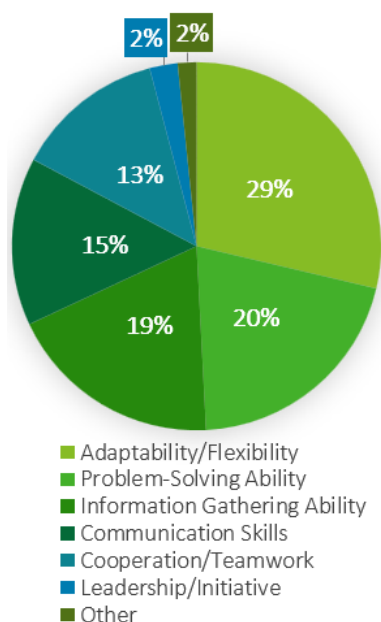


Source: JICA Study Team

Figure 128 Pre-Event Survey for Companies: Technical Skills You Require from Students (n=11)

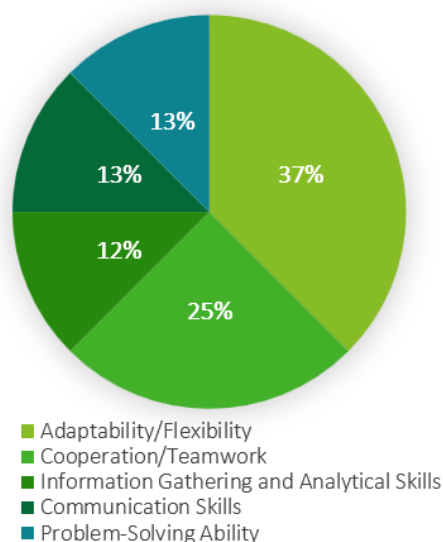
Soft Skills

On the other hand, there is a slight mismatch between the soft skills that students possess and the skills that companies require. "Adaptability/Flexibility" is the most valued skill by companies and is also the skill that most students consider their strength. However, "Cooperation/Teamwork," which is the second most valued skill by companies, is ranked fifth among the skills that students consider their strengths. Conversely, "Problem-Solving Ability" is ranked second among the skills that students consider their strengths, but it is ranked fifth among the skills that companies value.



Source: JICA Study Team

Figure 129 Pre-Event Survey for Students: Soft Skills They Consider Their Strengths (n=122)



Source: JICA Study Team

Figure 130 Pre-Event Survey for Companies: Soft Skills They Expect from Students (n=16)

Summary

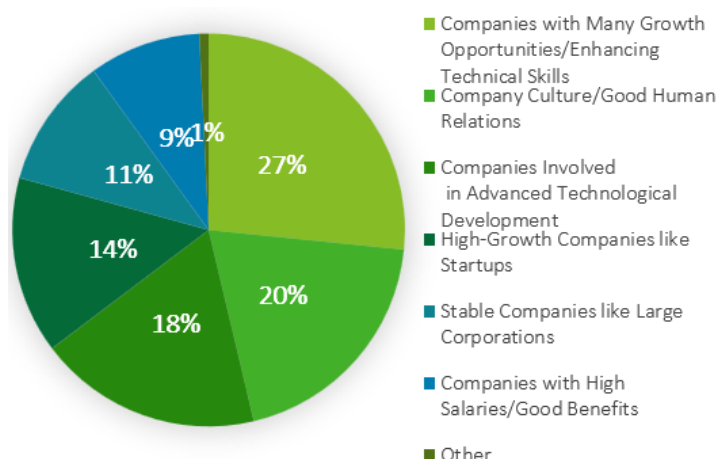
Regarding technical skills, there is no mismatch between the needs of companies and the strengths of students. On the other hand, there is a partial mismatch in soft skills between companies and students. To help students understand the soft skills required by companies, job seminars that serve as a place for interaction between companies and students are useful, as mentioned previously.

Additionally, to improve the required soft skills, internships at companies and initiatives in school education are important. Job seminars are also effective from the perspective of providing opportunities for the former.

Furthermore, in school education, engaging in practical joint projects through industry-academia collaboration can contribute to the improvement of both soft and technical skills. Moreover, it is important for schools to understand the needs required by companies and convey them to students, and collaboration and information sharing between industry, government, and academia are considered useful.

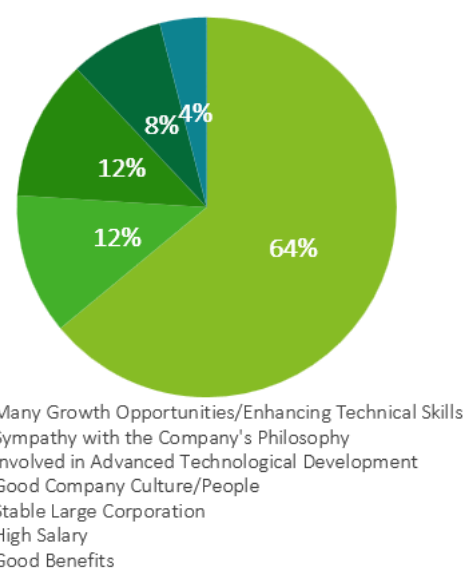
(4) Mismatch Between the Type of Company Students Seek and the Reality After Employment

In a pre-employment survey of students, approximately 30% of respondents indicated that they want to work for a company that offers many growth opportunities and can enhance their technical skills. Furthermore, in a post-employment survey of students, more than 60% stated that the most appealing aspect of the companies they found attractive was "many growth opportunities/enhancing technical skills." This indicates that students most desire growth opportunities in a company.



Source: JICA Study Team

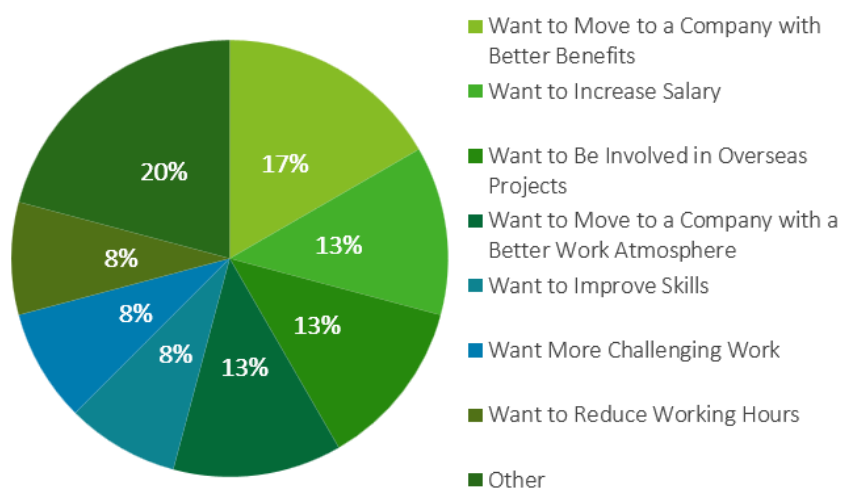
Figure 131 Pre-Event Survey for Students: What Type of Company Do You Want to Work For? (n=122)



Source: JICA Study Team

Figure 132 Post-Event Survey for Students: What Aspects of the Company Did You Find Attractive? (n=26)

On the other hand, according to the survey results from companies, the main reasons for employees leaving their jobs are dissatisfaction with the company's human resources policies, such as wanting to move to a company with better benefits or wanting to increase their salary. Therefore, companies are likely to have recognition that offering high salaries and generous benefits is important for hiring students as regular employees and ensuring they stay long-term.



Source: JICA Study Team

Figure 133 Post-Event Survey for Companies: Reasons for Resignation of Employees (n=11)

Based on the above results, it can be considered that there are two mismatches regarding the work environment. One is that companies are unable to effectively appeal to students about the type of company they seek, thus missing opportunities to attract potential talent. The other is that students do not fully understand the importance of employment conditions such as salary and benefits when they secure a job, leading to dissatisfaction after joining the company.

Job seminars can be used not only as a platform for one-sided presentations from companies but also as an opportunity for dialogue at individual booths and through surveys of students, serving as a place for companies

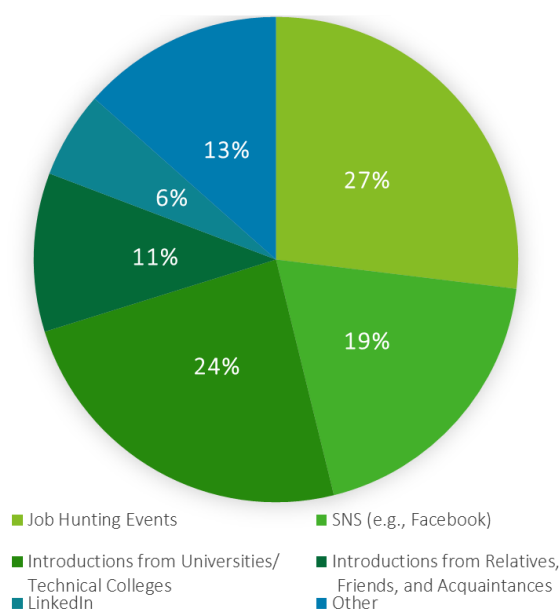
to understand what students are looking for in a company.

Additionally, the issue with students is that they do not understand the importance of work style and employment conditions after joining a company and likely have few opportunities to hear from seniors who have already joined the companies they aspire to work for. Setting up round-table discussions where students can ask employees questions candidly or providing opportunities for OB/OG visits could be one of the solutions.

(c) Needs Analysis of Job Seminars as Employment Opportunities

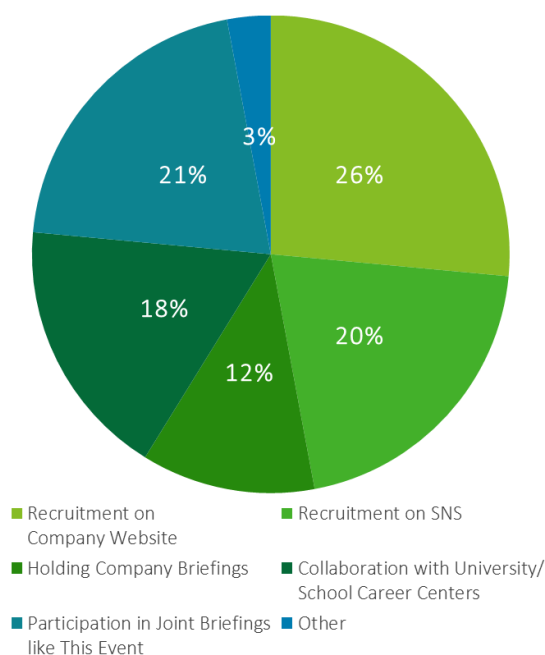
According to the pre-employment survey of students, among the 122 respondents, only about 30% participated in job hunting events like the job seminar in this project, while 60% relied on individual job hunting through schools, personal connections, and publicly available information. The breakdown of the latter is as follows: 24% through school introductions, 25% through approaches via SNS such as Facebook and LinkedIn, and 11% through introductions by relatives, friends, and acquaintances. Similarly, in company recruitment activities, about 60% are conducted through recruitment on their websites and SNS, and individual recruitment briefings, with participation in joint briefings like this event only accounting for 21%. In Mongolia, there are almost no job fairs where a diverse range of students can participate freely. Therefore, the response "participation in joint briefings" is assumed to refer to job seminars targeting students from a single school, such as a university, and is different from joint briefings like this event where students and companies from various schools gather. The results of the above survey indicate that in Mongolia's ICT and digital talent market, it is common for students and companies to conduct individual job hunting and recruitment activities, and joint job-hunting events where a diverse range of students and companies gather are not active.

However, in individual job hunting, it is difficult for students to learn about many companies at once. Additionally, for companies, the range of students they can approach through their websites or LinkedIn and Facebook is limited. Therefore, this job seminar can be considered a valuable opportunity for diverse companies and students to interact with each other and broaden their employment and recruitment horizons.



Source: JICA Study Team

Figure 134 Pre-Event Survey for Students: What Methods Are You Using for Job Hunting? (n=122)

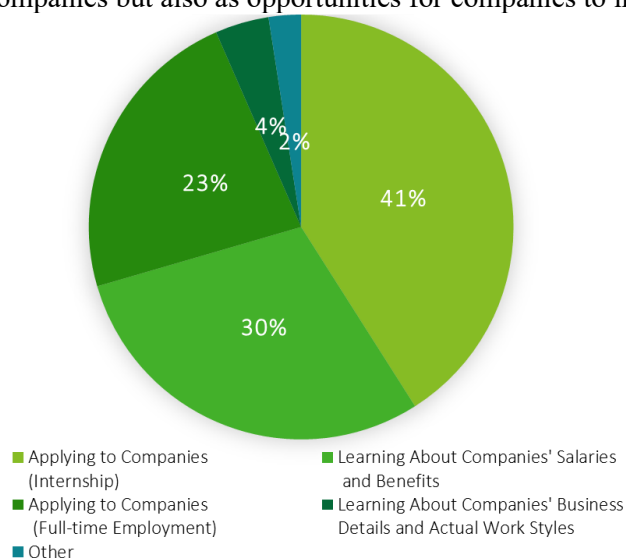


Source: JICA Study Team

Figure 135 Post-Event Survey for Companies: What Recruitment Activities Are You Conducting? (n=11)

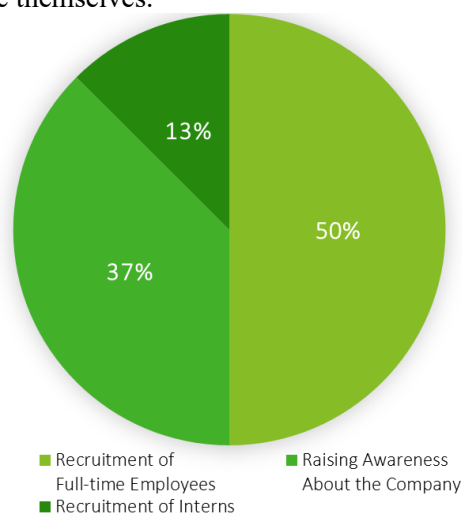
Additionally, regarding the purpose of students' participation in this event, 41% responded that they were applying for internships, and 23% responded that they were applying for full-time positions, indicating a high motivation for obtaining specific employment. Furthermore, 30% of students responded that they participated to learn about salaries and benefits, indicating that a certain number of students expect to gather information. Similarly, on the companies' side, 50% responded that their purpose for participating in this event was to recruit

full-time employees, while 37% responded that it was to make their company known. This indicates that job seminars are expected to serve not only as opportunities for employment and recruitment for both students and companies but also as opportunities for companies to introduce themselves.



Source: JICA Study Team

Figure 136 Pre-Event Survey for Students: What Do You Expect Most from This Event? (n=122)



Source: JICA Study Team

Figure 137 Pre-Event Survey for Companies: Purpose of Participating in This Event (n=11)

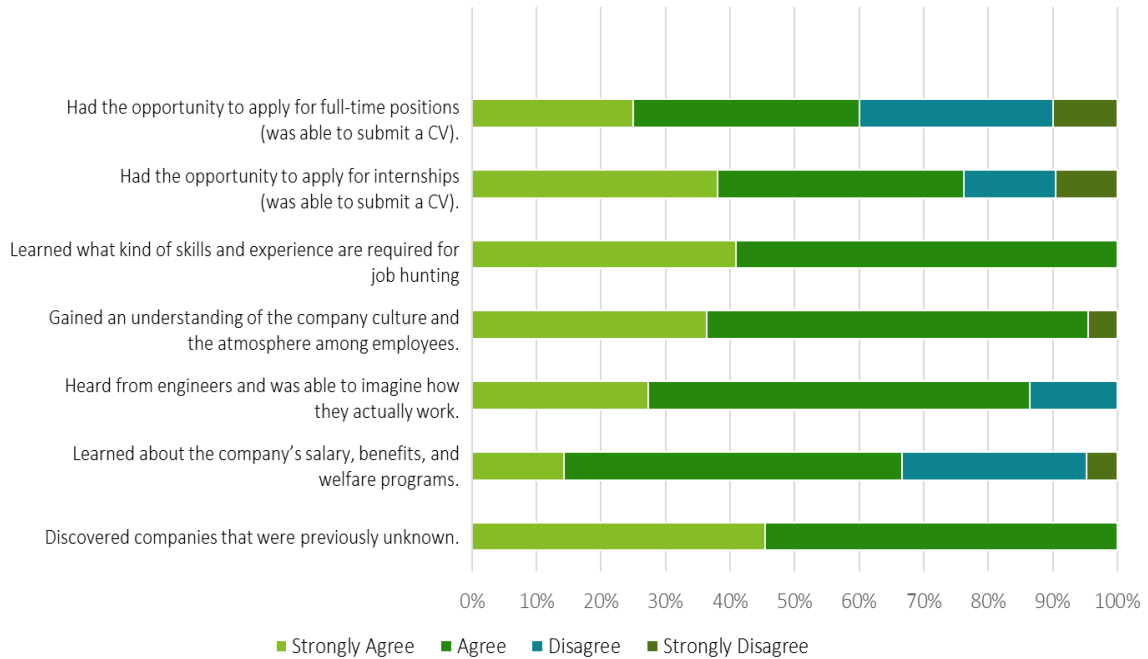
Based on the above results, it can be said that job seminars contribute to increasing employment and recruitment opportunities for ICT and digital talent in Mongolia. Additionally, as discussed in the previous chapter, it is important to have a place where both companies and students can understand each other to resolve the mismatch between them. According to the survey results, job seminars are at least expected to serve as opportunities for companies to be known, and they can be one of the measures to provide employment opportunities and resolve mismatches.

(d) Evaluation of the Operation of the First Job Seminar

(1) Content of the Plan

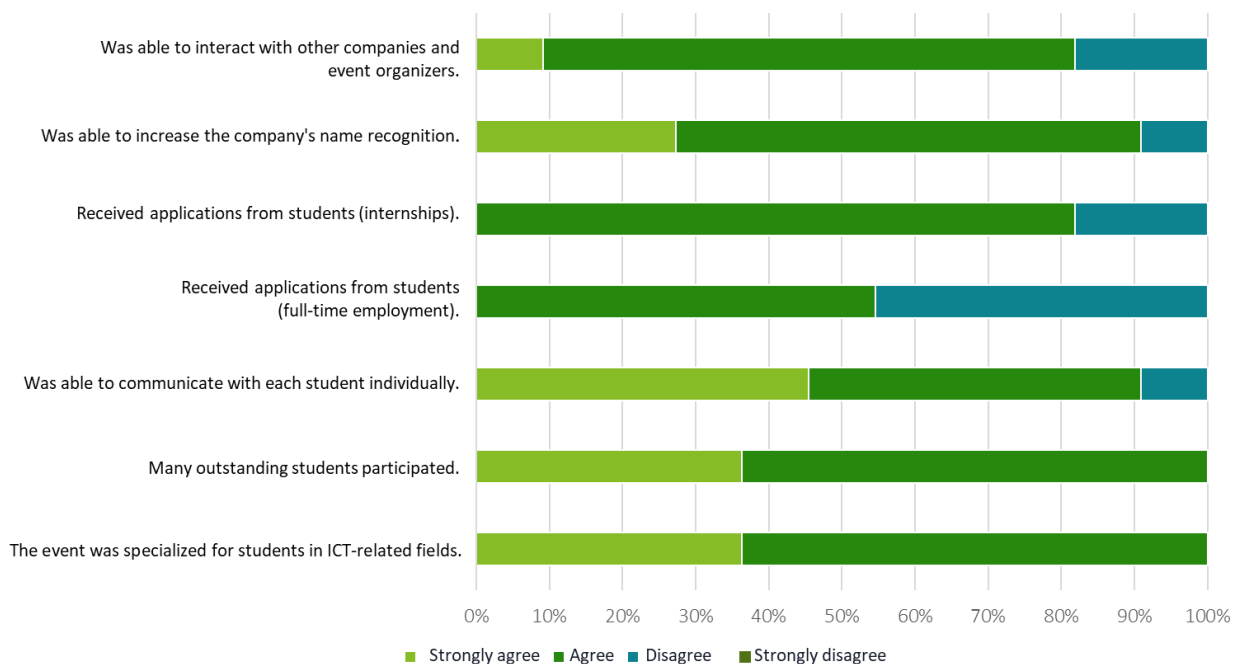
When we surveyed students and companies about their satisfaction with this event, 42% of the students responded that they were very satisfied, and 58% responded that they were satisfied. As for the companies, 9% responded that they were very satisfied, and 91% responded that they were satisfied. Overall, it can be said that the event had a high level of satisfaction.

The points most frequently mentioned by students as positive aspects of the event included "I was able to learn what skills and experiences are needed for employment" (100%), "I was able to imagine the actual working style by listening to engineers" (over 80%), and "I had the opportunity to apply for internships" (over 70%). Additionally, the points mentioned by participating companies as positive aspects included "I was able to communicate with each student individually" (over 90%), "I was able to increase the awareness of our company" (over 90%), and "We received internship applications from students" (80%).



Source: JICA Study Team

Figure 138 Post-Event Survey for Students: Positive Aspects of This Event (n=26)



Source: JICA Study Team

Figure 139 Post-event Survey for Companies: Positive Aspects of This Event (n=11)

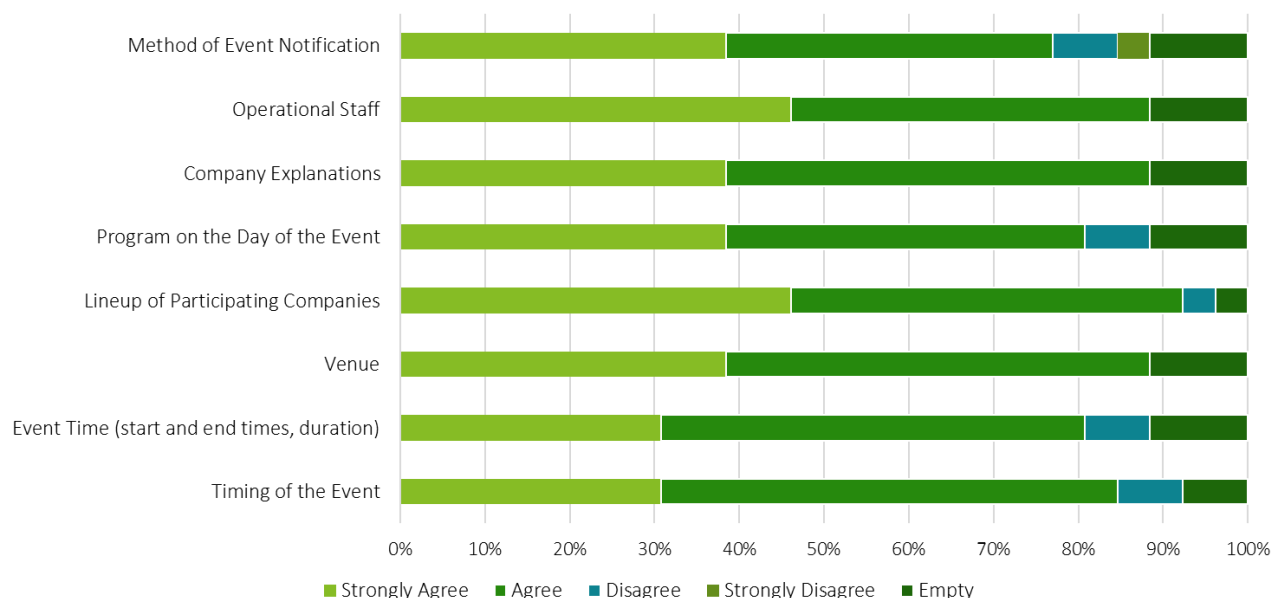
Based on the above, it can be evaluated that the first job seminar had a high level of participant satisfaction and contributed to the revitalization of the ICT and digital talent market. Additionally, according to the participants' responses, this job seminar provided employment opportunities for students and was highly regarded as a forum for exchange of opinions between students and companies.

(2) Operational Aspects

In relation to the operation of this event, both student and corporate participants generally responded that it was "very good" or "good". Conversely, there were relatively more responses indicating that the venue, event time,

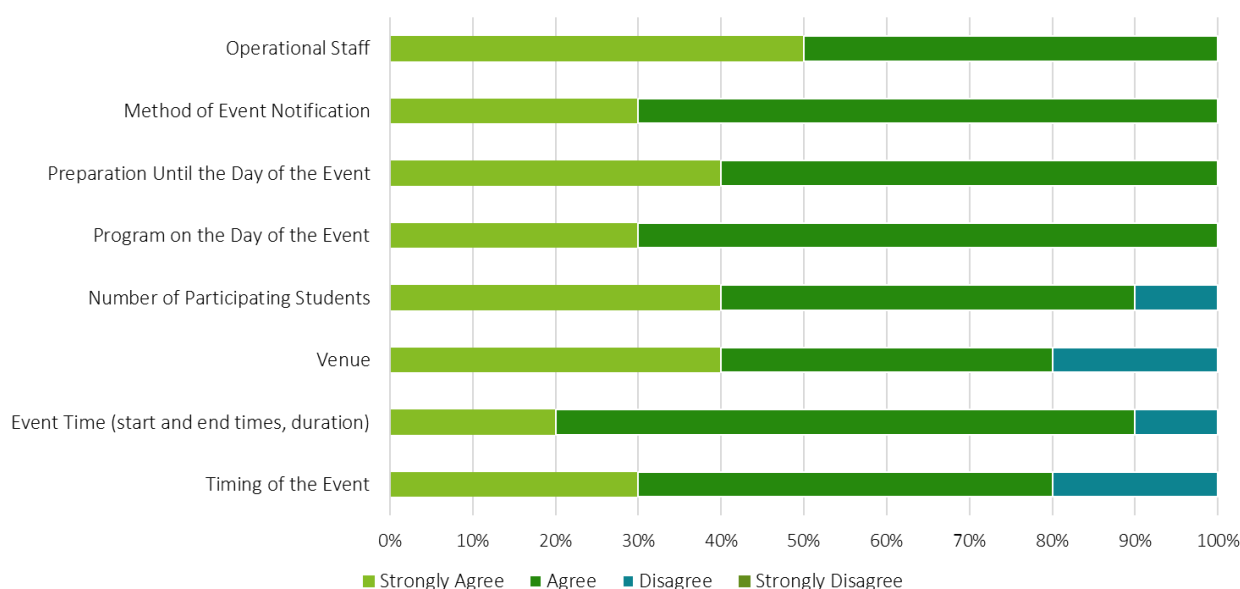
and event timing were "bad" or "very bad". Specifically, it was noted that students requested improvements regarding the event time, while companies requested improvements regarding the event timing. Additionally, a certain number of students rated the venue as "bad". This is likely due to the event being held on the campus of the MUST, making it difficult for students from other schools to attend, and the event venue being far from the main gate and hard to find.

Regarding the timing of the event, there were comments from students such as "It was an important period with significant events like regular exams, so I couldn't take my time. I would like it to be held on a holiday." Therefore, it can be said that the timing in early December was not optimal.



Source: JICA Study Team

Figure 140 Post-event Survey for Students: Evaluation of Event Operation (n=26)



Source: JICA Study Team

Figure 141 Post-event Survey for Companies: Evaluation of Event Operation (n=11)

Although the overall operation of this event received satisfactory responses, there was room for improvement regarding the event time and event timing. Additionally, it can be said that conducting the event at a venue that provides higher satisfaction for the participants should also be considered.

4) Evaluation of the 1st ICT and Digital Talent Job Seminar

The evaluation of PP(2) after implementation is as follows.

Table 82 PP(2) Evaluation after Implementation of the 1st Job Seminar

Evaluation Items		Outcomes	Issues	Suggestions and Measures for Next Time
Achievement of Objective	Identification of Mismatches	- Through surveys, we were able to identify the presence and content of mismatches between companies and students. - It became clear that due to mutual lack of understanding between companies and students, mismatches occurred, and there is a need for exchange opportunities like job seminars.	- While we identified that mismatches are occurring, the need to promote understanding between companies and students, and that job seminars are one solution, further consideration is needed for other solutions and methods to improve the soft skills lacking in students. - It is necessary to share the analysis results of mismatches with stakeholders.	- Since there is a demand for opportunities to deepen mutual understanding between companies and students, we will also provide dialogue opportunities at booths, not just company presentations, next time. - Share the analysis results of mismatches with stakeholders in the WG and discuss solutions.
	Provision of Employment Opportunities	- In a situation where there are no joint employment events targeting multiple companies and diverse students in Mongolia, we were able to present an event that provides new employment opportunities. - We achieved approximately 200 visitors against the planned scale of a 50-person event. - A total of 68 CVs were submitted to companies that responded to the post-event survey. - All companies and students who responded to the post-event survey expressed their desire to participate in future events, indicating high satisfaction and demand.	The survey results showed high satisfaction with the job seminar not only as an employment opportunity but also as a place for exchange and information sharing between companies and students. Therefore, it was not necessary to limit the main target to a specific academic year conducting job search activities.	For the next event, we will target a wide range of students without limiting the main target academic year.
Resource	Cost	Despite budget constraints, we successfully held an event with approximately 200 visitors. (We selected co-organizing organizations based on budget considerations, such as receiving free venue and equipment from the MUST.)	Boosting Facebook posts (paid) could have potentially increased our ability to attract attendees.	- Consider ways to raise funds, such as charging companies exhibition fees. - If we can secure a budget, we will consider distributing gifts to survey respondents.
	Personnel	-	Without an external outsourcing budget, the number of staff on the day was insufficient.	Next time, we will hold the event with the successor candidates of this PP as the

				organizers. For this, we will consider what kind of event provides benefits to the respective organization.
Preparation	Planning Content	- We were able to hold an event with high satisfaction for both companies and students. - Not only company presentations but also individual booths were set up, which deepened the exchange between companies and students and presumably increased satisfaction.	- The program was specialized in job search activities, lacking unique Japanese content and casual planning that attracts student interest. - We received feedback from companies and students that the timing, date, and venue were unsatisfactory.	- To increase the number of visitors, we will incorporate content that is not too formal and attracts young people. - Consider timing, date, and venue that make it easy for students to participate.
	Participating Companies	- We were able to hold a sizable event with participation from major companies in Mongolia, with a total of 19 companies exhibiting. - There were cases where companies contacted us expressing their desire to participate after seeing our Facebook posts. - By communicating not only via email but also by phone, companies were able to smoothly proceed with Facebook posts and presentation preparations.	-	- Utilize the connections established with companies this time for the next event. - Consider not only selecting and inviting exhibiting companies but also broadly recruiting participants. - Like this time, prioritize phone communication with companies.
	Event Notification	Through co-organizer MFST, we were able to notify a wide range of universities with ICT courses.	- Facebook posts could have been spread more effectively not only by boosting (paid) but also by using methods suited to Mongolian culture. For example, utilizing the comment section and using eye-catching visuals that attract students. - Displaying flyers at schools could have potentially increased our ability to attract attendees.	- Improve the content and boosting methods of Facebook posts. Additionally, avoid using English as much as possible, including in the event name, and use only Mongolian. - Ensure closer collaboration with the career centers of each school, such as displaying flyers at schools.
Operation	Attracting Attendees	- We successfully attracted approximately 200 attendees. - We continuously disseminated information on Facebook and worked to increase the number of	Visitor count was done only by visual estimation, and no accurate counting method was prepared.	- Distribute flyers at the reception to keep track of visitors. - Secure Mongolian-speaking personnel and ensure that Facebook

		visitors on the day of the event.	• Facebook posts on the day were made in English.	posts on the day are also in Mongolian.
	Program Management	• By flexibly changing the timetable for company presentations according to the number of attendees, we were able to proceed with company presentations in the presence of many students.	• Although the above was a good response on the day of the event, the fact that we had to change the timetable itself is an issue.	• Hold the event at a date and time that is convenient for students to gather. • Include content that attracts students' interest, such as speeches by CEOs and lectures by alumni.
	Gifts	• Participating companies independently distributed coffee and gifts, which increased student satisfaction.	• The secretariat was unable to distribute coffee and gifts.	• Consider distributing items other than novelty items, such as a list of participating companies.
After Implementation	Survey Analysis	• Through the survey, we were able to understand the mismatch situations and the needs for job seminars. • Anticipating a low response rate to the post-event survey from students, we conducted a pre-event survey to sufficiently collect information.	• The response rate for the post-event survey from students was low. We should have conducted the survey on paper and collected responses on-site.	• Conduct the survey on paper and collect responses on-site. • Collaborate with companies to distribute novelty items to survey respondents to improve the response rate.

5) Implementation of the 2nd ICT & Digital Talent Job Seminar

(a) Program Overview

In considering the continuity after the completion of this project, we examined three formats for holding the 2nd ICT & Digital Talent Job Seminar: holding it within the Japan Festival, holding it within the ICT Expo, and holding it jointly with the MJEED Job Seminar. Given that MJEED is a time-limited organization with low future sustainability, we narrowed it down to two options: the Japan Festival and the ICT Expo.

Both the Japan Festival and the ICT Expo have their own benefits and concerns as events for holding the job seminar.

However, overall, it was considered more desirable to co-host the seminar within the Japan Festival. The ICT Expo was likely to have its details finalized just before the event, making it difficult to plan the job seminar in advance.

Additionally, there was already a job fair within the ICT Expo, so improving it would involve intervening in the Mongolian government's event, and it was unclear to what extent we would be able to improve the event and evaluate its effectiveness. On the other hand, with the Japan Festival, we would be able to establish a new job fair event targeting a wide range of students while promoting Japanese support.

Table 83 Overview of the 2nd ICT & Digital Talent Job Seminar Plan

Event Name	ICT/Digital Job Fair 2024 in Japan Festival in Mongolia
Date	August 17 (Sat) and 18 (Sun), 2024
Location	Sukhbaatar Square, Ulaanbaatar
Organizers	Japan International Cooperation Agency (JICA), NGO Narani Nadaam
Supports	MOJC, MFST
Target Students	Since the event was held in part of the venue, visitors were not limited, but prior notification and coordination with participating companies will be conducted for the following students. • Major: Students of ICT courses • Year: No restrictions • Purpose: Information gathering or actual job hunting to obtain opportunities for internships or full-time positions
Target Companies	Telecommunications, system/software development, banks, and other major employers of ICT students and human resource agencies *Participating companies include Mongolian companies, Japanese companies (subsidiaries of Japanese companies or Japanese companies with business bases in Mongolia), and Japanese companies without bases in Mongolia *To make the event sustainable, we charged companies the same exhibition fee as the Japan Festival.
Program	Booth Exhibits: Individual booths by each company • The method of exhibition, including the content of the explanations at the booths, was left to the companies. • Whether to accept CV submissions on the day (paper/email/QR code) was left to the companies. However, participating companies were asked in advance to explain the recruitment process and contact points for applications even if they do not accept CVs on the day. • Companies were requested to conduct the overall job seminar survey in addition to their own company surveys (optional) for students. Event: Promotional Event on Stage • Using the event stage of the Japan Festival, we held a 20-minute promotional event in two parts. First, students from Erdenet University introduced the service they developed in collaboration with Tab Solutions. Next, two of the exhibitors (Nasha Tech, CAL) introduced their businesses/products and conducted quizzes related to them. • Provided examples of young people already engaged in IT business and opportunities to learn about Japanese IT companies in an enjoyable manner to promote interest and engagement among the youth.

(b) Organizers and Co-organizers

The 2nd ICT & Digital Talent Job Seminar was co-hosted with the NGO Narani Nadaam, which organizes the Japan Festival, and was held with the support of MFST.

NGO Narani Nadaam

NGO Narani Nadaam has been organizing and managing the Japan Festival since its first event in 2019, including the years when the event was canceled. The 2nd ICT & Digital Talent Job Seminar was held as part of the Japan Festival, and preparations were made in cooperation with Narani Nadaam.

MFST

Like the 1st ICT & Digital Talent Job Seminar, MFST provided cooperation mainly in calling for university participation.

(c) Participating Companies and Universities

More than 200 Mongolian companies (including approximately 150 companies that applied for the 3rd MONJA) and over 75 Japanese companies (including 50 Japanese ICT-related companies (ICT4D members)) were informed.

Additionally, some universities and technical colleges that showed interest in exhibiting were also approached. As a result, the following 9 companies participated.

Table 84 Participating Companies/Universities in the 2nd ICT & Digital Talent Job Seminar

Participating Companies	
Telecommunications	Mobicom corporation
	GMO-Z.com Mongolia LL
Banking	Trade and Development Bank of Mongolia
System/Software Development	Tab Solution
	Nasha Tech
	Dentsu Data Artist Mongol
	BC System Co., Ltd.
Recruitment and Staffing for Japan	CAL Co., Ltd.
University	Mandakh University

(d) Notification to Students

The event was notified to students through three methods: (1) posts on Facebook, (2) requests for notification through the career centers of various universities and technical colleges, and (3) calls to each university by MFST.

On Facebook, a special page titled "ICT/Digital Job Fair" was created, and the event was announced on May 1, 2024. This announcement included the event's date and time, venue location, and participating companies. Regarding the online survey conducted during the 1st ICT & Digital Job Seminar, it was not conducted this time because the mismatch analysis was already completed in the previous survey, and measures to improve the on-site survey response rate, as described below, were implemented.



Source: JICA Study Team

Figure 142 Facebook Page Banner

On Facebook, each participating company sequentially posted their company overview, available positions, whether they would accept CVs on the day of the event, and the content of their explanations until the day of the event. Additionally, all posts on Facebook were made primarily in Mongolian.



Source: Facebook page of Job Seminar

Figure 143 Example of a Company Introduction Post (Nasha Tech LLC)

In addition to Facebook, individual notifications were sent to various universities and technical colleges through MFST and directly by the JICA Study Team to request notification to students.

(e) Participating Students

At the Japan Festival venue, 9,000 people attended on the first day and 16,000 people on the second day, totaling 25,000 attendees. The main age group of attendees was 15 to 25 years old. Since the job seminar was held as part of the Japan Festival without a separate area, the exact number of participants in the job seminar was uncertain. However, some participating companies reported that over 230 people visited their booths. Additionally, 82 people who visited the company booths responded to the survey.

Among the 82 survey respondents, the proportion of working professionals and students was roughly half each. About 40% of the working professionals were currently employed at IT companies. The student respondents included high school students. Regarding majors, the most common were IT Engineering courses (26%), Computer Science (10%), and Software Engineering (7%).

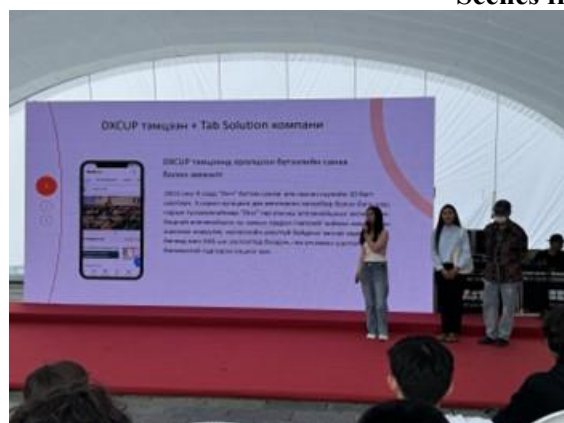
(f) Operation on the Day of the Job Seminar

The venue setup was carried out smoothly by the Japan Festival organizing secretariat. On the day of the event, the job seminar could broadly approach a large number of Japan Festival attendees, including those who were not aware of the job seminar. This provided companies with the benefit of increasing their visibility. Companies that made efforts such as distributing novelty items were particularly successful in attracting visitors. On the other hand, the visitors to the company booths included people who were not necessarily job hunting, which meant companies had to put in effort to identify target candidates.

In the stage event, Erdenet University introduced the service they are developing in collaboration with Tab Solutions. Following this, the exhibiting companies Nasha Tech and CAL introduced their businesses and products and conducted related quizzes with prizes.



Scenes from Exhibition Booths



Scenes from Stage Events

Source: JICA Study Team

Figure 144 Scenes from the Day of the Job Seminar

6) Evaluation of the 2nd ICT & Digital Talent Job Seminar

(a) Evaluation

Table 85 Evaluation after the implementation of the 2nd Job Seminar (PP2)

Evaluation Criteria		Improvements Based on Previous Event Issues	Results
Achievement of Objective	Elimination of Mismatches	- Since there is a need for a place where both companies and students can deepen their understanding, the 2nd Job Seminar emphasized interaction at booths rather than company presentations. - The results of the mismatch analysis conducted during the 1st Job Seminar were shared with stakeholders in the working group, and discussions on solutions were held.	We were able to provide opportunities for interaction at the booths. However, since the visitors included not only job seekers but also the public, companies faced the challenge of expending effort to reach their target candidates.
	Provision of Employment Opportunities	In the 1st Job Seminar, it was found that not only students seeking employment but also those interested in internships were targets. Therefore, this time we did not limit the target grade level during the recruitment stage.	A wide range of individuals, including working professionals seeking career changes and those interested in internships, participated in the job seminar.
Resources	Costs	- To make the event sustainable, we collected exhibition fees from companies participating in the Japan Festival. - We also boosted (paid) Facebook posts to increase our ability to attract visitors.	- We were able to secure participation from nine companies, even with a paid exhibition fee. - However, due to a few Mongolian companies canceling at the last minute for economic reasons, it will be necessary to adjust future operations, such as requiring earlier payment of exhibition fees.
	Personnel	- The Japan Festival Executive Committee managed the operations on the day of the event. - We hired external staff for the job seminar area and increased the number of staff compared to the previous event.	We were able to manage with enough staff.
Preparation	Event Planning	- Instead of focusing solely on a job search event, the job seminar was held as part of the Japan Festival, which has a lot of content that interests young people. - Company introductions on the stage were made casual by incorporating quizzes.	The Japan Festival attracted a total of 25,000 visitors over two days. More than 200 people visited the booths of companies exhibiting at the job seminar. Additionally, we received survey responses from 82 individuals.
	Participating Companies	We conducted a larger-scale recruitment compared to the 1st Job Seminar, targeting over 200 Mongolian companies (including approximately 150 companies that applied for the 3rd MONJA) and over 75 Japanese companies (50 ICT-related Japanese companies (including ICT4D members)).	- Despite the fee, we secured participation from nine companies. - Although it was not initially anticipated, we also received participation from universities that wanted to recruit students in the ICT field.
	Event Publicity	- We boosted (paid) posts on the Japan Festival's Facebook account, which has many followers. Additionally, all posts were made in Mongolian. - We also requested that flyers be posted at each school.	It is difficult to quantitatively measure the results of event publicity, as it is hard to distinguish whether it contributed to attendance at the Japan Festival or the job seminar.

Operation	Attracting Visitors & Counting Attendees	Although it is difficult to accurately determine the number of visitors, we counted the number of visitors based on the collection of surveys in the job seminar area (82 responses) and the independent measurements by exhibiting companies (some companies reported over 230 visitors).	The same as the content described under "Event Planning."
	Program Management	Due to weather and other factors, the timetable for stage events was changed on the day of the event. Additionally, some exhibiting companies requested additional equipment such as tables on the day, but we managed these requests by closely coordinating with the Japan Festival's operations office.	We were able to manage without any issues by closely coordinating with the Japan Festival's operations office.
After Implementation	Surveys	In the 1st Job Seminar, the response rate for post-event surveys from students was low, so we asked for survey responses on-site this time.	The number of student survey responses was 82, a significant improvement compared to the 26 responses from the 1st Job Seminar.

(b) Implications for Support Measures

Through this pilot project, it was confirmed that there is a need for job seminars as employment/recruitment opportunities for students specializing in the ICT field, as well as a venue for deepening mutual understanding and eliminating recognition mismatches. As mentioned earlier, during the 5th Working Group meeting, there were comments from companies regarding the effectiveness of such seminars. However, it is challenging for JICA to ensure sustainability if it holds the job seminar as a one-off event in the format of the 1st Job Seminar. Therefore, by hosting it as one of the events of the Japan Festival, like the 2nd Job Seminar, it can be made into a sustainable initiative. In this pilot project, the job seminar was planned and operated in collaboration with Narani Nadaam, which serves as the operations office for the Japan Festival, with the intention of handing over the job seminar to Narani Nadaam. The Japan Festival aims to become an event that contributes to economic cooperation between Japan and Mongolia, and the implementation of the job seminar aligns with this objective. However, since the Japan Festival primarily serves to introduce and disseminate information about Japan, the likelihood of Mongolian companies with no relation to Japan participating is low. Additionally, from the perspective of the Japan Festival operations office, there is no need to limit the industries of participating companies to ICT. Therefore, for future events, it will be necessary to adjust the format of the job seminar to better match the Japan Festival, such as by not limiting the seminar to specific industries. Also, as noted in the table above, a few Mongolian companies canceled their participation at the last minute due to economic reasons. It will be necessary to address fee collection issues, such as by requiring earlier payment deadlines for exhibition fees.

3. Pilot Project (3): Review and Implementation of Acceleration Program

To accelerate the growth of SU, which creates new business models using ICT and digital technologies, an acceleration program was implemented for about three months.

1) Implementation policy

(a) Overview of PP (3) Acceleration Program

Based on the achievements and challenges identified through the MONJA program, two three-month acceleration programs were implemented to support startups at the pre-seed and seed stages.

At the time this study began, two cohorts had already been completed. As part of this survey, the third and fourth cohorts were conducted, incorporating improvements based on the outcomes of the earlier cohorts.

Hypothesis on program challenges and Approaches taken in the 3rd and 4th Cohorts

program challenges of MONJA (hypothesis)	3rd and 4th cohort approaches
1. Lack of a sustainability model for the program Was a system established to allow for the continuous planning and implementation of the program, even in the absence of Japanese-side program personnel on the ground?	1. Development of local accelerators Local accelerators were engaged to build foundational capacity. By sharing implementation know-how and designing the program together, the aim was to establish a structure that could be self-sustained locally.
2. Inadequate and inconsistent mentoring support Was there a system in place to ensure the provision of high-quality mentoring, taking into account situations where the entrepreneur and mentor may not be a good match, or where specialized expertise is required?	2. Provision of high-quality mentoring Provide high quality mentoring intensively by providing hands-on support by internal mentors (local accelerators) and specialized mentoring by external mentors (external experts)
3. Insufficient networking opportunities Although program operations were assumed to have been conducted mostly online due to the COVID-19 pandemic, was it possible to establish meaningful connections between key ecosystem players and entrepreneurs?	3. Providing Networking Opportunities - conduct networking events for startups and investors - Engage internal Mongolian investors and ecosystem players in pitch events

Source: Prepared by the JICA Study Team

Figure 145 Past MONJA Issues Hypotheses and Approaches for the 3rd and 4th Cohorts

An overview of MONJA is provided in the table below.

For the 4th cohort, in addition to the conditions applied in the 3rd cohort, the potential for overseas market entry was added as a support criterion, recognizing that international expansion is a key factor for the business growth of startups in Mongolia.

Overview of MONJA

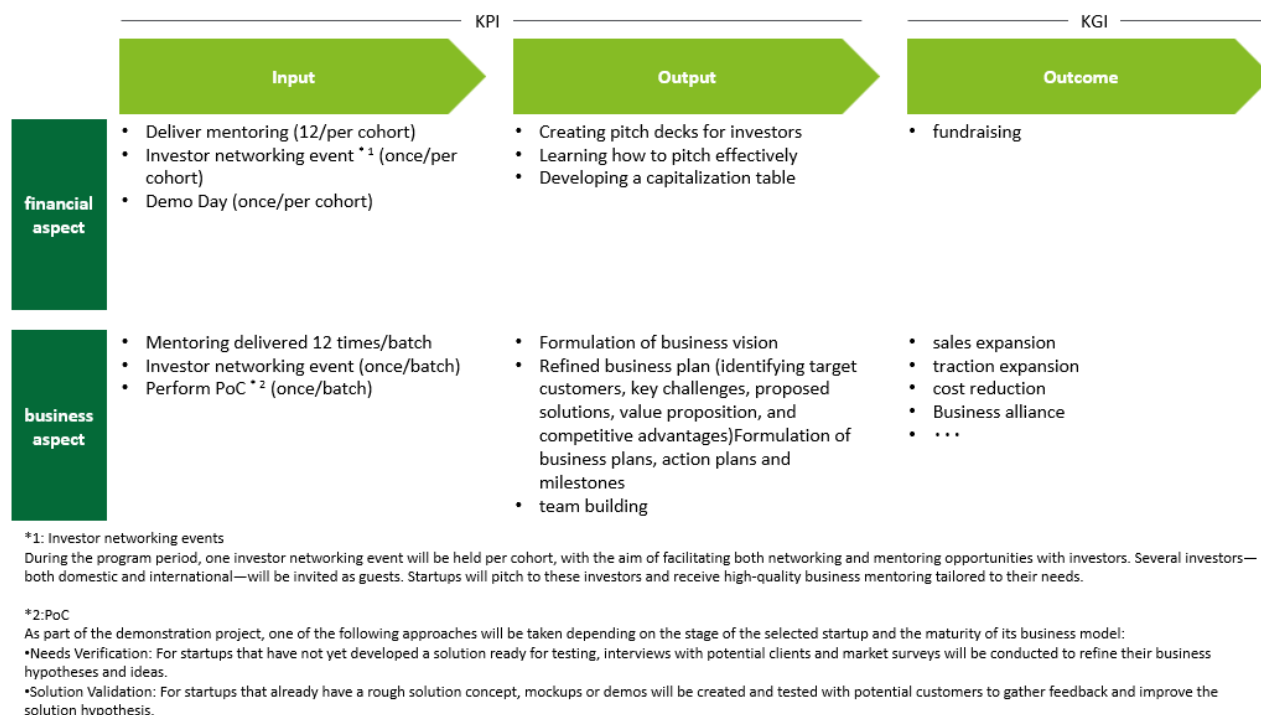
Sponsorship		• Organizers: JICA, MOJC, Mobicom • Contractor: Deloitte Tohmatsu Financial Advisory Deloitte Tohmatsu Venture Support Exponential Partners	 
Purpose		• After graduating from the program, selected startups will: ➢ financing ➢ Expansion of sales and customers ➢ Building partnerships with investors and potential competitors	
Value Provided		• Support: • Business model and strategy mentoring, business matchmaking, and support for PoC planning and implementation • Access: • Start-up business, industry, HR, PR/media professionals • Network with investors and companies in Mongolia and abroad • domestic and international mentors • overseas travel	
Subject	Sectors	• no specific sectors	
	Stage	• Pre-Seed to Seed	
	marketability	• Possibility of entering overseas markets (added from cohort 4th)	

Source: Prepared by the JICA Study Team

Figure 146 Overview of PP (3) Acceleration Programs

(b) Concept of KPI for PP(3) Acceleration Program
Input and Output constitute the KPI of this program.

Concept of KPI

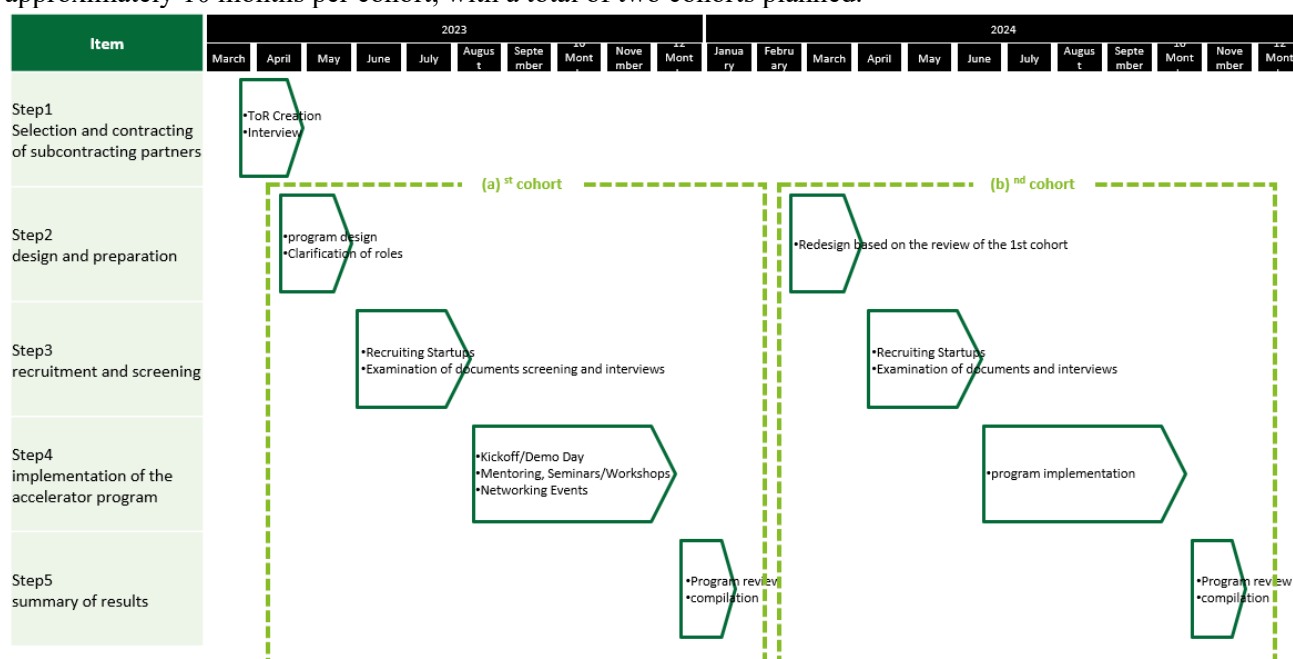


Source: Prepared by the JICA Study Team

Figure 147 Concept of PP (3) KPI Outcomes

(c) PP(3) Acceleration Program Schedule

The design and implementation of the acceleration program, along with the compilation of results, took approximately 10 months per cohort, with a total of two cohorts planned.

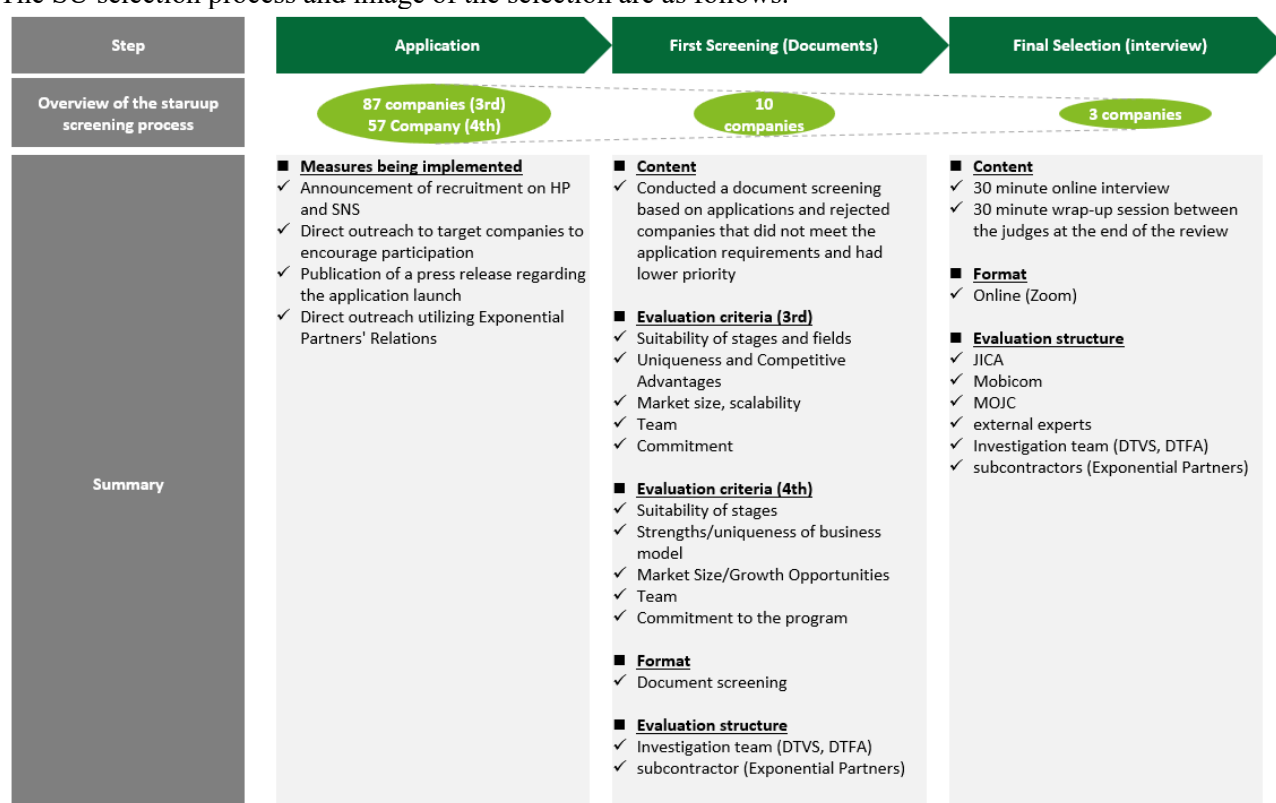


Source: Prepared by the JICA Study Team

Figure 148 PP (3) Acceleration Program Schedule

(d) Acceleration Program SU Recruitment and Screening Process

The SU selection process and image of the selection are as follows.



Source: Prepared by the JICA Study Team

Figure 149 Recruitment and screening process

(e) Contents of the acceleration program

Mentoring was provided weekly throughout the three-month program, including before the kick-off and after the demo day.

- Frequency: once a week (total 12 times/3 months)
- Duration: 1 hour per session
- Location: Online or selected company/accelerator offices, co-working spaces, etc.



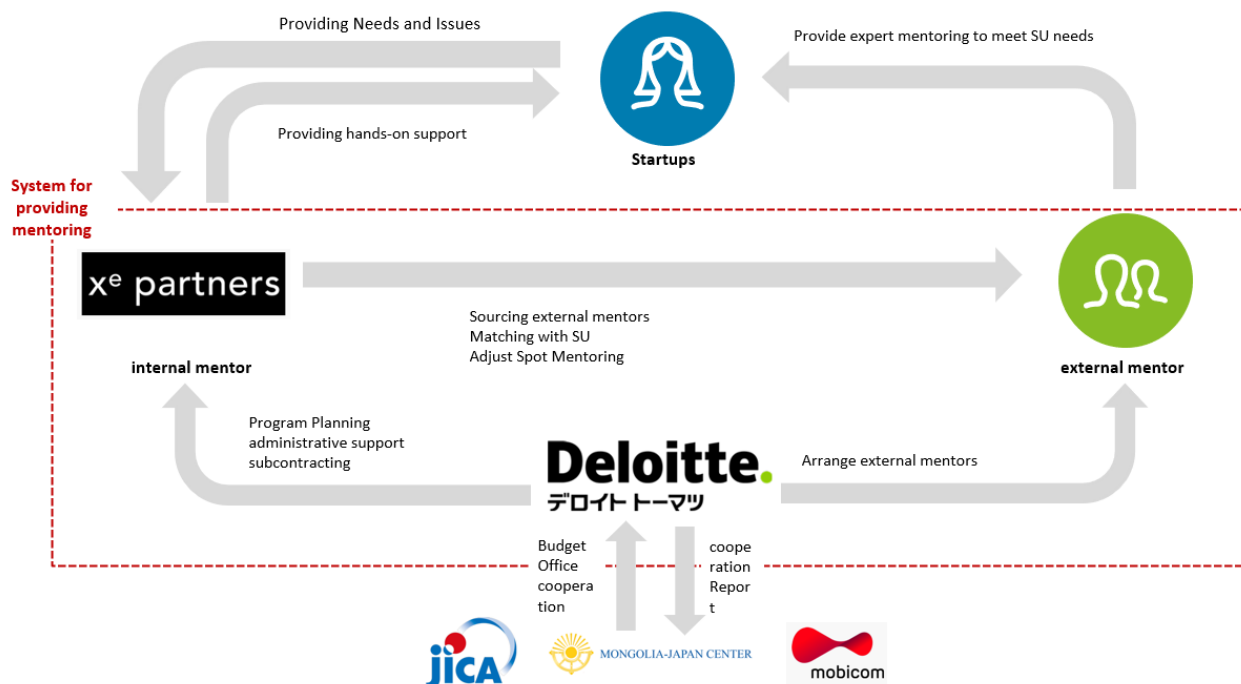
Source: Prepared by the JICA Study Team

Figure 150 Acceleration Program Contents

(f) Mentoring Provision System for PP (3) Acceleration Program

The mentoring system was constructed by internal and external mentors by local accelerators. We provided highly specialized external mentoring while providing hands-on support by internal mentoring for basic brushing up of the business model.

Operational structure of the program of MONJA (3th, 4th)



Source: Prepared by the JICA Study Team

Figure 151 Mentoring Delivery System for Acceleration Programs

2) Selection of local accelerators

Through desktop surveys and interviews, Exponential Zaisan Partners was selected as the local accelerator.

Table 86 Comparison of Local Accelerators

Comparison of local accelerators

Evaluation Criteria:
Relative Evaluation

Summary	Accelerator		Exponential Partners (Founder Institute)	Kite accelerator	Socratus start up Studio
	Support area		No limitation	No limitation	IT, education, fintech, etc.
	Target stage		Pre-seed	Pre-seed	Seed
	Investment Record		One overseas company	Two overseas and five in Mongolia	Invested in program graduates (19 companies)
Comparison item	Industry Understanding		Has a well-organized and in-depth grasp	Has a structured understanding	Has a structured understanding
	Capability	People who can be involved	Three people can be assigned, two of whom have extensive support experience	Three people can be assigned, but only simple support is available.	We couldn't confirm it.
		Support Record	More than 100 companies globally	40 companies (simplified support)	We couldn't confirm it.
		Mentor/Advisor Network	Approx. 15 (Pre-Seed is limited to Mongolia, Seed includes overseas) accelerator program and	Approx. 15 (Overseas: Malaysia, Singapore, etc.) accelerator program and	We couldn't confirm it.
		Services Provided	Coworking Space (Separate preparation is needed)	Coworking Space	Coworking Space
	Expenses				

Source: Prepared by the JICA Study Team

3) Implementation of the MONJA 3rd cohort

(a) Summary

Three companies, Brighton, Airee and Normaric Bear Games, were selected for the MONJA Startup Accelerator Program 3.

Brighton

Applications that accelerate language learning



Company Profile

Year of Establishment	2019
Employee	5-15
Country	Mongolia
Group	Education
Website	https://neolingo.mn/

CEO: Ariuka Altangerel

MBA, entrepreneur with 5 years of experience in Edtech industry in Mongolia. Worked for about 10 years in marketing for UNITEL, a major telecommunications company in Mongolia. After starting a business in the restaurant industry, he founded Brighton.

Business Overview



- Brighton is an Edtech startup focused on accelerating language learning.
- The company developed and provides a language learning app called Neolingo that uses a unique puzzle block method.
- This distinctive language solution condenses the complex task of sentence structuring into a five-block mechanism that results in a two-fold acceleration in language learning.
- Neolingo has been a huge success with over 80,000 downloads, over 10,000 paying customers and \$200,000 in revenue.



Track Record of Fundraising (At the Time of Application)

Date	Type	Amount (US\$)	Main Sources
2022	Pre-seed	\$95K	Socratus startup studio

- Socratus startup studio is an incubator based in Ulaanbaatar, Mongolia that also invests in selected startups in its program.

Future Business Development

- The company aims to achieve overseas sales of about \$600,000 by 2024 by expanding not only in the domestic market but also internationally.
- Over the next five years, the company plans to expand to Japan, South Korea, the United States, the Philippines, and Vietnam.

Airee

Eco-friendly air filter



Company Profile

Year of Establishment	2021
Employee	5-15
Country	Mongolia
Group	Material
Website	https://airee.mn/

CEO: Batdorj Ganbat

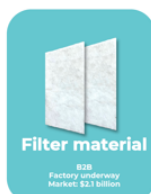
MBA (Master of Business Administration), including manufacturing 20 have someone's management experience

CTO: Batmunkh Myagmardorj

With four years of research experience as a biotechnologist
Founding Airee after 4 years of startup experience

Business Overview

- Airee is a startup that creates sustainable air filters from wool.
- The company is engaged in the production and sale of air filter materials for BtoB and the sale of air purifiers equipped with the company's air filter materials for BtoC.
- The company claims that its materials are fully biodegradable and have high adsorption properties that take advantage of the inherent electromagnetic properties of wool, enabling them to achieve higher and more sustainable performance than conventional synthetic resin filters.



Track Record of Fundraising(At the Time of Application)

Date	Type	Amount (US\$)	Main Sources
N/A	Pre-seed	\$20K	Angel investor

- The company plans to raise funds for mass production and expansion of production capacity.

Future Business Development

- It aims at establishing a production factory of air filter materials for BtoB in 2023.
- In addition to building a production system, we will approach customers globally, such as Germany and SEA, and begin full-scale sales.

Nomadic Bear Games

Software development centered on games

Company Profile

Year of Establishment	2021
Employee	5-15
Country	Mongolia
Group	Games
Website	https://www.nomadicbeargames.com/

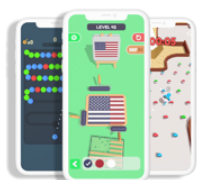
CEO: Turbold Batsaikhan

He has led business development in the information technology and service industries. Has broad knowledge of sales and negotiation, business planning, analytical skills, etc.



Business Overview

- Nomadic Bear Games is a software development startup focused on games with the goal of making Mongolia's economy less dependent on mining.
- To date, the company has developed more than 120 games in the realm of hyper casual and casual games that feature simple controls and visuals, 3 of which have become global hits with a cumulative total of 30 million downloads.
- The company is also developing games that provide educational content and is working on a joint project with UNICEF.



3 hits + 30M downloads

Released 3 hit games in the global market which have around 30 million downloads in worldwide. Most of our downloaded game that has 10M+ downloads.

Track Record of Fundraising (At the Time of Application)

- Currently, there is no fundraising record, but they are planning to raise \$500K in order to strengthen their development capabilities.

Future Business Development

- By the end of 2023, they aim to produce a hit game that will be ranked in the top 100 in the world in the field of hyper casual games.
- By 2025, the company aims to develop blockchain-based games and mid-core games that require more development capabilities.
- It is also considering setting up an academy to provide technology and know-how related to game production.

Figure 152 Outline of selected SU

The outcomes of the program are summarized as follows:

Each startup received a set of inputs, including 10 mentoring sessions (both internal and external), workshops, individual consultations (office hours), and participation in domestic and international events.

On the output side, the program focused on enhancing pitch decks and business proposals, as well as supporting the development of business plans and capital strategies aimed at improving investment readiness for pre-seed fundraising.

Furthermore, through these sessions and events, meaningful relationships were established with venture capital firms, large corporations, and domain experts in both Japan and abroad. Discussions regarding potential investment and collaboration are currently ongoing.

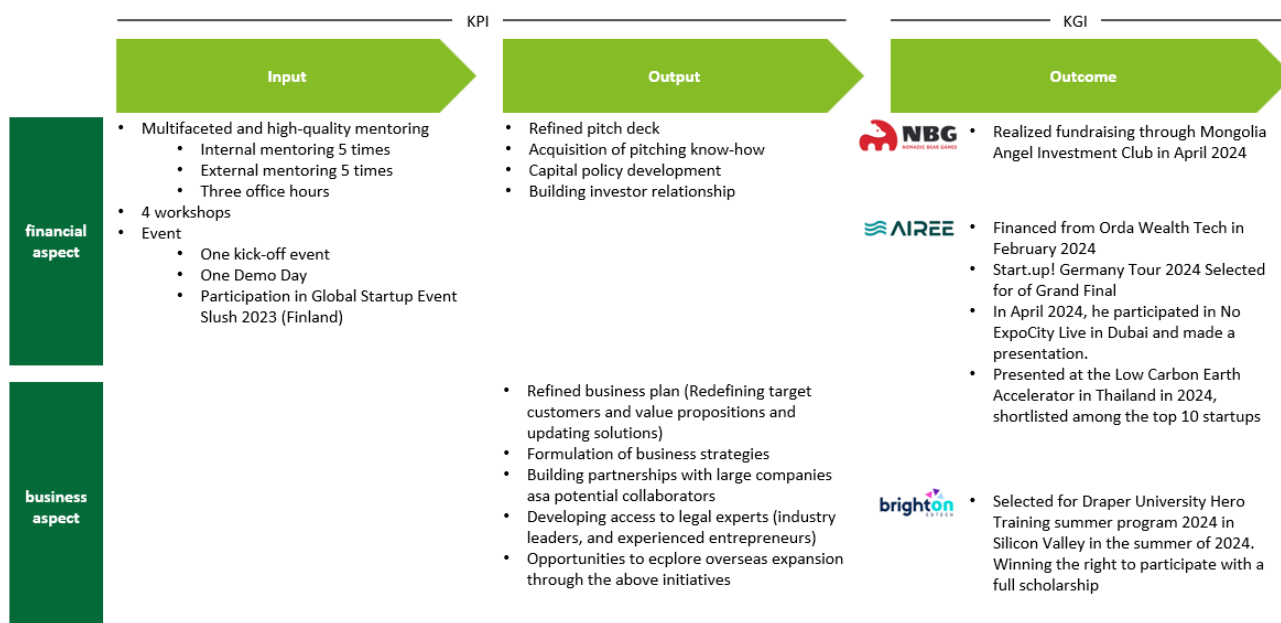
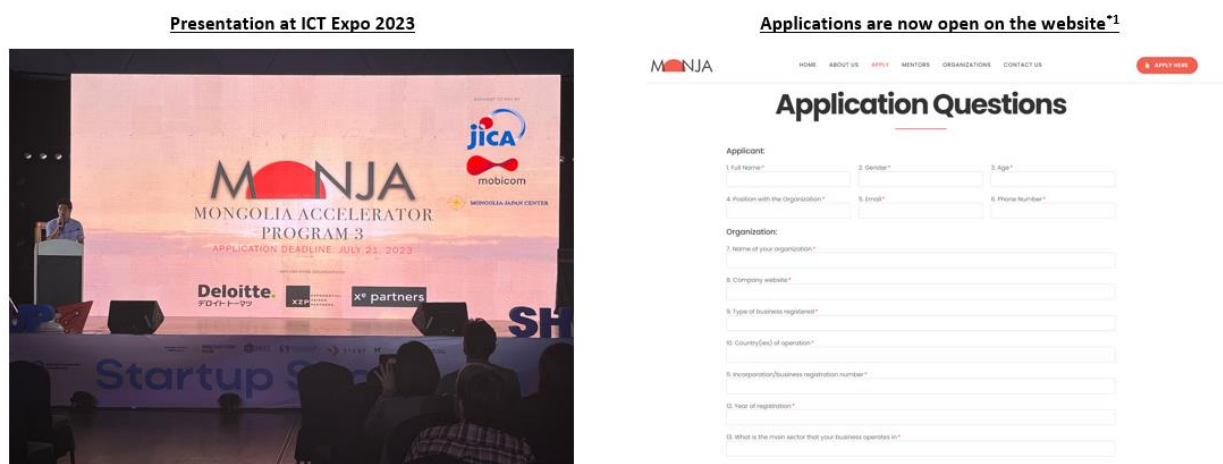


Figure 153 Summary of outcomes of the MONJA 3rd cohort program

(b) Details

At ICT EXPO2023 held in Mongolia in June 2023, we announced the launch of the 3rd MONJA and started accepting applications on our website.



*1:<https://jica-monja.com/>

Figure 154 Recruitment of MONJA 3rd cohort applications

Recruitment and Screening

The application period opened on June 16, 2023. Although the original deadline was set for July 21, it coincided with the Naadam holiday period, and the number of applications remained low. Therefore, the deadline was extended, and the application period officially closed on August 11.

As a result, we received applications from 87 companies. After document screening, 10 companies were shortlisted, and through final interviews, the aforementioned 3 companies were selected.

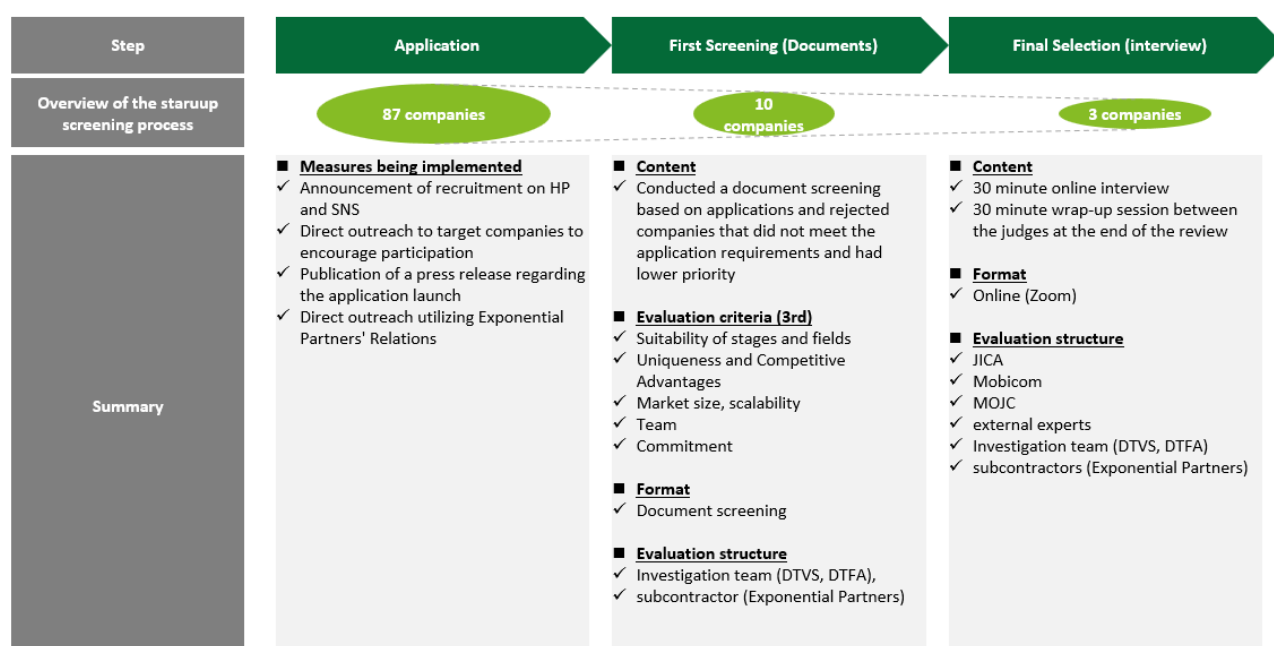


Figure 155 MONJA 3rd cohort screening process and overview

The evaluation criteria are as follows. Points were allocated to each criterion based on its relative importance. Both the document screening and the final selection were assessed using the same set of evaluation criteria.

Table 87 Review criteria for MONJA 3rd cohort SU

Criteria for screening applications		weighting
Stage of business	- Pre-seed~Seed - Close to achieving or has achieved PMF - Raising revenue, customers start to use the service already	22%
Impact/contribution towards the problem	- The problem/challenge that the business is trying to solve is clear - The business has potential of solving the problem/challenge - Impact towards the problem/challenge can be expected	10%
Business model strength/uniqueness	- Clear demonstration of how product/service scale - Understanding of customer base and competition - Clear competitive advantage	22%
Market size/growth opportunity	- Growth and dynamic opportunities; Aligns with market trends - Marketability on international market	22%
Team	- Leadership dedicated and has clear motivation and passion - Advantage (career, achievements, etc.) in the composition of team members - Clarity on future leadership growth and org chart (considerations of new skills)	14%
Commitment to the program	- Clear goal for the program - Able to participate in all program activities	10%
	(total)	100%

Kick-off Event

Announcements of adopted SUs were held at the Japan-Mongolia Business Forum on August 18, 2023 and the kick-off event at M-Office on August 24. The kick-off event was held in a hybrid format and was attended by about 50 participants from the Mongolian SU ecosystem, including the MDDIC, EBRD, domestic and foreign VCs, local companies and accelerators.



Figure 156 MONJA 3rd Cohort Kick-off Event

Program

The program began on August 31, 2023 and concluded with Demo Day on December 9, 2023. Follow-up and monitoring activities have continued since then.

The program lasted approximately three months and included the following components:

Given that the target participants were pre-seed and seed-stage startups, the mentoring framework was structured around four key themes:

Cash (Finance), Strategy (Business Strategy), People (Human Resources/Team Building), and Execution (Operations).

Support was provided through a combination of workshops, internal and external mentoring, and office hours, with regular follow-ups conducted throughout the program.

Table 88 MONJA 3rd Cohort Program Content

#	Item	Type	Topic
1	Orientation & Scaling Up	Mentoring	Introduction & schedule
2	Cash	Workshop	CAC, CPI
3		External Mentoring	Financing in Seed
4		Internal Mentoring	Feedback on Deliverables
5	Strategy	Workshop	Brand Building
6		Office Hour	Cash Challenges
7		Office Hour	Legal Advising
8		Office Hour	Cash Challenges
9		External Mentoring	Expansion Strategy
10		Internal Mentoring	Feedback on Deliverables
11	People	Workshop	Management/deliverables
12		External Mentoring	Tech Challenges and Solutions
13		Internal Mentoring	Preparation for Collaborating with Japanese Corporations
14		Internal Mentoring	Feedback on Deliverables
15		External Mentoring	Co-Founders and Team Building
16	Execution	Workshop	Management Strategy
17		External Mentoring	Accelerate Business
18		Internal Mentoring	Feedback on Deliverables
19	Demo Day	Demo Day	

Individual outputs and outcomes (assumed) are as follows

- Airee
 - Building relationships with individual investors, companies, and other partners for ongoing discussions
- Nomadic Bear Games
 - Realized funding from Mongolia Angel Investment Club, which established contacts through the program



Figure 157 MONJA 3rd cohort mentoring

Demo Day

December 9, 2023 – The Demo Day was held at the Blue Sky Hotel in Ulaanbaatar.

Serving as mentors and judges were Mr. Shotaro Yamanaka from Rakuten Capital and Mr. Laurenz Melchers from MSM Group.

The event was attended by approximately 50 participants from across the Mongolian startup ecosystem, as well as representatives from Japanese companies. Many of the Japanese attendees were part of the Mongolia Business Tour organized by JETRO, which coincided with the Demo Day.

After the three startups gave their pitches, a panel of judges—including representatives from JICA, Mobicom, MOJC, the JICA Study Team, Exponential Partners, Mr. Melchers, and Mr. Yamanaka—voted to select Brighton as the Best Startup of the Program.

Table 89 Demo Day Timeline

MonJa Demo Day Timeline (December 9, 2023)

Time	Content	Presenter
9:00-10:00	Reception	-
10:00-10:05	Program Overview	Exponential Partners
10:05-10:10	Greetings from the support team	Deloitte Tohmatsu Venture Support
10:10-10:20	Opening address	Mongolia-Japan Center Mobicom
10:20-10:30	keynote speech	TBD
10:30-11:20	Startup Pitch/QA	Airee Nomadic Bear Games Brighton
11:20-11:30	MONJA1's Graduation Startup Pitch	Zochil
11:30-11:40	break	
11:40-11:55	Commendation	-
11:55-12:00	Closing Remarks	JICA
12:00-12:30	Networking	-

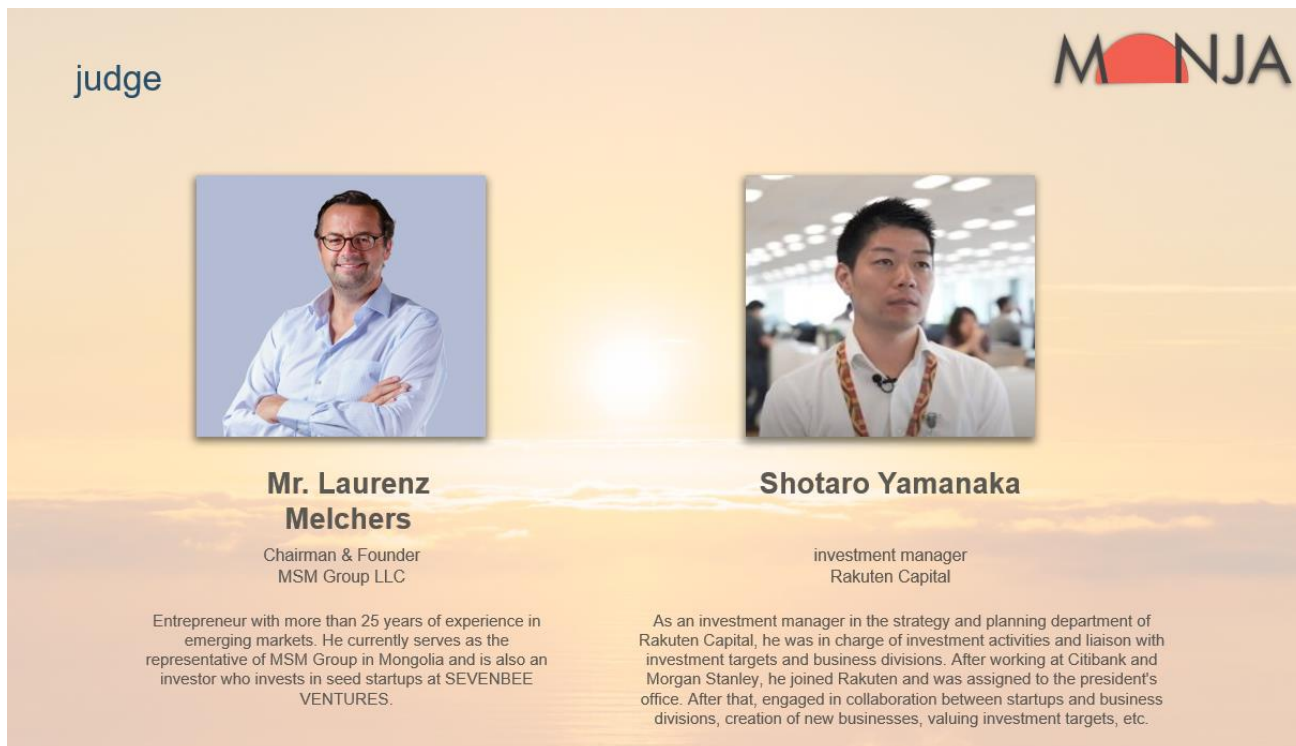


Figure 158 Judges' MSM Gr. Laurenz and Yamanaka of Rakuten Capital

Public Relations

This program was effectively publicized through JICA website and MONJA website (<https://jica-monja.com/>) SNS (Facebook, Instagram, X (formerly Twitter)). A total of 68 posts were made on social media, focusing on the content of each announcement and progress shared.

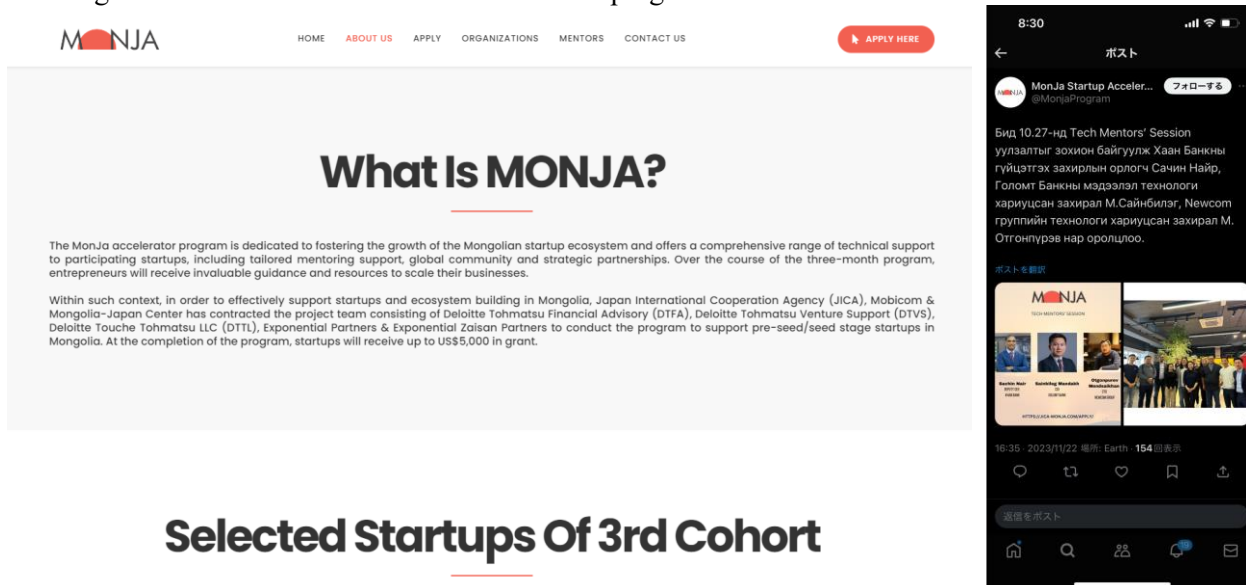


Figure 159 MONJA Website, X Post

Looking back

After the completion of the Demo Day, the JICA Study Team and Exponential Partners conducted a review of the program, focusing on the recruitment process, program content, and the Demo Day itself. Following the conclusion of the program, a questionnaire was distributed to the participating startups. The feedback indicated a very high level of satisfaction among the selected startups.

Review of MONJA3rd Cohort (Pros/Cons)

	Good points	Bad points/issues	Suggested improvements/changes
Application	Approximately 90 applications collected (Startup world cup postponed after only 30 applications collected)	Is it possible to adjust the support target to include more later-stage startups?	- We will conduct prior outreach to gather applications from startups at the early stage and beyond (post-Pre-Series A). The selection process will take into account the expectations for the program and other relevant factors. - On the other hand, it is important to note that other programs offered by organizations such as EBRD and M Starts focus on startups at the early stage and beyond, whereas our program differentiates itself by targeting seed-stage startups. Additionally, fostering seed-stage startups is a critical component for the development of the ecosystem.
Program	- It was well received by startups and there were very few absences. - Because there are 3 companies, we were able to concentrate and support them (Founder institute has 30-40 companies/cohort, little involvement). - Multifaceted contents could be provided. Capital policy input was particularly good (Mongolian SUs have low dilution literacy) - Participation in Third Country Events (They were able to see my company objectively through contact with overseas unicorn SUs.) - Sharing the Deloitte template also led to the EP's education.	- It was difficult to match with collaboration with large companies (However, they will continue to be involved and introduced after graduation.) - Companies are not interested in Mongolia - The startup is still in its infancy, and there is no record of overseas business. - How to increase the involvement of Mobicom and MOJC	- The PoC cost will be allocated to Japan mission, join PP ① and have offline contact with Japanese companies. However, the fact that they are at the seed stage makes matching difficult. - The involvement of Mobicom and MOJC requires further discussion.
Demoday	- The audience was about 50 people. - Cooperation with JETRO enabled Japanese companies to participate	It was a Saturday morning set, and there were few participants from the Mongolian SU ecosystem.	- Strengthen advertising and public relations in cooperation with other organizations - Set a schedule that is easy for Mongolians to access

Figure 160 Retrospective analysis of the MONJA 3rd cohort

Questionnaire Results Summary

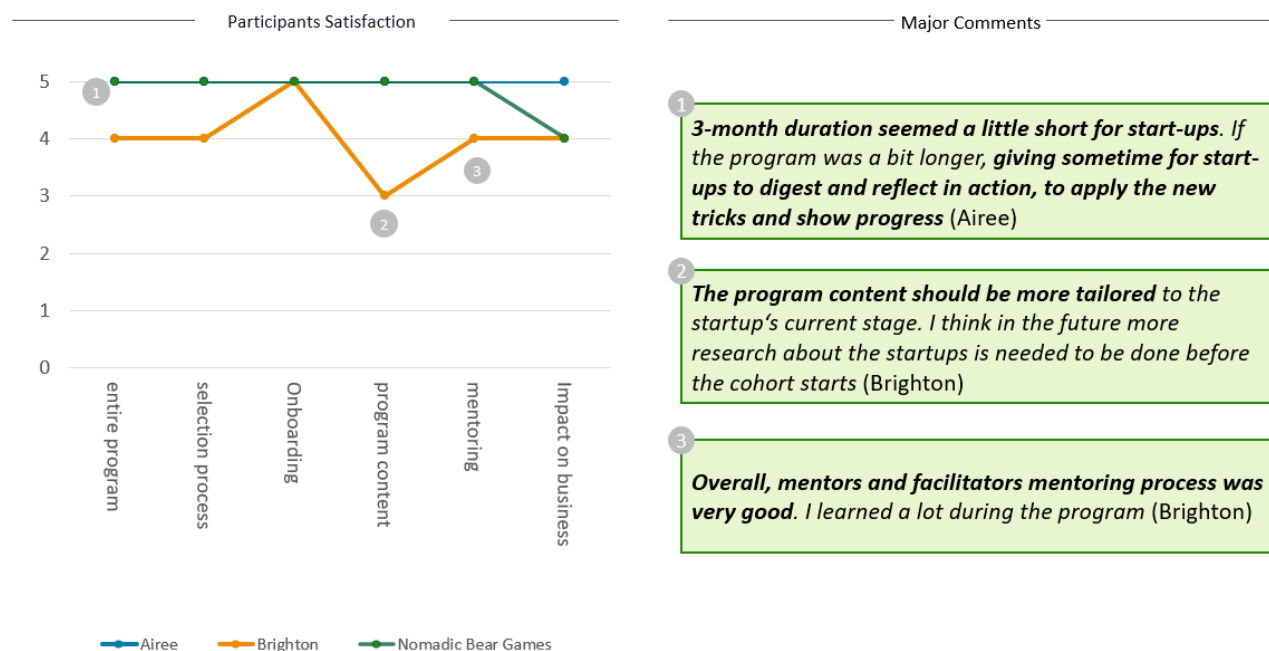


Figure 161 Satisfaction Survey Results of MONJA 3rd Cohort SU

(c) Evaluation

Evaluation after implementation of MONJA 3rd cohort in PP (3) is as follows.

Table 90 Evaluation after implementation of the PP (3) MONJA 3rd cohort

Evaluation Items		Results	Challenges	Suggestions and countermeasures for the next round
Achievement of Objective		The anticipated output was created. In terms of outcomes, the participating SUs are expected to raise funds and generate sales	- It was very difficult to get them involved with Japanese companies. - There are multiple factors such as the small market size of pre-seed SUs and the fact that SUs in Mongolia are out of the scope of Japanese companies and investors.	- Sales, traction, and scalability should be considered in the selection process (it is necessary to consider the overall balance of applicants). - Consideration could be given to inviting selected SU under MONJA to accompany PP(1) to Japan, facilitating opportunities for direct, in-person engagement.
Resources	System	- It was carried out without a hitch. - Four members of Exponential Partners and three members of the JICA Study Team were mainly involved.	- No operational issues are expected until the 4th cohort - MOJC does not have a system to manage the 5th cohort and subsequent cohorts	MOJC will assign one member to the 4th cohort to build relationships with ecosystem stakeholders and transfer knowledge related to support
	Expenses	- PoC costs were reduced from the previous cohort, but there was no negative effect on the number of applications - PoC expenses are used to cover travel expenses to participate in overseas events and prize money at demo days, depending on the needs of participating SUs.	Nothing in particular	Continue to use PoC costs flexibly according to the needs of participating SUs
Preparation	Application	We received 87 applications.	Owing to the overlapping of the recruitment period and Naadam holidays, it was not possible to obtain a sufficient number of applications as per the original schedule and the application period was extended	Set a schedule in consideration of Naadam holidays
	Program	SU liked it very much, and I rarely missed mentoring.	- No particular task - Necessity to design program content of 4th cohort based on that of	4th cohort continues to target seed stage SUs

			3rd cohort to meet the needs of SUs	
		• We could hardly establish contacts with Japanese companies.	• As described above	• As described above
		• During the program, Mobicom had little involvement beyond the provision of M-Office and MOJC had little overall involvement	• We should have explored the scope of Mobicom's knowledge of large companies and the use of relations. • MOJC was difficult to involve because it did not have the knowledge and structure	• For SUs in Telecommunication sector, provide contact with Mobicom • As for MOJC, as mentioned in the organizational aspect
		• We were able to provide global experience by using PoC expenses to participate in third country events	• Nothing in particular	• The 4th cohort should also consider the use of this expense for overseas experience, such as Japan Mission.
Operation	Demoday	• The audience was about 50 people. • Through cooperation with JETRO, we were able to recruit participants from Japanese companies.	• Participation of stakeholders from the Mongolian ecosystem was low • The date and time was set at 10:00 AM on Saturday and access by Mongolians was poor.	• Set a schedule that is easily accessible to Mongolians • Strengthen cooperation and communication with related organizations
After implementation	Follow-up	• Expect to conduct questionnaires in the short term and press releases and regular contacts with SUs in the medium to long term.	• None	• None

4) Implementation of the MONJA 4th cohort

(a) Summary

Mazaal AI, SEM Binonics LLC, and Smart Contract Mongolia LLC were selected for the MONJA Startup Accelerator Program 4.

Mazaal AI

No-code AI development platform for enterprises



Company Profile

Year of Establishment	2023
Employee	6
Country	Mongolia, Australia
Group	IT
Website	https://mazaal.ai/

CEO: Enkhbold Bataa

He spent 10 years in AI consulting at McKinsey. He is the developer of ChatGPT exaBase for the enterprise and a researcher in AI.



Business Overview

- Mazaal AI is a startup that offers a user-friendly no-code AI platform focused on unstructured data
- Need: Companies that are considering AI but are finding it difficult to develop and implement it
- Product: Model optimization, deployment, and monitoringA no-code AI platform that includes features such as data labeling and active learning. It takes scientists 3~6 months to build an AI in a matter of days. High price advantage of \$49 ~ per month



Track Record of Fundraising (At the Time of Application)

Type	Amount (US\$)	Others
Australian Government Grant and Friends & Family	\$200K	N/A

- It is currently raising funds and will close in the coming months.

Future Business Development

- Over the next two to five years, we aim to increase our market presence, diversify our products, and leverage technology to improve operational efficiency and customer experience.
- After expanding into Mongolia and Australia, the company plans to expand into the US and Europe.

SEM Bionics LLC

Parking space with EV charging facility



Company Profile

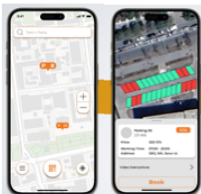
Year of Establishment	2019
Employee	24
Country	Mongolia, USA
Group	Robotics, Bionics, Electronics, Software, IoT, EV charging and parking automation
Website	http://www.evqparking.com

CEO: Tulga Galbadrakh

Master's degree in electronic engineering. Developed Smart Taxi, a taxi dispatch system, and provided the system to UBCAB, the largest taxi dispatch platform in Mongolia. It has knowledge in the field of mobility sharing economy.



Business Overview



- SEM Bionics LLC is a startup that offers parking spaces with EV charging
- Needs: Lack of EV charging facilities in cities, efficient operation of parking spaces, reduction of traffic congestion, security when parking
- Product: EV Qparking, a smart solution for the management of EV charging stations and the optimization and safety management of parking spaces



Track Record of Fundraising (At the Time of Application)

Type	Amount (US\$)	Others
PreSeed Equity Donation	\$6K	They received donation of 6,000USD for 20% of their equity for first donors to research and develop their first bionic hands

- It is currently raising funds and will close in June.

Future Business Development

- The company plans to set up 3,000 to 10,000 parking spaces in Ulaanbaatar.
- In addition to the domestic market, the company plans to expand internationally into the United States, Central Asia, and Oceania.

Smart Contract Mongolia LLC

Contract management system using Blockchain technology



Company Profile

Year of Establishment	2023
Employee	12
Country	Mongolia
Group	Software Service
Website	www.e-geree.mn

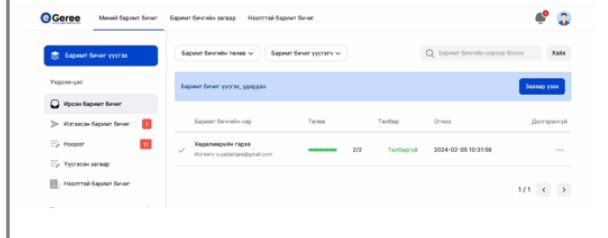
CEO: Tuguldur Bayarsaikhan

He holds degrees in Computer Science Management and Law.
Since 2017 he has been the project manager of the "Euro Eco Tugul" project implemented by the Czech FINEP Group in Erdenet.
Co-founded Powered LLC and created the YESH app.



Business Overview

- Blockchain-based contract management system "E-Geree.mn" startup
- Need: More efficient contract signing and management
- Product: Provides a contract management system with 150 contract templates and the ability to create, digitally sign, track and archive all types of documents. Offered to companies and governments on a subscription model



Track Record of Fundraising (At the Time of Application)

- Since it is a subsidiary of Powered LLC, it is funded by the parent company and has no record of external procurement at this time.
- It is currently raising funds and is in talks with several investors.
- Participating in Startup Challenge Mongolia.

Future Business Development

- Planned to provide services to governments, businesses and citizens in Mongolia.
- We are not considering international expansion at this time.

Source: Prepared by the JICA Study Team based on the application documents
Figure 162 Outline of adopted SU

The program was carried out according to the following schedule.

Schedule

	April	May	June	July	August	September	October	November	December	January	February	March
Milestone	★Application open (4/1)		★Deadline for applications (5/24)		★Kickoff Event (8/8)	★Japan Biz Forum (8/19)		★Japan mission(9/8~9/15)	★Demo Day(11/29)			
Organizer MTG	Held every other week											
Recruiting	Application	Application										
	Screening		Primary audit (6/6) Final Review (6/17, 6/18)									
	Selecting SU		Decisions and announcements (6/21)									
Program	Updating Contents		Conduct hearings on needs Updating Contents									
	Kickoff Event			Preparation		Implementation (8/8)						
	Mentoring					Implementation						
	Japan trip				Preparation	Implementation(9/8 – 9/15)						
	Seminars/Workshops					Seminars/Workshops						
	Networking Events					Implement as appropriate						
	Demo Day						Preparation	Implementation (11/29)				

Source: Prepared by the JICA Study Team
Figure 163 MONJA4th Cohort Schedule

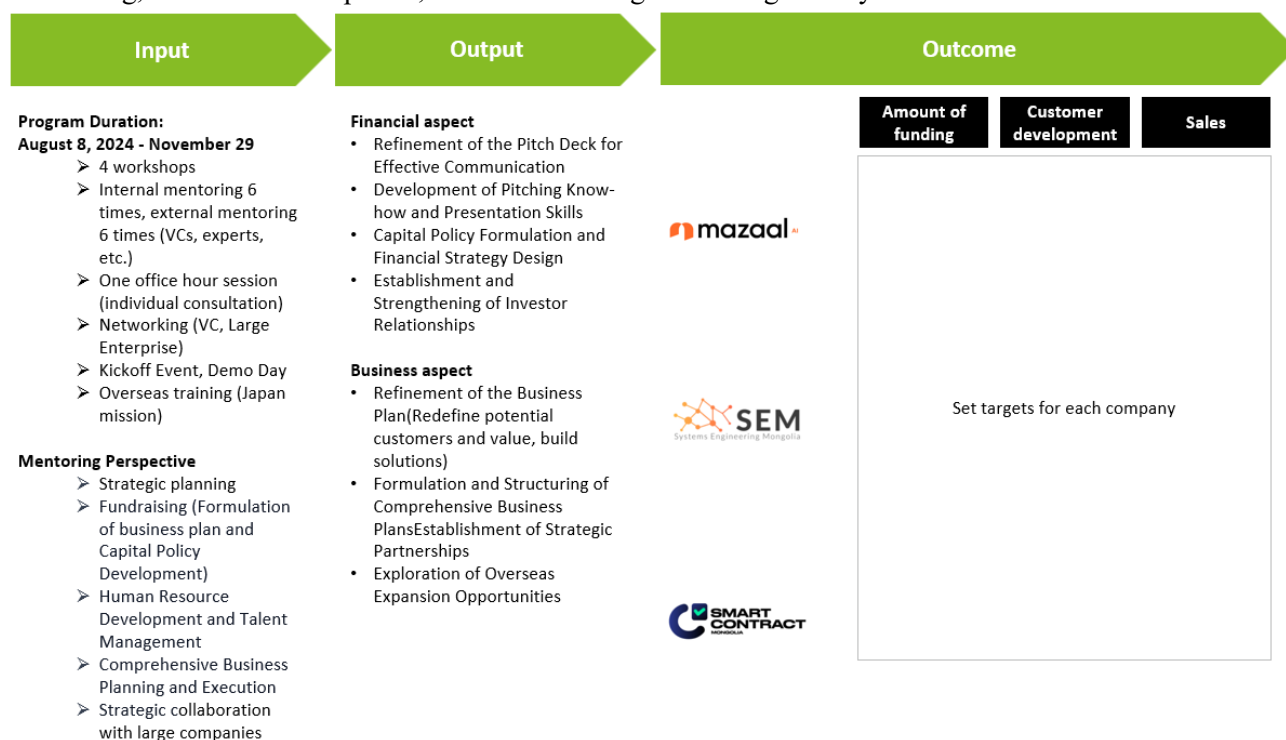
The results of the program are as follows:

Each startup received the following support as inputs: 12 internal and external mentoring sessions, 4 workshops, 1 individual consultation session (office hours), and participation in both domestic and international events.

A total of 14 external mentors participated as instructors. The program also emphasized networking with domestic and international VCs, large companies, and industry experts, and arranged interview opportunities with a total of 63 organizations:

- Mazaal AI: 15
- SEM Binonics LLC: 20
- Smart Contract Mongolia LLC: 28

In the 4th cohort, each participating startup set goals at the beginning of the program from three perspectives: fundraising, customer development, and sales. These goals were generally achieved.



Source: Prepared by the JICA Study Team

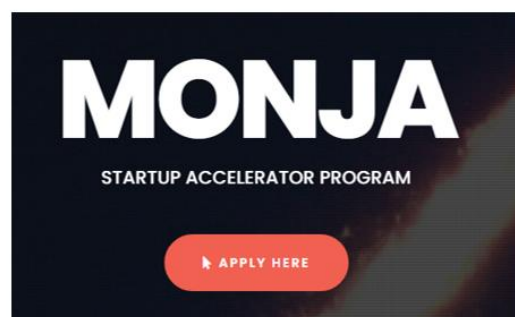
Figure 164 Summary of outcomes of the MONJA 4th cohort program

(b) Details

Application

Applications for "MONJA Startup Accelerator Program 4" were accepted on the website from April 1, 2024.

Start accepting applications on website ^{*1}



^{*1}: [MonJa Startup Accelerator Program \(jica-monja.com\)](http://MonJa Startup Accelerator Program (jica-monja.com))

Application Questions

Applicant:

1. First Name *	2. Surname *	3. Gender *	4. Age *
5. Position with the Organization *	6. If other, please specify *	7. Phone Number *	8. Alternative Phone Number *
9. Email Address *	10. Alternative Email Address *		
11. Name of your organization *			
12. Company web address *			
13. Type of business registered *			
14. Country(ies) of operation *			
15. Incorporation/business registration number *			

Source: MONJA HP

Figure 165 MONJA 4th cohort application form

Recruitment and Screening

Recruitment for the MONJA 4th cohort started on the website on April 1, 2024. The application deadline was set at May 17, but due to the small number of applications, the deadline was extended and applications closed on May 24. As a result, we received applications from 57 companies, narrowed it down to 10 companies through the document screening, and selected the aforementioned 3 companies through interviews in the final screening. Although the number of applications decreased compared to the MONJA 3rd cohort, it is assumed that the number of SUs in Mongolia is around 200, which means that nearly 30% of all SUs applied. Although we have not been able to clearly analyze the factors behind the decrease in the number of applications, one possible reason is that the overall number of applications decreased due to the decrease in the number of SMEs in the total number of applications.

The evaluation criteria were set as shown in the table below, with each item weighted according to its relative importance.

In the 4th cohort, the criteria "Degree of Impact/Contribution to Issues" and "Strength/Uniqueness of Business Model", which were previously evaluated separately in the 3rd cohort, were integrated into a single criterion: "Strength/Uniqueness of Business Model".

As part of this change, the weight assigned to "Degree of Impact/Contribution to Issues" was increased from 10% to 22%, based on the recognition that the most critical success factors for startups in the early stage are:

- (1) Clearly defined problems,
- (2) Solution fit with the problem (i.e., Problem-Solution Fit [PSF]), and
- (3) Strong customer needs.

In addition, the weight for the "Team" criterion was raised from 14% to 22%, reflecting its vital importance in the early startup phase.

Similarly, the weight for "Commitment to the Program" was increased from 10% to 12%, as a high level of engagement is essential to generate tangible outcomes from the program.

Furthermore, during the final review, in addition to document evaluation, bonus points were awarded based on whether the proposed product or service contributes to addressing social issues in Mongolia.

Changes in Evaluation Framework

3rd Cohort		4th Cohort		
Evaluation Perspectives	Score	Evaluation Perspectives	Evaluation Criteria	Score
Startup stage	1~5 points ×22%	Startup stage	① Pre-seed~Seed ② Raising revenue, customers start to use the service already	1~5 points ×22%
Degree of impact and contribution to issues	1~5 Points ×10%	Strengths/unique ness of business model	① The problem/challenge that the business is trying to solve is clear ② The business has potential of solving the problem/challenge ③ Clear demonstration of how product/service scale ④ Clear competitive advantage	1~5 Points ×22%
Strengths/unique ness of business model	1~5 points ×22%			
Market Size/Growth Opportunities	1~5 points ×22%	Market Size/Growth Opportunities	① Growth and dynamic opportunities; Aligns with market trends ② Marketability on international market	1~5 points ×22%
Team	1 to 5 points ×14%	Team	① Leadership dedicated and has clear motivation and passion ② Advantage (career, achievements, etc.) in the composition of team members ③ Clarity on future leadership growth and org chart (considerations of new skills)	1~5 points ×22%
Commitment to the program	1 to 5 points ×10%	Commitment to the program	① Clear goal for the program ② Match on challenge the startups have to address and value provided through program ③ Availability and willingness of founders to participate in all program activities	1 to 5 points ×12%
Total		100 points		
additional point item		① Does the product/service contribute to solving social issues in Mongolia?	1 to 5 points ×5%	
		105 points (max.)		

*Consider only final Screening

Source: Prepared by the JICA Study Team

Figure 166 Review criteria for MONJA 4th cohort SU

Kick-off Event

The SU was unveiled on August 8, 2024 at the M-Office co-working center operated by Mobicom. The kick-off event was held in a hybrid format and was attended by about 20 people involved in the local startup ecosystem, including local companies, financial institutions, government agencies, and international development organizations.

AGENDA FOR TODAY		MONJA
15:30 - 16:00	Registration	
16:00 - 16:05	Welcome and Introduction - Mr. Satoshi Imura, Manager, Deloitte Tohmatsu Venture Support	
16:05 - 16:15	Overview of the MonJa Acceleration Program - Ms. Gema Gerelsaikhan, Managing Partner, Exponential Zaisan Partners	
16:15 - 16:20	Keynote Speech - Mr. Izaki Hiroshi, JICA Chief Advisor Expert, Mongolia-Japan Center for Human Resources Development	
16:20 - 16:25	Keynote Speech - Mr. Unenbat Baatar, CSO, Mobicom	
16:25 - 16:30	Guest Speech - Mr. Hannes Takacs, Head of EBRD in Mongolia	
16:30 - 16:35	Guest Speech - Mr. Jadamba Tsagaan-Uvgun, Advisor, Ministry of Digital Development, Innovation & Communications	
16:35 - 16:45	Alumni speech - Alree	
16:45 - 16:55	MonJa Co-hort 4 startup pitches - Smart Contract	
16:55 - 17:05	MonJa Co-hort 4 startup pitches - SEM	
17:05 - 17:15	MonJa Co-hort 4 startup pitches - Mazaal AI	
17:15 - 17:20	Closing speech - Mr. Tanaka Shinichi, JICA	
17:20 - 18:00	Networking	

Figure 167 MONJA 4th Cohort Kick-off Event Timetable



Figure 168 MONJA 4th Cohort Kick-off Event

Program

The contents of the program are as follows:

Table 91 Outline of MONJA 4th cohort program

#	Date and time	Content Name	Type	Content Overview
1	8/8	Kickoff Event	Event	Kick-off event held at MOOffice co-working center
2	8/9	Orientation (1)	Internal Mentoring	Interviews with selected companies on program expectations and current status
3	8/26	Seminar on cooperation with Japanese companies	External mentoring	Seminar on preparation for collaboration with Japanese companies
4	8/29	Orientation (2)	Internal Mentoring	Set KPIs and share program schedules
5	9/5	① Cash	Workshop	Workshop on Cash Management and Financing
6	9/9~9/13	Japan mission	Overseas Training	Participated in the Japan mission conducted in the pilot project ①. Organizing ecosystem tours and pitch events in Japan and business matching with Japanese companies
7	9/17	① Cash	External Mentoring	Implementation of pitch and QA session by SU
8	9/24	① Cash	Internal Mentoring	Seminar on Seed Funding with External Mentors
9	9/26	② Strategy	Workshop	Review homework prepared by each company and conduct discussions on individual issues
10	10/3		Workshop	Conducting workshops on business development strategies and exit strategies
11	10/10		External Mentoring	Implementation of pitch and QA session by SU
12	10/15	Tech Mentors' session	External Mentoring	Conducting seminars on business development by external mentors
13	10/17	③ People	Internal Mentoring	Review homework (capital policy table and strategic planning sheet) prepared by each company and conduct discussions on individual issues
14	10/24		Workshop	Conducting workshops on team management and strategies for acquiring and retaining right people
15	10/31		External Mentoring	Implementation of pitch and QA session by SU
16	11/7	④ Execution	External Mentoring	Seminar conducted by external mentors on important points from the perspective of human resources at SU
17	11/14		Internal Mentoring	Discussions on human resource management and retention at each company were conducted using current employees as specific examples.
18	11/21		Workshop	Discuss each company's sales and future goals
19	11/29	Demo Day	Event	Introduced major insurance companies in Mongolia

Source: Prepared by the JICA Study Team

Individual outputs and outcomes (assumed) are as follows.

- Smart Contract Mongolia LLC
 - Socratus Studio raises \$60K in funding
 - Win \$22K from Startup Challenge Mongolia.
 - Signed an agreement with Monre Insurance for networking.

Demo Day

November 29, 2024 – The Demo Day was held at the IT Park in Ulaanbaatar.

Azjargal Ulziitogtokh, CEO of Tenger Capital, and Khandmaa Dashnya, CEO of Innohub Mongolia, were invited as judges.

The event was attended by approximately 50 participants from across the Mongolian startup ecosystem, as well as representatives from Japanese companies.

After the three startups delivered their pitches, JICA, Mobicom, MOJC, and the two judges—Azjargal Ulziitogtokh and Khandmaa Dashnya—voted to select Mazaal AI as the Best Startup of the Program.

AGENDA			MONJA	
Time	Concept	Presenter		
15:30-16:00	Registration			
16:00-16:10	Brief overview of the event agenda and goals	Ms. Gema Gerelsaikhan, EP		
16:10-16:15	Opening remark	Mr. Miyagi Kensuke, JICA		
16:15-16:20	Opening remark	Mr. Batbayar Ishjams, Mobicom		
16:20-16:25	Deliver a keynote speech	Ms. Shurentsetseg Mintegdorj, IT Park		
16:25-16:35	MonJa Co-hort 4 startup pitch, Q/A	Mr. Javkhlan Rentsendorj, Smart Contract		
16:35-16:45	MonJa Co-hort 4 startup pitches, Q/A	Mr. Tulga Galbadrakh, SEM		
16:45-16:55	MonJa Co-hort 4 startup pitches, Q/A	Mr. Enod Bataa, Mazaal AI		
16:55-17:05	Alumni startup pitch	Mr. Turbold Batsaikhan, Nomadic Bear Games		
17:05-17:15	Break			
17:15-17:25	Announcement of the best startup pitch			
17:25-17:30	Closing remarks	Mr. Izaki Hiroshi, Mongolia Japan Center		
17:30-17:50	SIH Program Introduction and team pitches	JICA and Dream Incubator Inc. team pitch by Ms. Maral Davaanyam		
17:50-18:30	Networking			

Figure 169 MONJA 4th Cohort Demo Day Timetable

EXTERNAL Judges

MONJA



Ms Azjargal Ulziitogtokh
CEO
Tenger Capital





Ms Khandmaa Dashnya
CEO
Innohub Mongolia



Figure 170 Judges Azjargal Ulziitogtokh and Khandmaa Dashnya



Figure 171 MONJA 4th cohort demo day

Review

After the completion of the Demo Day, the JICA Study Team and Exponential Partners conducted a review of the program, focusing on recruitment, program content, and the Demo Day itself.

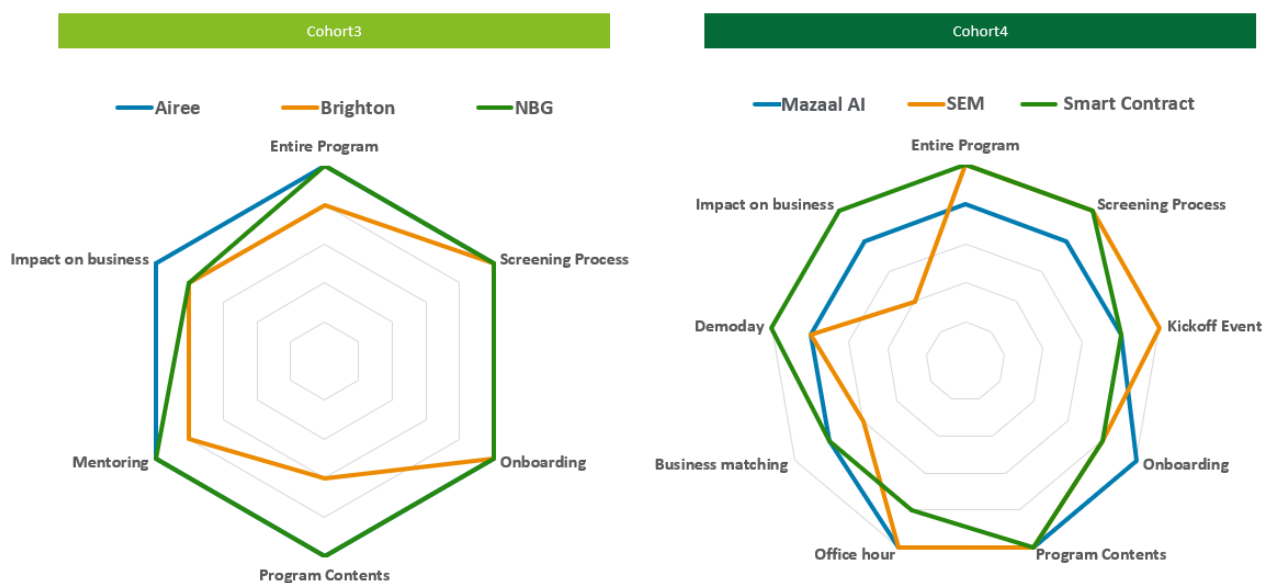
Following the conclusion of the program, questionnaires were distributed to the selected startups.

The feedback indicated a high level of satisfaction, with several participants expressing that they would recommend the program to other companies as a valuable initiative in Mongolia.

On the other hand, participants also provided comments and suggestions related to:

- Event participation,
- The structure and personalization of mentoring, and
- Business matching with Japanese companies.

Satisfaction of selected startups



Source: Prepared by the JICA Study Team

Figure 172 Results of the MONJA 4th cohort SU satisfaction survey (1)

	evaluation comment	Comments on improvements
	- The environment provided by the program, the network provided, and the mentors were all great, and I would recommend other startups to join. Networking in particular was greatly expanded through the program. - Thanks to the program's input, they also managed to raise 200 million tuglugs from Socratus Studio.	Nothing in particular
	- Business strategies, processes, and organizational structures were reviewed and refined in depth. - The mentors I met in the program served as potential customers in the pipeline, and I had a very useful meeting. In addition, we are in discussions with government agencies to spread the solution, and the support from JICA, Deloitte, and Exponential Partners has led to trust from the government officials and supported the negotiations. - I would recommend it to other startups. The support perspective and networking provided are both practical and in line with the Mongolian startup environment, and I think many participating companies can grow.	- It would be even better if we could attract more willing investors and potential customers, he said. - While the meetings with Japanese companies during the Japan Mission were valuable, there were differences in their willingness to collaborate. I would appreciate it if we could make Japanese companies more interested in this project. - I would like more financial support (at least USD10K)
	- Our biggest achievement was the establishment of our business strategy. We were also able to build a pipeline of investors and clients. - This is the best support program in Mongolia and I would recommend it to other startups.	- While the program content is rich, I think there are some things that can be streamlined. We wanted more specific input on SaaS metrics and financial aspects. - I think the Japan mission would make business discussions in Japan more effective if they could talk with Japanese companies online before going to Japan.

Source: Prepared by the JICA Study Team

Figure 173 Results of the MONJA 4th cohort SU satisfaction survey (2)

In addition, one of the key outcomes of implementing the pilot project was the strengthening of local accelerators' capacity.

Their support capabilities were analyzed from two perspectives:

- (1) Mentoring capabilities
- (2) Networking capabilities

Regarding mentoring capabilities, the content and materials related to mentoring design were refined through the experience of the two pilot projects.

In terms of networking capabilities, many of the additional mentors involved in the MONJA program were drawn from the local accelerator's own network.

Moreover, the pilot project contributed to increased visibility in Japan and overseas, which also helped strengthen the accelerator's relationship-building capacity.

That said, there remains a need to further strengthen networks with overseas investors and strategic partners.

Public Relations

This program was effectively publicized through JICA website and MONJA website (<https://jica-monja.com/>)SNS(Facebook, Instagram, X (formerly Twitter)).

(C) Evaluation

The evaluation after implementation of PP (3) is as follows.

Table 92 Evaluation after implementation of the PP (3) MONJA 4th cohort

Evaluation Items		Ideas based on issues from the previous event	Results
Achievement of Objective		To select high quality SUs, we focused more on sales, traction, and scalability.	We were able to generate more outcomes than we had anticipated in advance, such as raising funds, gaining traction, and contributing to sales.
Resources	System	- As before, 4 members of Exponential Partners and 2 members of the JICA Study Team were mainly involved. - In order to increase MOJC's level of involvement, we requested them to deliver a seminar for business expansion into Japan.	- The whole program went smoothly. - We were able to increase MOJC's level of involvement, but we were unable to transfer specific knowledge at the operational level. - As with the 3rd cohort, Mobicom had little involvement during the program other than providing M-Office
	Expenses	The use of funds was limited to the Japan Mission in order to establish contacts with Japanese companies.	The cost was sufficient for the implementation of the Japan Mission, and the application was appropriate.
Preparation	Application	In light of the Nardam holiday, we set a recruitment and deadline schedule.	Although the number of applications was lower than that of the 3rd cohort, it was able to obtain 60 applications. We will continue to strengthen cooperation with subcontractors and related organizations to increase the number of applications.
		-	Mazaal AI was the Australian SU. As long as the Mongolian SU makes Mongolia its business site, there will be no major problem, but the treatment will be discussed and agreed upon in advance.
	Program	No major updates.	(iii) As with the 3rd cohort, the SUs were generally well received, but some SUs requested input with higher expertise than SaaS or finance, etc. Therefore, after prior consideration of the sophistication of content, consideration will be given to adding it to the selection criteria for subcontractors.
		In the 3rd cohort, since establishing contacts with Japanese companies was an issue, the use of PoC costs was made to be expenses for participation in the Japan Mission, and travel to Japan was added to the program	We were able to establish contacts with Japanese companies. On the other hand, regarding the accuracy of meetings, there is room for improvement as stated by SU.
Operation	Demoday	Based on the lessons learned from the rd cohort, we set a date and time that is easy for the audience to attend.	- As a result, we were able to attract about 50 participants. - Participation of Japanese companies such as Nippon Koei Co., Ltd.
After Implementation	Follow-up	No major updates	Through Exponential Partners, we were able to properly grasp the trend of graduating SUs. Continue to conduct surveys in the short term and press releases and regular contact with SUs in the medium to long term

4. Pilot Project (4): Consideration and implementation of a program to develop students majoring in ICT area

A competition-style program was held with the aim of further promoting deep learning in Mongolia and fostering human resources in ICT and engineering.

1) Implementation policy

The program was held with 2 objectives; (1) To further disseminate deep learning in Mongolia and develop human resources in ICT and engineering, (2) To understand the capabilities of Mongolian students and verify their abilities, strengths, and characteristics, as well as the content of additional training required to obtain employment opportunities. Specifically, a competition-style program involving 10 teams was held twice during the period. Details are described below.

(a) Overall Policy (Points to be noted)

The following points were taken into consideration in the implementation of the project.

- The timing and content of the program will be reviewed to ensure consistency and development of the program with reference to the "Deep Learning Competition Mongolia 2022" and the "DXCUP" scheduled to be implemented in June 2023 (It was initially assumed that the second program would be implemented as part of this study, but as a result of coordination, it was decided that the second program would be implemented under the initiative of JICA and the third and fourth programs would be implemented as part of this study).
- In addition to conducting a review at the completion of the first and second rounds so that the content can be brushed up in the third and subsequent programs, care should be taken to verify the hypothesis as JICA's assistance program after this survey.
- On the Mongolian side, the MDDIC, the Ministry of Education, other related government agencies, universities, technical colleges, etc. will be involved from the planning stage to attract visitors.
- On the Japanese side, the planning will also consider collaboration with the Japan Deep Learning Association, including collaboration with the National College of Technology Deep Learning Contest (DCON).

(b) Schedule

While considering the optimal timing in light of the schedules of universities, technical colleges, and other institutions in Mongolia, the program was implemented using the basic process shown in the figure below. As of July 2024, the status of the study is as follows:

- As for the timing of the 3rd DXCUP, we confirmed the schedule of Mongolian universities and technical colleges through on-site interviews with relevant personnel, and determined that a schedule of recruiting and selecting students in September 2023 and holding the final presentation in December 2023 would be appropriate.
- Based on the cooperation and coordination with DCON (the application deadline is at the end of September each year, and the judging is held in January), the application period for participating students was about three weeks from the first week of September, selection was completed by October 7, prototyping and mentoring for each team was conducted for about two months, and the 3rd DXCUP was held on the second weekend of December. The coordination with the DCON was specifically designed to allow teams wishing to participate in the DCON to participate in the DXCUP without difficulty, and specifically to (1) align the judging criteria, (2) align the format of the final presentation, and (3) align the schedule of the DXCUP (so that the deadline for DCON applications, which require applications in Japanese, is after the deadline for the DXCUP application).
- After the 3rd DXCUP, interviews were conducted with the judges and the winning and prize-winning teams, and several measures for improvement were considered for the 4th DXCUP. The committee decided to implement the competition on a schedule similar to that of the 3rd DXCUP.

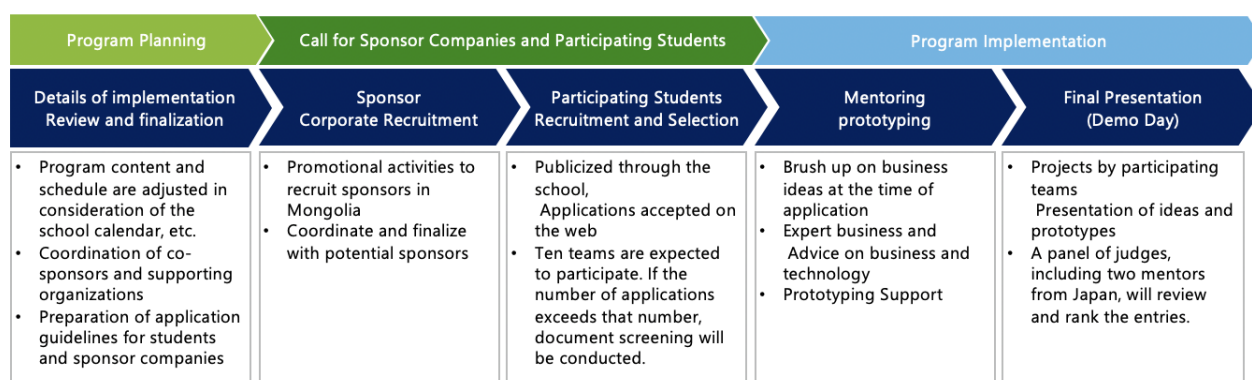


Figure 174 ICT Area Major Student Development Program Implementation Process

(c) Call for Sponsor Companies and Participating Students

The project team call for sponsor companies in order to promote local self-startup and co-creation between companies and students after the completion of this study. In recruiting sponsor companies and participating students, both push and pull approaches will be used to ensure the pinpoint participation of promising companies while conducting broad publicity. In addition, for the 4th DXCUP, high school students were allowed to participate for the first time since the 1st DXCUP, and a wide range of publicity was conducted.

- Push type: In addition to a direct approach utilizing the network of the JICA Study Team and related organizations, a pre-event is under consideration.
- Pull-type: Extensive publicity through websites, etc.

Potential approach targets for companies, universities, etc. by push type

Sponsor business candidate	- Mobicom / KDDI Corporation - Other member companies of the Mongolian-Japanese Chamber of Commerce and Industry
school	- National University of Mongolia - Mongolian University of Science and Technology 3 Mongolian National Colleges of Technology (Mongolian National College of Technology, Mongolian National College of Science and Technology, and New Mongolian National College of Technology), etc. (Only technical college and university students are allowed to participate in the third session.)
Other	- For events for students, it is effective to approach from the laboratory, so Japanese National Colleges of Technology (Nagaoka National College of Technology, Miyakonojo National College of Technology, etc.) that have exchanges with Mongolia will also be notified of the event. - Promote collaboration with DX Association's own summer program for technical college students (prototyping workshop held in July and August). - Holding pre-events to increase awareness of the program and promote applications is also under consideration.

Red: Changes from the original plan



Student recruitment website for the Data Science Applications Program (past examples)

Figure 175 Approach to recruiting sponsor companies and participating students

(d) Mentoring and prototyping

In mentoring and prototyping, support was provided from both business and technical perspectives, considering the implementation status of past programs.

Through mentoring, the 10 participating teams were provided with business and technical advice by experts to brush up their business ideas, as well as assistance in creating prototypes of their business ideas. Mentoring

sessions were held around 2-month period with a frequency of about 2-4 times/team. At one of these meetings, a joint interim presentation was made, and the mentees had an opportunity to receive feedback from the mentor candidates listed below. Mentoring was conducted from both the business and technical aspects, as shown in the figure below.

business aspects	• Customer understanding, marketability • business model • fundraising • organization building • Intellectual property strategy, etc.	Candidate for technical mentor • Deep Learning Association of Japan, Inc. (DTTL is a PLATINUM sponsor of the Association) • Development Center, LINE Fukuoka Co. (Mentor for hackathon conducted by DTTL) • Nagaoka National College of Technology Department of Electrical and Electronic Systems Engineering (Collaboration with Mongolian National College of Technology in Industrial DX) Candidate for business mentor • Mirai Creative Organization, Inc. (Served as a judge in previous years' programs) • Cyclo Hygeia Co. (Representative of a technical college graduate can assist with intellectual property, business strategy, etc.) In addition to the above, we are considering asking past participating teams and PP1 participants to join as mentors.
technical side	• Overall product development • Data acquisition method (including hardware) • Data analysis and utilization methods, etc.	
Other	• For common topics, consider getting together online or offline and conducting seminars and joint mentoring sessions	

Figure 176 Mentoring content and potential mentors

In addition, starting with the 4th DXCUP (2024), a new chief mentor system has been introduced. Specifically, a local company with mentoring expertise participate as a chief mentor (free of charge as a type of sponsorship), and a member of the company participated in mentoring for all teams (in cases where a mentor from another company is assigned, the company provided logistical support such as taking minutes of the mentoring session), and the company implemented a cross-sectional accompaniment system to ensure the quality of the mentoring and other aspects.

(e) Final Presentation (Demo Day)

At the final presentation (Demo Day), participating teams presented their business ideas and prototypes, which were judged by a panel of judges, including one or two mentors from Japan, to determine the ranking. The best teams received commemorative gifts from the sponsor companies.

As for the holding method, a hybrid of online and offline was used to ensure a wide range of participants, including those from overseas.

Table 93 Final Presentation Summary

Date and Time	• December 2023/2024 (4-5 hours)
Location	• Hybrid online/offline event (the event will continue to be held at City Hall, which was the venue for the DXCUP)
Contents	• 5 minutes for each team presentation, 3 minutes for Q&A (same format as DCON will be used)
Screening Criteria	• Each judge will evaluate the entries in four categories: business potential (10 points), technology (10 points), uniqueness (5 points), and presentation (5 points) (based on feedback from judges who cooperated with the DXCUP, the judging criteria will be further simplified).
judge	• 1 Mongolian Government Education and Science Fund, 1 local Mongolian accelerator/VC, several Japanese mentors (business-related), 1-2 Japanese mentors (technology-related), several sponsors (DXCUP had 6 judges, but we are considering increasing the number of judges to ensure fairness in judging and to increase the number of DXCUP-related people) (There were six judges for DXCUP, but we are considering increasing the number of judges to ensure fairness in judging and to increase the number of people involved in DXCUP.)

Red: Changes from the original plan

2) The 3rd DXCUP (DXCUP 2024)



Figure 177 Advertisement for the 3rd DX CUP (DX CUP 2024)

(a) Program Outline

Table 94 Overview of the 3rd DX CUP (DX CUP 2024)

Project Name	DX CUP 2024
Purpose	The objective is to promote DX and develop ICT and digital engineering human resources in Mongolia.
Organizer	JICA (Japan International Cooperation Agency)
Co-Organizer	Science and Technology Foundation, DX MONGOLIA, KITE Accelerator LLC
Supporter	Japan Deep Learning Association, National Institute of Advanced Industrial Science and Technology, Gotanda Valley, Japan AI Consulting, Shinagawa Ward, And Global, Dentsu Data Artist Mongol, Exponential Zaisan Partners
Sponsor	Silver Sponsor: Tab Solution LLC Bronze Sponsors: Gerege Systems LLC, USP Mongolia LLC Others: Nasha Tech LLC, Japan AI Consulting Co.
Management	DX CUP2024 Executive Committee (Mongolia Office, Deloitte Tohmatsu Financial Advisory LLC)
Sponsorship	Silver Sponsor: 10 million MNT (about 430,000 yen) 1 company Tab Solution LLC Bronze Sponsor: 2 companies worth 5 million MNT (about 220,000 yen)

	Gerege Systems LLC, USP Mongolia LLC Others: 1 million MNT (about 40,000 yen) 2 companies Nasha Tech LLC, Japan AI Consulting Co.
Eligibility for Application	Students and professors enrolled in schools such as vocational training schools, technical colleges, and universities nationwide *Master's and doctoral students at universities are not eligible
Schedule	- September 4 - October 11, 2024: Application period - October 11 - 17, 2024: 13 teams selected to participate in the finals - October 18-December 8, 2024: Prototyping (3 feedback seminars in total) - December 9, 2023: Main competition held
Prize	1st place: 6 million MNT (about 260,000 yen) 2nd place: 4 million MNT (about 170,000 yen) 3rd place: 2 million MNT (about 90,000 yen)

*The category of sponsors is determined based on the sponsoshop fees as well as technical support provided.

(b) Report of implementation

The project was implemented in a four-stage process (solicitation, selection, prototype production, and holding of the final competition) as described below.

(1) Recruiting

From September 4 to October 11, 2023, seminars on recruitment activities and competitions were held on the Facebook page and at national universities, science and technology universities, agricultural universities, three technical colleges, and other private universities offering ICT engineering curriculum.

(2) Selection of teams for the finals

As a result of soliciting applications from students enrolled in vocational training schools, technical colleges, universities, and other schools nationwide, a total of 53 teams applied. After a screening committee of three experts reviewed the applications and conducted interviews with each team member, the following 12 teams were selected for the final competition held on December 9.

Table 95 List of selected teams

Ranking	Team Name (Result)	School's name	Idea Summary
1	Moko 2 (1st place)	Mongol Kosen College of Technology	IoT for Mongolian nomads to facilitate easy livestock management at any time using AI
2	Axleth (2nd place)	Joint team of the ICT School of the MUST and the UFE	AI platform that automatically creates agendas (plans) to solve outsourcing difficulties in the IT industry
3	Soft Tech (3rd place)	New Mongol College of Technology	Many people in Mongolia die from bacterial infections because it takes so long to get test results, and AI services that present test results quickly and clearly
4	Erdenet Divers	University of Science and Technology Erdenet School (regional)	In Mongolia, roads connecting urban and rural areas are often broken, and many people die as a result. To solve this problem, AI and IoT machines that alert drivers when broken road sections and drivers lose focus
5	Guardians of Risk	MUST-KOSEN	AI wheelchairs (less expensive than in other countries) that allow patients in wheelchairs to automatically navigate to the desired location (e.g., examination rooms) in the hospital.
6	Deep Mind	New Mongol College of	AI service to help doctors accurately diagnose heart disease patients, whose heart rate is difficult to

		Technology	measure accurately
7	Fuku Silver	Hokkaido University	A tool for creating entertainment content to support dementia by generating low cognitive load content using LLM and generative AI
8	Fun	Future University Hakodate	IoT machines to solve two problems that nomads face: "stores, educational institutions, and medical facilities are too far away to provide a high standard of service" and "pastoralism, which is a source of income, is easily affected by the environment.
9	Unranked	ICT School of MUST	IoT service that changes sign language into language and announces it on a speaker by putting on IoT gloves for the hearing impaired and others.
10	Khangarid	ICT School of MUST and the National University Gokyo Team	Mongolia has a lot of traffic congestion and ambulances do not arrive immediately after being called, so the system is designed to improve the efficiency of ambulance arrangements and manage the entire emergency process.
11	Gradient Descent	ICT School of MUST	IoT/AI machines (cheaper than in other countries) that automatically collect tomatoes and other vegetables grown in greenhouses
12	Wakadyan Moko bear	Joint team of Wakayama University and Mongol Kosen College of Technology	IoT machines that automatically acquire a variety of information by using sensors to acquire data that has not been utilized up to now, including indoor temperatures.
13	Challenge Pizza	Hokkaido University	AI-powered card game that fosters creativity and independence while learning business

(3) Prototyping (special lecture and mentoring)

- Each team worked on their prototypes from October 18, 2023 to December 8, 2023.
- 600,000 MNT (26,000 yen) was allocated to each team by the DX CUP 2024 Executive Committee.
- Each team was provided up to 2-4 individual mentoring sessions by the co-sponsors and sponsors.

Table 96 DX CUP2024 Mentoring Implementation Period

Date	Contents	Feedback Provider
November 3 to December 1, 2023	Tutoring and feedback with mentors	DDAM, And Global, NashaTech, Japan AI Consulting, Exponential Zaisan Partners, DX Mongolia

- 4 special seminars and individual sessions were held for the development of each team's students as follows:

Table 97 DX CUP2024 Special Seminar and Individual Sessions

Date	Contents	Feedback Provider
November 3, 2023	Mentor introduction and matching, and special seminar on business plan preparation and presentation material preparation	Mr. Aza, Managing Partner, Exponential Zaisan Partners
November 7, 2023	Special seminar to improve your presentation skills.	Mr. Miwa of e-Education
December 1, 2023	Individual progress checks and feedback on presentations	Mr. Nakamura, Mongolia-Japan Center; Tuguldur, Chairman of DX Mongolia; and Nabar, President of DX Mongolia,
December 4 and 5, 2023	Reconfirmation and tutoring of presentations	Tuguldur, Chairman of DX Mongolia; Nabar, Board Chairman; and Manlaibaatar, Committee Member

(4) Final Event

- The final event of DX CUP2024 was held on December 9 at the Blue Sky Hotel.
- Based on 5-minute presentations by 13 student teams, including those from Japan, a 2-minute Q&A session was held. Based on the presentations, 6 judges conducted the evaluation.
- The list of winning teams and judges is as follows:

Table 98 List of Winning Teams

Ranking	Prize	School's name	Team Name	Supervisor
1st place	6 million MNT (260,000 yen)	Mongol Kosen College of Technology	WSSY	Dr. J.Oyundari
2nd place	4 million MNT (170,000 yen)	Joint team of the ICT School of the MUST and the UFE	Axleth.	Dr. M. Narantuya
3rd place	2 million MNT (85,000 yen)	New Mongolian Technical Private University	Soft Tech	Dr. B.Orgil



Figure 178 Group photo of the winning team

Table 99 List of Judges

No	Affiliation/Position	Name
1	KITE ACCELERATOR/Founder	Bolormaa
2	Mongolian Government Educational Science and Science Park / Director	Amarsanaa
3	Director, Human Resource Development Department, MobiCom Cooperation LLC/Human Resource Development	Manvanshiirev
4	CEO, And Global	Khosoo
5	Chairman of the Board of Tab Solution, Inc.	Darkhan.
6	Head of Gerege Systems, Inc.	Enkhjargal



Figure 179 DX CUP 2024 Venue

(c) Improvements from the 2nd DX CUP (DX CUP 2023)

Compared to the 2nd DX CUP (DX CUP 2023) held in June 2023, the 3rd DX CUP (DX CUP 2024) was able to improve in four areas (review of the management system, transparency of judging criteria, increase in the number of Japanese participating teams, enhancement of mentoring, and reduction of management costs). Details are described below.

(1) Review of operational structure

- Following the 2nd DX CUP, DX Mongolia took the lead in the planning and implementation of the 3rd DX CUP.
- Ms. Bolormaa of the Mongolian Koosen College of Technology, who led the previous DX CUP winning team, has joined the project as a local staff, and is mainly responsible for the operational coordination of the 3rd DX CUP.
- With the accumulation of operational know-how in mind, the project management and communication tools were changed. Specifically, all documents were managed on Google Drive, and the communication tool was shifted from Viber to Slack. This moves to Slack greatly improved search accuracy and made it easier to compare the progress of each participating team.



Figure 180 Slack Overview

(2) Transparency of screening criteria

- Regarding the judging criteria, which was a major issue for the 2nd DX CUP, the scoring criteria for the final and first round judging were standardized.
- For the first round of judging, we asked applicants to enter their scoring results directly on Google Spread Sheet so that the results would be reflected automatically.
- Because of the large difference in scores among the judges, the final judging results were not based on total points, but rather on the total numerical value of each judge's scoring order (the team with the lowest score was the winner).
- The results of the preliminary and final screening were shared with each team so that they could understand areas for improvement and points to focus on for the next round of applications.

(3) Increase in the number of Japanese participating teams

- While two teams from Japan participated in the 2nd DX CUP (one team participated online), four teams from Japan participated offline in the 3rd DX CUP.
- One of the four teams was a mixed team of Japanese and Mongolian students, which formed a model of mixed team building, with the Japanese members refining the technology (prototype) and the Mongolian members delving into local issues.
- On the other hand, as in the 2nd DX CUP, no team won 3rd place in the 3rd DX CUP. In order to further ensure the fairness of the judging at the next 4th DX CUP, several suggestions for improvement were raised, including presentations in English and the addition of a Japanese member to the judging panel.
- As a result of discussions with JICA Mongolia Office, DX Mongolia Team, and Hokkaido University (participant of the 2nd and 3rd DX CUP), it was decided that the 4th DX CUP would include Japanese judges to improve the fairness of the judging, but would not conduct presentations in English and maintain the same format as the 3rd DX CUP of either Mongolian or Japanese. The 4th DX CUP, on the other hand, will not have a presentation in English, but will maintain the same format as the 3rd DX CUP, with presentations in either Mongolian or Japanese.

(4) Enhanced mentoring

- Based on the reflection that the frequency of mentoring differed from team to team in the 2nd DX CUP, a minimum (2 mentoring sessions) and maximum (4 mentoring sessions) were established for the 3rd DX CUP.
- At the 3rd DX CUP, the mentors were asked in advance which mentoring teams they wished to be a part of,

which made it possible to conduct mentoring close to their areas of expertise.

- In order to monitor the quality of mentoring, Bolormaa, a local coordinator, fine-tuned the mentoring schedule for each team on Google Spread Sheet and devised a way to be present for at least one mentoring session for each team.
- Monitoring the mentoring of each team revealed that the quantity and quality of mentoring made a significant difference in the final presentation. Since we have been approached by sponsors to cooperate in mentoring, we believe that differences in the quantity and quality of mentoring are inevitable and will introduce a chief mentoring system in the next round to contribute to improving the overall quality of mentoring.
- As of July 2024, after discussions with the DX Mongolia team, it was decided to request the participation of the chief mentor, Nasha Tech, who was in charge of mentoring the winning team and the winning team of the 3rd DX CUP, Nasha Tech accepted the proposal.

Team	1	2	3	4	5	6	7	8	9	10
	Gradient descent MLIST	Ensemble Diverse (Outside of JRF)	AutoML LIFE n MLIST	DeepMind MLIST	Univalent MLIST	Khaganell MLIST	Guarantors of Risk MLIST Kowon	Soft Tech MLIT	Waka 2 MLIT	Wakayama MLIT
Mentor	Zaisan Partner Aza Managing Partner	DX Mongolia Tugs CEO	Nasha Tech Gan-Uul Project Manager	And Global Sarangel	Dentsu Data Od. Byambatsog 2 Engineer	Garage System Bayartog Engineer	Zaisan Partner Aza Managing Partner	Zaisan Partner Aza Managing Partner	Nasha Tech Chirbal CEO	DX Mongolia Tugs / Bolormaa CEO
Date	Event / Topic	1	2	3	4	5	6	7	8	9
10/30										
10/31										
11/1										
11/2	First Special Class (1st 20~)									
11/3	1st Mentoring Session									
11/4										
11/5										
11/6 Mon										
11/7 Tue	1st Mentoring (14:30-15:00)			1st Mentoring (15:00-18:45)			1st Mentoring (15:00-15:30)	1st Mentoring (15:30-16:00)	1st Mentoring (15:00-16:00)	
11/8 Wed										
11/9 Thu										
11/10 Fri			1st Mentoring (12:00-12:45)		1st Mentoring (17:30-18:45)					
11/11 Sat										
11/12 Sun										
11/13 Mon				2nd mentoring (13:00~)						
11/14 Tue									2nd mentoring (15:00-16:00)	
11/15 Wed				1st Mentoring (15:00-16:00)						
11/16 Thu	Second Special Class (Online by Meet)		2nd mentoring (14:00-15:45)	2nd mentoring (17:00-18:00)		2nd mentoring (16:00-16:30)	2nd mentoring (16:00-16:30)			
11/17 Fri										
11/18 Sat										
11/19 Sun										
11/20 Mon										
11/21 Tue				3th mentoring (16:00-18:00)		Deadline			3th mentoring (15:00-16:00)	1st meeting
11/22 Wed										
11/23 Thu										
11/24 Fri										
11/25 Sat	2nd Mentoring Session									
11/26 Sun										
11/27 Mon										
11/28 Tue										
11/29 Wed										
11/30 Thu										
12/1 Fri	Third Special Class (3rd Mentoring)									Wakayama Team will come to Mongolia
12/2 Sat										
12/3 Sun										
12/4 Mon										
12/5 Tue										
12/6 Wed										
12/7 Thu										
12/8 Fri	Student Presentation Day (by 17:00)									
12/9 Sat	Conclusion Event									

Figure 181 Mentoring Schedule

(5) Reduction of operating costs

- The sponsorship for the 3rd DX CUP was only about 1/3 of that for the 2nd DX CUP, and the organizers sought to reduce operating costs. The main reason for the decrease in sponsorship for the 3rd DX CUP was that we tried to hold the event twice a year, and we have switched to a policy of returning to a once-a-year pace from the 4th DX CUP onward.
- In addition to the sponsors of the 2nd DX CUP, the sponsors of the 3rd DX CUP were newly able to cooperate with us through the personal network of Mr. Tuguldur, the Chairman of DX Mongolia, the co-sponsor and payee of the 3rd DX CUP.
- The sponsors of the DX CUP have endorsed the objective of fostering DX human resources who will carry the future of Mongolia, and we have heard of good examples of employment (including paid internships) of students who participated in the DX CUP.
- The cost of the venue and reception could be reduced by holding them concurrently with a separate program.
- The 4th DX CUP aimed to obtain 4 million yen in sponsorship, about 1.5 times the amount of the 2nd DX CUP, in order to establish a sustainable management system.

Table 100 Comparison of Income and Expenses for the 2nd and 3rd DX CUP

		2nd DX CUP (2023)	3rd DX CUP(2024)
Income	Sponsorship	2.6 million yen	870,000 yen
	Total amount	2.6 million yen	870,000 yen
Expenditure	Prize Money (1st-3rd)	480,000 yen	480,000 yen
	Prototype production cost	400,000 yen	220,000 yen
	MNB video production costs	400,000 yen	
	Production cost of company introduction video, Zoom connection fee	200,000 yen	(Covered by a separate budget)
	FBAd, Canva, Award Board	80,000 yen	10,000 Yen
	LEDs, Advertising panels	140,000 yen	13,000 yen
	Venue and coffee break fee	100,000 yen	(Covered by a separate budget)
	Simultaneous interpretation and equipment rental	240,000 yen	(Covered by a separate budget)
	Participation and promotion expenses for Japan ICT tour	300,000 yen	
	Certified public accountant		60,000 yen
	VAT 10%.	260,000 yen	87,000 yen
	Total amount	2.6 million yen	870,000 yen

(d) Evaluation

Evaluation of Pilot Project (4) after the implementation of the 3rd DX CUP is as follows.

Table 101 Evaluation after the implementation of the 3rd DXCUP

Evaluation item		Results	Issue	Suggestions/measures for next time
Achievement of Objective		Objective (1): DX CUP has been highly evaluated as a human resource development program (PBL) by the Mongolian Fund for Science and Technology (MFST), sponsoring companies, and teachers at participating universities and technical colleges, and Objective (1) has been largely achieved.	Objective (2): Although training is provided through mentoring and special lectures for DX CUP participating students, there are differences in basic academic skills (abilities) among participating students, and it is necessary to consider educational programs such as pre-events and follow-up events on an annual basis.	- Implement further program improvements to achieve Objective (1) - In addition to improving the quality of mentoring by introducing a chief mentoring system to achieve Objective (2), focus on strengthening the implementation of necessary training by holding pre-events.
Resources	Personnel	The hiring of one local coordinator enabled us to systematically organize the DX CUP management method, which had been	The secretariat function can be performed by one local coordinator, but there is a lack of	Establish a sustainable management system by introducing a chief mentoring system and implementing an

		planned on a volunteer basis, and to make progress in organizing various manuals.	manpower to improve the quality of mentoring and the day-of operation, which will be improved in the next round.	internship program for students to compensate for the shortage of management staff and to ensure sustainable development.
	Cost	Although the number of sponsors was reduced by half, the 3rd DX CUP was able to be held on the scale originally anticipated by utilizing other resources.	Compared to the 2nd DX CUP, the number of sponsors and sponsorship money for the 3rd DXCUP was reduced by half, which was a major challenge (the 2nd DX CUP received 2.6 million yen in sponsorship money, but only 870,000 yen for the 3rd DX CUP, and 4 million yen is needed for sustainable operation.)	- Some companies were not able to cooperate or sponsor the 2nd and 3rd DXCUPs because they were held in the same year (2023), and we will try to obtain sponsors by limiting the DX CUP to one event in 2024. - In addition, to make the program more attractive to sponsors, we will increase opportunities for sponsor exposure, including the Playben event.
Preparation	Concept	- The focus of the 3rd DX CUP was systematization and manualization, and the system that had previously been dominated by a single person was substantially revised. - Specifically, Slack and Google Drive are now utilized to centrally manage communication and file organization by task.	- Through the planning and operation of the 3rd DX CUP, we were able to identify missing information and manuals, and will further systematize various manuals/documents for the next DX CUP. - Slack was also introduced for participating teams, but the frequency of use differs from team to team, and the tool has not yet been optimized for participating teams.	- In the next DX CUP operation, we will basically promote the active use of Slack and Google Drive (both free plans). - The best communication tools for the participating teams will be selected and used in consultation with the Chief Mentor.
	Participating companies (selection and communication)	- The 3rd DX CUP received more applications than the previous edition, confirming that the DX CUP is gaining recognition. - In addition, the selection criteria were clarified and shared with all prospective participants, which helped to follow up with teams that did not qualify.	Slack was introduced as a communication tool for participating teams, but the frequency of use differs from team to team and the tool has not yet been optimized for participating teams.	- Continue to make the screening criteria transparent and disseminate the results of the adoption process in the fourth round. - The best communication tools for the participating teams will be selected and used in

				consultation with the Chief Mentor.
	How to publicize the event	• We went directly to universities and technical colleges that have participated in the DX CUP in the past and publicized the recruitment with the cooperation of their professors. • The number of participation pledges was comparable to the previous event, partly because the deadline was delayed, making it possible to estimate the number of man-hours required to publicize the event in the future.	• The online event that was originally planned (involving influencers) has not yet been implemented. • A number of students were not prepared to apply for the DX CUP even after learning about the DX CUP application information.	• We plan to strengthen referral application recommendations from this year's contestants and increase school-based awareness activities. • We would like to strengthen advance publicity by holding pre-events (summer school).
Operation	Attracting audience	• Nearly 100 people attended the event. • We had prepared simultaneous interpretation and were able to have Japanese people who participated in the JETRO tour visit us.	• Due to the capacity of the venue, it was physically difficult to identify anyone other than the participating teams and officials.	• We would like to reconsider venue selection, taking cost into consideration. • In order to make this event widely known, a larger venue is needed, and we are considering holding the event at City Hall, which was the site of the 2nd DX CUP.
	Online distribution	• KITE was able to continue its Facebook LIVE streaming following the second event.	• One of the judges requested to participate online via ZOOM, but the request was declined due to the risk of connection problems.	• If a team from Japan wishes to compete online, the team will again be considered for an online connection.
After implementation	Public hearing investigation	• Interviews were conducted with the Top 3 teams, including the winning team, to identify areas for improvement for the next round. • We conducted an interview survey of the company (Nasha Tech) that mentored the top two teams this time and received positive consideration for participation in the next round of chief mentoring.	• Interview surveys of all participating teams were not conducted.	• Regarding the interview survey of all participating teams, we would like to ensure individual interviews and follow-up by local coordinator.

3) The 4th DXCUP (DXCUP 2024 Winter)



Figure 182 Advertisement for the 4th DXCUP (DXCUP 2024 Winter)

(a) Program Outline

Table 102 Overview of the 4th DXCUP (DXCUP 2024 Winter)

Event Name	DXCUP 2024-winter
Purpose	The objective is to promote DX and develop ICT and digital engineering human resources in Mongolia.
Organizer	Ministry of Education, MDDIC, Ulaanbaatar Business Innovation Agency, DX Mongolia NGO (Digital Transformation Mongolia NGO), Science and Technology Fund
Co-Organizer	JICA (Japan International Cooperation Agency)
Supporting	JDLA, Smart Contract Mongolia LLC, Expotential Zaisan Partners, Tsoilogsod community
Sponsorship	Platinum Sponsor: 1 company worth 20 million MNT (about 880,000 yen) Z.com by GMO
	Gold Sponsor: 1 company worth MNT 15 million (about 660,000 yen) Nasha Tech LLC
	Silver Sponsors: 4 companies worth 10 million MNT (about 440,000 yen) Ulaanbaatar, Tab Solutions Co.,Ltd, Nippon Koei Co.
	Bronze sponsors: 4 companies worth 5 million MNTs (approx. 220,000 yen) USP Mongolia LLC, KITE Accelerator LLC, Binary System LLC, AND Global LLC
Eligibility for Application	Students enrolled in high schools, vocational schools, technical colleges, universities, and other schools throughout Japan. (Applicants who have graduated from school at the time of the competition are also eligible to apply, as long as they are enrolled at the time of application. <u>Note that students enrolled in master's or doctoral programs at universities are not eligible.</u>)

Schedule	• September 2 - October 2, 2024: Application period • October 2 - October 9, 2024: Selection of 17 teams for this selection • October 9 - December 6, 2024: Prototype and business plan production (a total of three feedback seminars, individual mentoring meetings, and office tours) • December 7, 2024: Main competition held
Prize	• GMO Award: Japan Inspection Tour • First place team: 6 million MNT (about 260,000 yen) • Second place team: 4 million MNT (about 170,000 yen) • Third-place team: 2 million MNT (about 86,000 yen) • Mobicom Award: Right to use M-Office for a certain period of time • HUB Award: Right to use Innovation HUB for a certain period of time

*The category of sponsors is determined based on the sponsorship fees as well as technical support provided.

(b) Report of implementation

The project was implemented in a four-stage process (solicitation, selection, prototype production, and holding of the final competition) as described below.

(1) Recruiting

From September 2 to October 2, 2023, as in the third session, seminars on recruitment activities and competitions were held on the Facebook page and at national universities, science and technology universities, agricultural universities, three technical colleges, and other private universities offering ICT engineering curricula. In addition, for the 4th conference, we newly allowed participation from high schools and vocational training schools and promoted applications by directly contacting schools that had applied at the time of the first conference.

(2) Selection of teams for the finals

As a result of soliciting applications from students enrolled in vocational schools, technical colleges, universities, and other schools throughout Mongolia, a total of 62 teams, an increase of 9 teams from the third round, were selected. A week from October 2 to 9, 2024, a screening committee of 3 experts reviewed documents and conducted interviews with each team member. As a result, the following 14 teams were selected for the final competition held on December 7, 2024. The three participating teams from Japan were those from Hokkaido University that had participated in the program in the previous year. When we asked them about the reasons for their participation, we were told that a good example of entrepreneurship had been created by a team that participated last year, and that exchanges between students from both countries had continued after the competition was over, thus confirming the significance of participation from overseas teams, including those from Japan.

Table 103 List of teams selected for the 4th DX CUP

Team Name (School Name)	Outline of Presentation
CureAI Solutions (New Mongolian Private University)	An application that uses AI technology to detect pneumonia based on breathing and coughing sounds
Axleth (UFE)	AI platform that simplifies data collection, analysis, and reporting for journalists, researchers, and other knowledge workers
Mugen (Empasoft Private University of Technology)	An app where you enter the ingredients you have on hand and the type of food you want to eat, and the AI will suggest a menu.
Digi Bee (Mongol Koosen College of Technology)	A flea market app that connects people who don't need books with those who do.
Sync (UFE)	Integrated platform connecting the contracting and subcontracting sides of the bidding process
Ezo worm (Hokkaido University)	Development of aquaculture feed using insects (mealworms)
Problem solving (Defense National University)	A platform that proposes ways to reuse materials on hand instead of throwing away items that are no longer in use.
Temuulel (Erdenet Higher University)	Ultraviolet sterilization system that uses ultraviolet (UVC) light to kill bacteria in equipment
Team Anvjin (MUST - Faculty of Information and Communication)	AI-powered platform for brainstorming the day's outfits
Ger team (MUST - Faculty of Information and Communication)	Platform providing easy, digitized booking solutions for the travel and resort industry
Michi (Hokkaido University)	DX for the development of Western wine barrels using wood
Psychic Worms (MUST - Faculty of Information and Communication)	AR application for integrated transactions between home furnishing manufacturers and importers
HackIT (Tomujin Alternative School)	Household budget counseling system that provides AI advice based on users' income and expenditure information
New AI (New Mongol Koosen College of Technology)	A complex platform that leverages AI to provide legal advice and directly connects users with lawyers
Groot (MUST-KOSEN)	Smart application to automatically water indoor flower beds
RIDL_F (MUST - Faculty of Information and Communication)	Development of a drone-based monitoring system for forest borers' predation status
AERW (Hokkaido University)	Carbon Offsetting through Monitoring Technology during Mine Wastewater Purification

(3) Prototyping (special lecture and mentoring)

- Each team worked on their prototypes from October 9, 2024 to December 6, 2023.
- 600,000 MNT (26,000 yen) was allocated to each team by the DXCUP 2024 Executive Committee.
- Each team received individual mentoring by the chief mentor, Nasha Tech, as well as group mentoring by the sponsor company, up to 4-5 mentoring sessions.
- 3 special seminars and individual sessions were held for the development of each team's students as follows.

Table 104 DX CUP2024 Special Seminar and Individual Sessions

Date	Contents	Feedback Provider
October 16, 2024	Introduction of mentors, detailed explanation of the DX CUP competition, and notes on participation	Tuguldur, Chairman of DX Mongolia,
October 25, 2024	How to develop an accurate business plan in a short period of time	Aza, Managing Partner of Exponential Zaisan Partners
November 14, 2024	Checking and advising on the progress of each team's materials to be explained at the conference	Ko Nakamura, Mongolia-Japan Center, and Tuguldur, Chairman of DX Mongolia
November 30, 2024	Advice on creating slides and effective presentation methods that are easily understood by the audience	Tuguldur, Chairman of DX Mongolia; Nabar, Board Chairman; and Manlaibaatar, Committee Member Miwa, e-Education

(4) Final Event

- The final event of DX CUP2024 Winter was held on December 7 at ASA Arena.
- Based on 5-minute presentations by 14 student teams, including those from Japan, a 2-minute Q&A session was held. Based on the presentations, five judges conducted the evaluation.
- The list of winning teams and judges is as follows.

Table 105 List of Winning Teams

Ranking	Team Name (School Name)	Announcements
GMO Award	Problem Solving (Defense National University)	A platform that proposes ways to reuse materials on hand instead of throwing away items that are no longer in use.
1st place	Ger team (MUST - Faculty of Information and Communication)	Platform providing easy, digitized booking solutions for the travel and resort industry
2nd place	CureAI Solutions (New Mongolian Private University)	An application that uses AI technology to detect pneumonia based on breathing and coughing sounds
3rd place	AERW (Hokkaido University)	Carbon Offsetting through Monitoring Technology during Mine Wastewater Purification
Mobicom Award	Team Anvjin (MUST - Faculty of Information and Communication)	AI-powered platform for brainstorming the day's outfits
HUB Award	Psychic Worms (MUST - Faculty of Information and Communication)	AR application for integrated transactions between home furnishing manufacturers and importers
HUB Award	New AI (New Mongol College of Technology)	A complex platform that leverages AI to provide legal advice and directly connects users with lawyers



Figure 183 Photos of the winning teams

Table 106 List of Judges

No	Affiliation/Position	Name
1	GMO Z-com Mongolia	Mitsuhide Sasaki
2	Mobicom Corporation/ Director of Information Technology Management Office	Mendbayar.
3	And Global/ And Systems LLC CTO	Sarangerel.S
4	UB/ BIDA.UB, Head of the Innovation Center, and Start-up Business Department	Jargalan
5	General Manager, Business Development Department, Hello World Inc	Taiga Koizumi

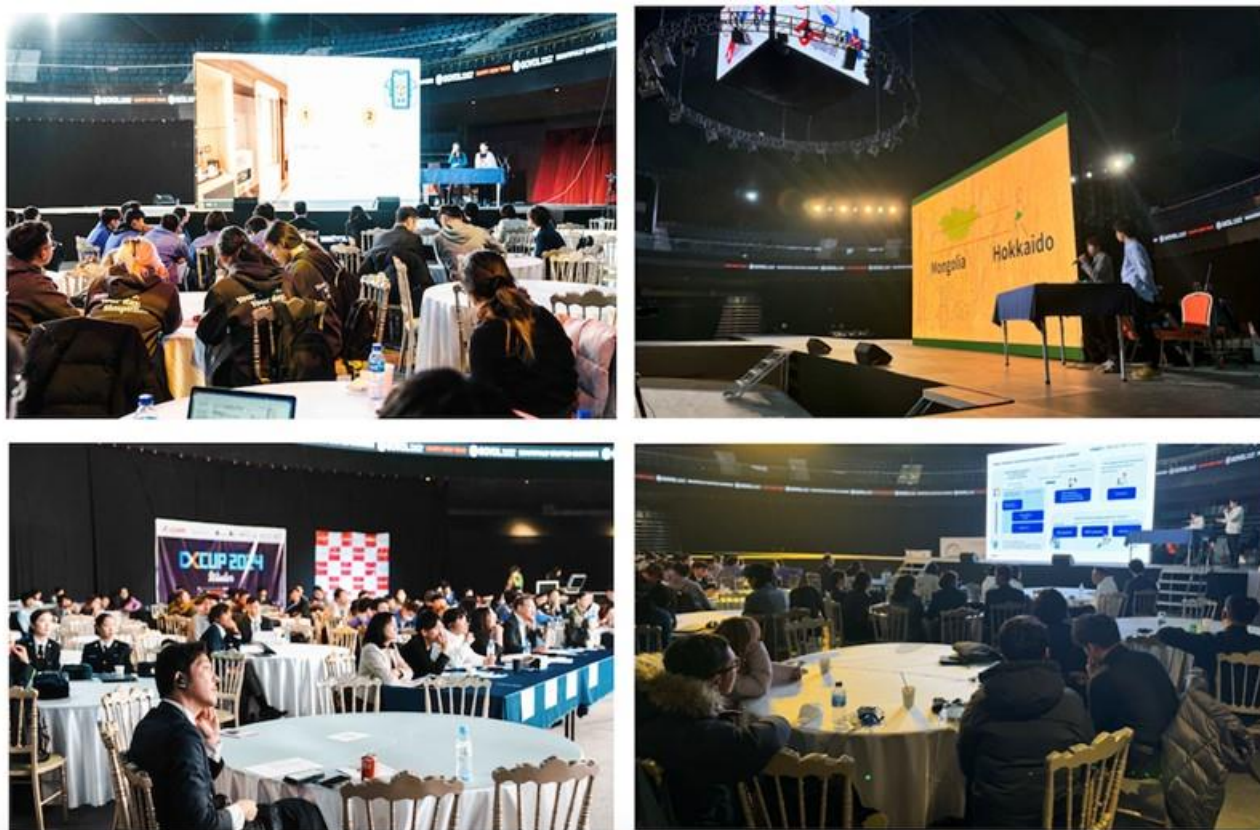


Figure 184 DX CUP 2024 Winter Venue

(c) 3rd DXCUP (DX CUP 2024) Devices and improvements based on issues

Compared to the 3rd DX CUP (DX CUP 2024) held in December 2024, the 4th DX CUP (DX CUP 2024 Winter) improved in four areas (introduction of a chief mentoring and group mentoring system, implementation of office tours, strengthening of simultaneous communication in Japanese and Mongolian, and strengthening of sponsorship acquisition).

Improvements were made in the following areas: review of the management system, transparency of evaluation criteria, increase in the number of teams participating from Japan, enhancement of mentoring, and reduction of management costs. Details are described below.

(1) Introduction of Chief Mentoring and Team Mentoring System

- From this year's competition, participating teams received team and group mentoring, respectively.
- In group mentoring, up to three teams were assigned by the company that provided technical assistance, and team mentoring was conducted every 2~3 weeks.
- Chief Mentoring provided support by providing advice to each team to fit the characteristics of the competition, including cross checking the status of all teams by Nasha Tech, the chief mentor, to eliminate variations in quantity and quality due to group mentoring, as well as covering for teams that were unable to participate in group mentoring. The company also provided support by offering advice to teams that were unable to participate in the group mentoring sessions.
- In addition, to ensure that all teams participated equally in each of the 4~ 5 mentoring sessions, all mentoring sessions were attended by Executive Committee members as observers.
- Group mentoring was held every two to three weeks and chief mentoring twice a month to ensure timely access to necessary business and technology information and to see if participants needed additional support to be more successful in the competition.

(2) Conducting office tours

- As a new sponsorship program, an office tour was organized to allow participants to get to know the sponsor's

office.

- The purpose of the office tour is to improve the situation where sponsors can only meet participants at the end of the competition if they cooperate with the mentoring program, and to provide participants with a fellowship opportunity to obtain information about the activities of the non-sponsoring companies with which they are team mentors.

- In selecting companies to participate in the office tour, we confirmed with the sponsors whether or not they would accept the tour and confirmed the preferences of all participating teams, and visited the following four companies over a two-day period from December 5 to 6.

- Although the number of participants was lower than expected because the event was held just before the convention, it was well received by the participants as well as by the companies that hosted the visit.

Table 107 Office Tour Visits

Company Name	Tour Date and Time	Number of participants
JICA Mongolia Office	Morning of December 5, 2024	8 participants from 5 teams
Mobicom Corporation	Morning of December 5, 2024	16 participants in 9 teams
Nasha Tech LLC	Afternoon of December 6, 2024	14 participants in 9 teams
GMO Z.com Mongolia LLC (Z.com ASA Arena)	Afternoon of December 6, 2024	3 participants from 2 teams



Figure 185 Office tour

(3) Strengthening of communication in Japanese and Mongolian

For the implementation of DX CUP 2024 Winter, information on the competition was compiled on the website, and pages in Japanese and Mongolian were created respectively.

■ Japanese: <https://dxmongolia.org/dxcup/2024JP/>

■ Mongolian: <https://dxmongolia.org/dxcup/2024MN/>

- Prior to the event, a format and tentative wording for disseminating the results of the event were created, and on December 9, two days after the DX CUP was held, the event results were disseminated in both Japanese and Mongolian to inform sponsors of the event.

- A simple manual for updating the website was created in preparation for the next event, and a system was put

in place to enable prompt dissemination of information.

(4) Strengthening of sponsorship acquisition

- The sponsorship raised 2.2 million yen, almost triple the amount of the 3rd DX CUP. Considering the extra prizes for the winning and prize-winning teams (the winning team was offered a tour of Japan, etc.), this was a significant increase in sponsorship.

- In the past three events, sponsorship requests were carried out on an individual basis, but as a prototype to strengthen sponsorship acquisition for this event, a list of potential Mongolian and Japanese sponsors was compiled, and a simple manual for contacting each company was developed, which also helped organize the process of acquiring sponsorship.

- In addition, a target for sponsorship funds was set, and the status was checked at weekly progress meetings held by the management team.

- As a future issue, it is desirable to have a staff capable of smooth communication in Japanese within the management team, especially in light of the need for detailed coordination of sponsorship requests to Japanese companies, and it is assumed that the DX CUP management system will need to be organized with a view to obtaining sponsorship.

Table 108 Comparison of income and expenditures for the 3rd and 4th DXCUP

		3rd DX CUP(2024)	4th DX CUP (2024Winter)
Income	Sponsorship	870,000 yen	2.11million yen (*1)
	Total amount	870,000 yen	2.11 million yen
Expenditure	Prize Money (1st-3rd)	480,000 yen	440,000 yen (*2)
	Prototype production cost	220,000 yen	440,000 yen
	MNB video production costs	(Not implemented)	230,000 yen
	FBAd, Canva, Award Board	10,000 Yen	10,000 yen
	LEDs, Advertising panels	13,000 yen	20,000 yen
	Venue and coffee break fee	(Covered by a separate budget)	510,000 yen
	Simultaneous interpretation and equipment rental	(Covered by a separate budget)	150,000 yen
	Certified public accountant	60,000 yen	90,000 yen
	Other	87,000 yen	220,000 yen
	Total amount	870,000 yen	2,110,000 yen

(*1) DX Mongolia has yet to receive a payment of 2,500,000 MNT (approx. 110,000 yen) from one of the sponsors and record it as income.

(*2) DX Mongolia is awaiting bank account information from a winning team and has yet to record the amount of prize money (2,000,000 MNT, approx. 90,000 yen) to be transferred.

(d) Evaluation

Evaluation of Pilot Project(4) after the implementation of the 4th DXCUP is as follows.

Table 109 Outcomes after the implementation of the 4th DX CUP

Evaluation item	Results
Achievement of Objective	• Objective (1): DX CUP has been highly evaluated as a human resource development program (PBL) by the Mongolian Fund for Science and Technology (MFST), sponsoring companies, and teachers of participating universities and technical colleges, and it can be said that Objective (1) was mostly achieved. • Objective (2): While we were able to establish programs that would lead to career development, such as mentoring, special lectures, and office tours for DX CUP participating students, we received many requests from participating universities and technical colleges for additional programs

		(such as workshops in advance of the event). It is expected that the quality of learning will be further enhanced by considering programs throughout the year, rather than one-off events.
Resources	Personnel	• The DX CUP has established a system in which the secretariat can be fully functional with the operation of only one local coordinator, thanks to the progress made in formulating the processes and organizing various manuals for DX CUP operations. • The introduction of the Chief Mentoring and Group Mentoring System has compensated for the shortage of management personnel and has brought us much closer to an operational structure that is capable of sustainable development.
	Cost (sponsorship)	• The creation of the website and the production of panel designs could be done in-house, and costs, except for venue expenses, could be reduced, resulting in the event breaking even for the first time in its fourth year. • The manual and flow of acquiring sponsorships has been developed, and DX Mongolia is now in a position to acquire sponsorships from local companies on its own. • On the other hand, it is important to obtain major sponsorships from Japanese companies and others in order to secure the availability of one person to perform the aforementioned secretariat function, and the establishment of a system that can respond to Japanese companies, which has mainly been the responsibility of the JICA Study Team, will be an issue for the future.
Preparation	Concept	• In the 4th DX CUP, the goal was generally achieved by utilizing the previous manuals and productions while aiming to reduce the number of tasks that had been assigned to the genus to zero.
	Participating companies (selection and communication)	• Through the 3rd and 4th rounds, the transparency of the screening criteria and the results of the selection process have been improved, and the number of complaints about the selection and screening process, which had existed in the past, have been significantly reduced. • Communication errors between participating teams and sponsors have also been greatly reduced through the chief mentoring system and the accompaniment of the secretariat staff, and it has become possible to flexibly select communication tools in accordance with the wishes of the sponsors. • Participation from Japanese universities has also become an ongoing event, contributing not only to the exchange between the two countries, but also to the overall level of the competition, as well as to the promotion of entrepreneurship education in Japan.
	How to publicize the event	• Referral application recommendations by the previous competing teams and teachers in charge were strengthened, and certain results were achieved, such as the promotion of awareness of the program at each school. • The online advertising campaign has also continued to attract visitors through SNS and other means, and the fact that three of the teams participating in the 4th competition applied after reading the online announcement confirms the effectiveness of the prototype advertising campaign.
Operation	Attracting audience	• Nearly 200 people attended the event. • More than half of the visitors came to the event to support each participating team, making it the largest-ever number of student participants.
	Online Streaming	• KITE was able to continue the Facebook LIVE streaming of the second and third sessions, and we were able to confirm a certain level of success, with some viewers coming from Japan on the day of the event and hearing from the sponsor company that they had listened to the video later on.

(e) Implications for Support Measures

The following three directions can be considered as measures to support the consideration and implementation of the Pilot Project (4) ICT area major student development program.

(1) Planning of co-creation projects (including JICA grassroots technical cooperation projects) with Japanese academic institutions as the proposing entity

A team from Japan that participated in the 3rd DX CUP reported that they have started a business in Japan after their experience at the DX CUP. This case is recognized within the university that produced the participating team as one of the best practices, and it is an example of the potential for university collaboration between Japan and Mongolia.

Currently, the university is considering various measures to further collaborate with Mongolian universities and private companies. One of them is the planning of a JICA grassroots technical cooperation project to strengthen educational programs for students majoring in ICT by providing technical guidance from the university to DX Mongolia, the operating body of the DX CUP, and to universities and technical colleges in Mongolia, to which the DX CUP participating teams belong. In addition, there is a possibility that academic institutions in both Japan and Mongolia could provide support to promote collaboration and co-creation.

(2) Partnership with a view to further collaboration between DCON and DXCUP

The number of cases of collaboration between DCON and DX CUP has been increasing, with DX CUP participating teams in 2022 participating in the DCON Finals held in 2023, and discussions have been held regarding the possibility of further collaboration with the Japan Deep Running Association (hereafter JDLA), which plays a central role in the DCON Executive Committee.

In this discussion, we heard that the JDLA is considering expanding the G-Certification to Mongolia as part of its overseas expansion plan for the certification test (Deep Learning for GENERAL : JDLA Certificate), which the JDLA is focusing on in the same way as DCON. We confirmed that there are several technical colleges and universities in Mongolia that are interested in introducing the G-Certificate not only as a practical learning opportunity, but also as a new learning opportunity to acquire and retain more advanced knowledge.

In the past, JICA has implemented a technical cooperation project for the introduction and dissemination of the Information Technology Engineer's Examination (ITEE) administered by the Information-technology Promotion Agency (IPA), and we have reported this case to JDLA to consider supporting the introduction and dissemination of the G-Certificate in Mongolia in the future, either through a technical cooperation project or a grassroots technical cooperation project, if the JDLA is seriously considering such a project. The JDLA has been informed of this case in order to consider support measures, including the development of a technical cooperation project or a grassroots technical cooperation project, should the JDLA consider the introduction and dissemination of the G-Certification Test in Mongolia.

(3) Establishment of a sustainable, locally-led management structure

The 4th DXCUP was planned and operated under the leadership of DX Mongolia, which has held 3 previous DXCUPs. In addition, Nasha Tech joined the event as chief mentor, which led to an improvement in the quality of mentoring, which had been a major issue.

The contribution of the local coordinator was significant in the collaboration between the two companies mentioned above. We believe that the local coordinator contributed to leveraging the strengths of the two companies, which have different organizational cultures, through careful communication between the two parties.

In addition, as mentioned above, obtaining sponsorship from Japanese companies is important for the sustainable operation of the DX CUP. For the 4th DX CUP, local coordinator who could communicate smoothly in Japanese played a central role in coordinating various activities with Japanese companies, which led to a significant increase in sponsorship.

Based on the above, as a sustainable, locally-led management structure, we would like to recommend a proposal that the two companies, DX Mongolia and Nasha Tech, work together, and that a local coordinator be assigned continuously until sponsorship is obtained and coordination between the two companies is in place (assuming 1-2 years).

5. Pilot Project (5): Examination and Implementation of an Open Data Utilization Program

In PP(5), we implemented the "A business development program for improving public services and solving social issues using open data held by the Mongolian government." targeting private companies.

1) Policy of Implementation

(a) Objectives of Implementation

(1) By utilizing datasets from the government's open data portal to develop prototypes of applications and conduct business demonstrations, the aim is to highlight the effectiveness of government open data to private companies within Mongolia.

(2) By practically providing data to private companies and promoting its commercialization, the objectives are to solve social issues and improve public services through government open data, accumulate know-how for public-private collaboration in the field of open data, and promote the formation and dissemination of case studies where private entities utilize government open data.

(b) Program Content and Schedule

The program content and schedule were implemented according to the following steps:

1. Recruit companies to propose business ideas.
2. Select multiple companies from the applicants that have presented outstanding ideas.
3. Conduct a hackathon for the selected companies to develop prototypes of their ideas.
4. Provide business PoC support to companies that have developed particularly excellent prototypes as a result of the hackathon.
5. Host a presentation of the PoC results by the participating companies and a networking event with industry stakeholders.

Table 110 PP(5) Open Data Utilization Program

【Applicant Selection】 (Recruitment period: 2 months) (1) Propose business ideas aimed at solving public service issues using open data.	【Selection of Issues】 In consultation with MDDIC, it was decided to focus on the healthcare sector, where a relatively substantial stock of open data is expected. 【Use of Open Data】 Applicants are required to use open data. The use of other data is optional, with no upper limit on the number of datasets used. Business ideas utilizing open data were created in PPT format and submitted as application documents. 【Evaluation of Business Ideas】 The organizers evaluated the applicants based on their contribution to public services, monetization potential, and technical feasibility. Seven companies were selected and granted the right to participate in the hackathon.
【Hackathon】 (5 days) (2) Development of solutions (creation of prototypes)	【Development of Prototypes】 The seven selected companies developed prototypes of solutions for public service issues using open data. While smartphone apps are conceivable, the type of prototypes was not limited. Regarding the human mobility data (GEOTRA) provided by Mobicom Corporation, collaboration with Mobicom Corporation enabled the data to be offered free of charge. Participating companies used GeoTra as one of the open data sources. 【Support by Mentors】 Engineers and other experts were invited from MDDIC, the Health Development Center of the Ministry of Health, the IT Park, and the Ulaanbaatar Innovation Hub. They provided necessary support for the development towards implementation, including technical advice and mentoring. 【Evaluation of Deliverables】 The prototypes developed over the course of five days were evaluated based on their completeness, business model, feasibility, and potential for business proof-of-concept. Two outstanding companies were selected.
【Business Proof-of-Concept & Matching】 (3 months) (3) Implementation of technical	【Development of Business Model】 Support was provided to further develop the business models of the prototypes created using open data in step (2), enhancing them from their initial application

proof-of-concept (PoC) and business proof-of-concept (PoC) (4) Matching event	stage to ensure they are monetizable and contribute to solving public service issues. 【Business Proof-of-Concept】 A proof-of-concept test was conducted for the developed business models, evaluating technical feasibility, usefulness, return on investment, social acceptability, and market entry considerations. 【Support by Advisors】 Business proof-of-concept experts and experienced entrepreneurs, both within and outside the subcontracted company (DX Mongolia), provided advice and mentoring. Advisors were also invited from the government to offer guidance aimed at contributing to the resolution of public service issues. 【Evaluation of Proof-of-Concept Results】 The organizers evaluated whether the proof-of-concept results met criteria such as technical feasibility, contribution to public service issues, and a certain level of profitability. 【Implementation of Presentation (Networking Event)】 The companies that conducted the PoC presented their results, and a networking event was held with the participation of MDDIC, the Ministry of Health, Ulaanbaatar City officials, and industry stakeholders. Initially, there was also an aim to invite both domestic and international investors to appeal for investment to the projects. Unfortunately, no investors were able to attend.
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2) Implementation of Hackathon and PoC

(a) Preparation for Holding the Hackathon

Previously, MDDIC had considered planning a hackathon utilizing open data. Specifically, in 2023, there was a plan to hold a hackathon aimed at private companies, focusing on the use of open data to solve traffic congestion, hosted by MDDIC. However, the number of applicant companies was just over seven, falling short of the initially expected 20 companies. Additionally, the ministry became very busy towards the end of the year, making it difficult to adjust the schedule for the event, leading to its cancellation.

Given this situation, the plan for holding an open data utilization program within 2024 was to proceed in collaboration with MDDIC in the planning, preparation, and execution of the entire program. Starting from January 2024, weekly meetings were held with an official from the Department of Policy and Planning, who was responsible for implementing the open data hackathon within MDDIC. The content of the program was discussed continuously, taking into account the opinions and intentions of MDDIC as indicated above. During this process, the theme was selected to address issues in the health and healthcare sector, rather than solving traffic congestion. Ultimately, the hackathon was to be implemented with the joint hosting by MDDIC, the Ministry of Health, JICA, and the Ulaanbaatar Innovation Hub, and with the cooperation of Mobicom.

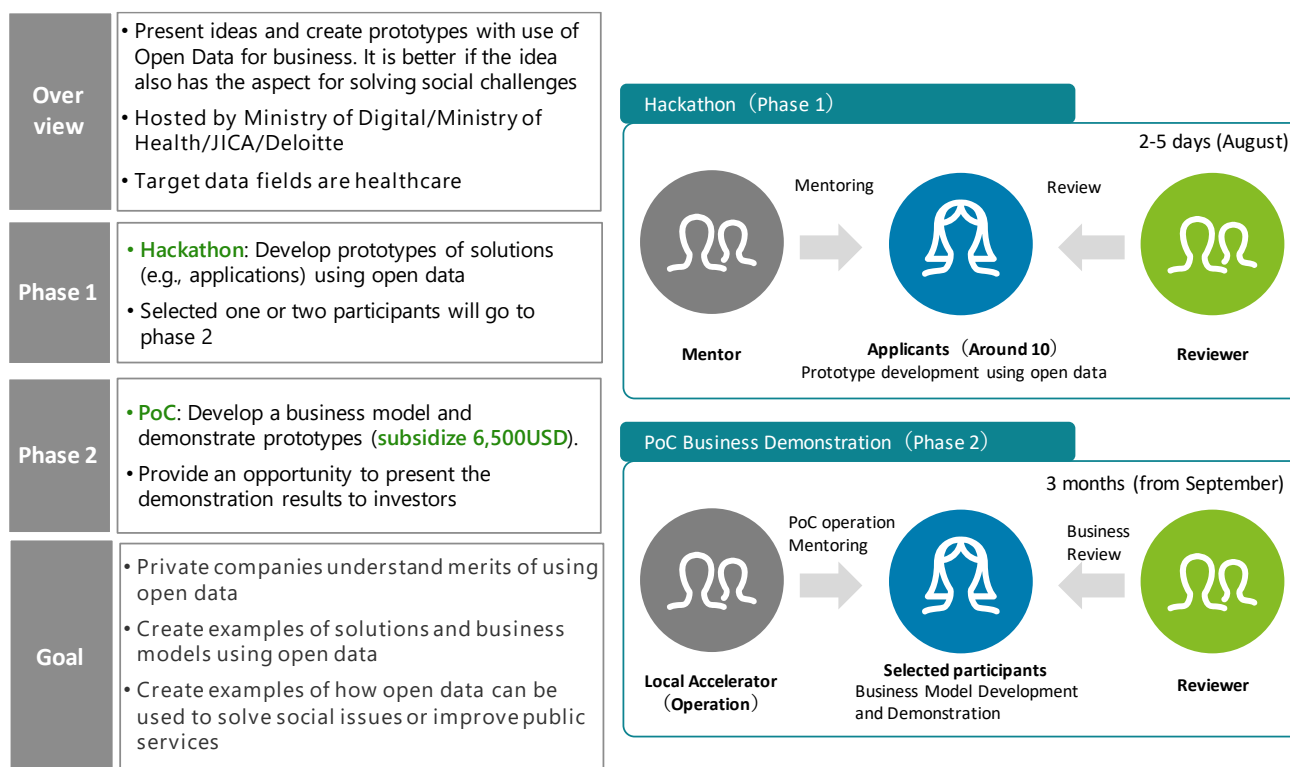


Figure 186 Hackathon Implementation Structure

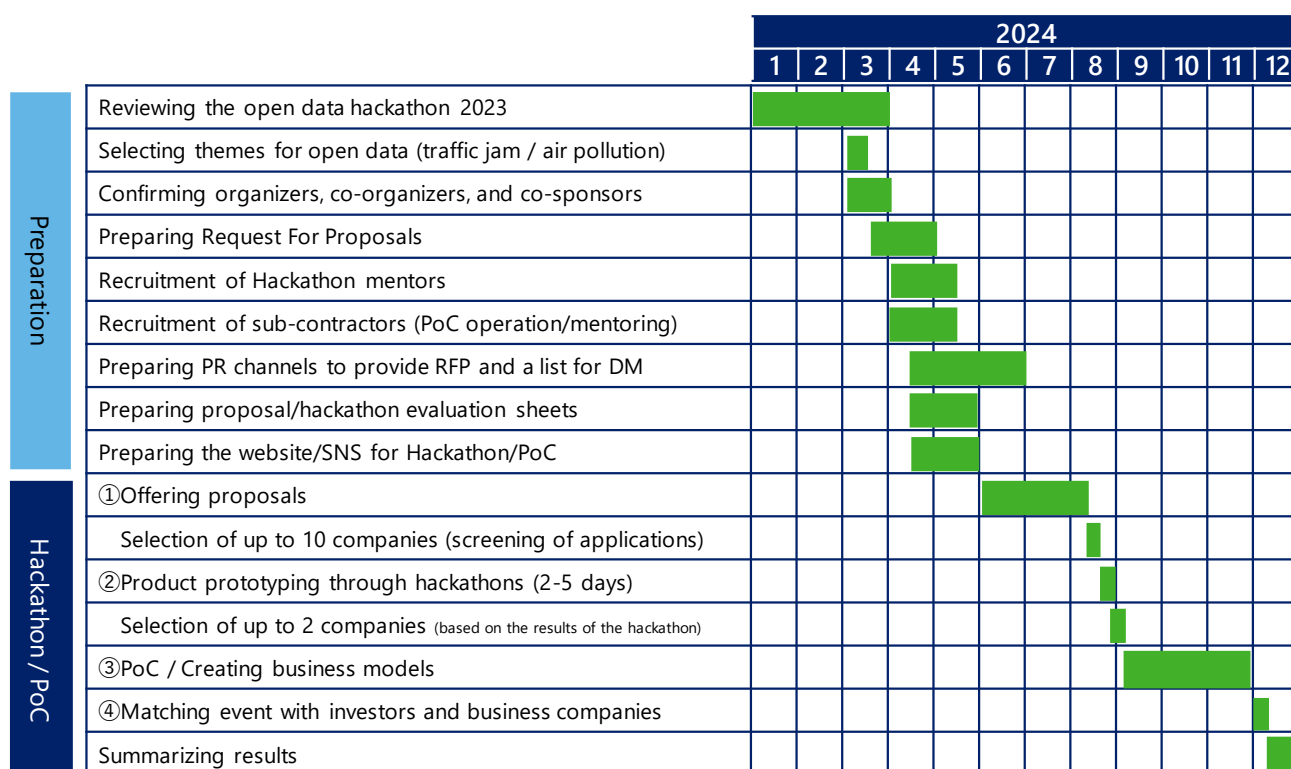


Figure 187 Hackathon and PoC Implementation Schedule

In late June 2024, MDDIC began recruiting for the hackathon through the Facebook account of IT Park, which operates under the ministry. During the recruitment period, with the cooperation of IT Park, efforts were made to continue promoting the hackathon to companies and universities, aiming to achieve the target number of participating teams (10 teams). Additionally, discussions were held with e-Mongolia, IT Park, MDDIC, the

Health Development Center, and the Ulaanbaatar Innovation Hub to select mentors who could provide the necessary knowledge and advice for the hackathon from each co-hosting organization. Particularly, e-Mongolia took charge of mentoring and guidance on the technical aspects of prototype development and also provided lectures on the necessary knowledge for development.

Regarding the datasets to be used in the hackathon, it was decided, based on strong requests from MDDIC, to primarily provide open data in the healthcare sector (such as 1313.mn) for the hackathon. The background for this decision lies in the Mongolian government's proactive efforts, led by the Ministry of Health, to address issues in the healthcare sector. By opening up and providing healthcare data held by the government, including the open data portal 1313.mn managed by the Health Development Center, to third parties for effective utilization, the government aimed to achieve improvements in public services and solve issues through open innovation in the healthcare sector. However, given that the number of open datasets on 1313.mn was limited and there were operational issues such as some datasets not being accessible on the portal, it was agreed that the Health Development Center would provide approximately 300 datasets, which were not yet uploaded to 1313.mn but were planned to be made public in the future, to each participating team in Excel format. Additionally, to apply human flow data in Mongolia to solve issues in the healthcare sector, Mobicom provided a trial version of its mobile phone location information marketing tool GEOTRA for the hackathon.

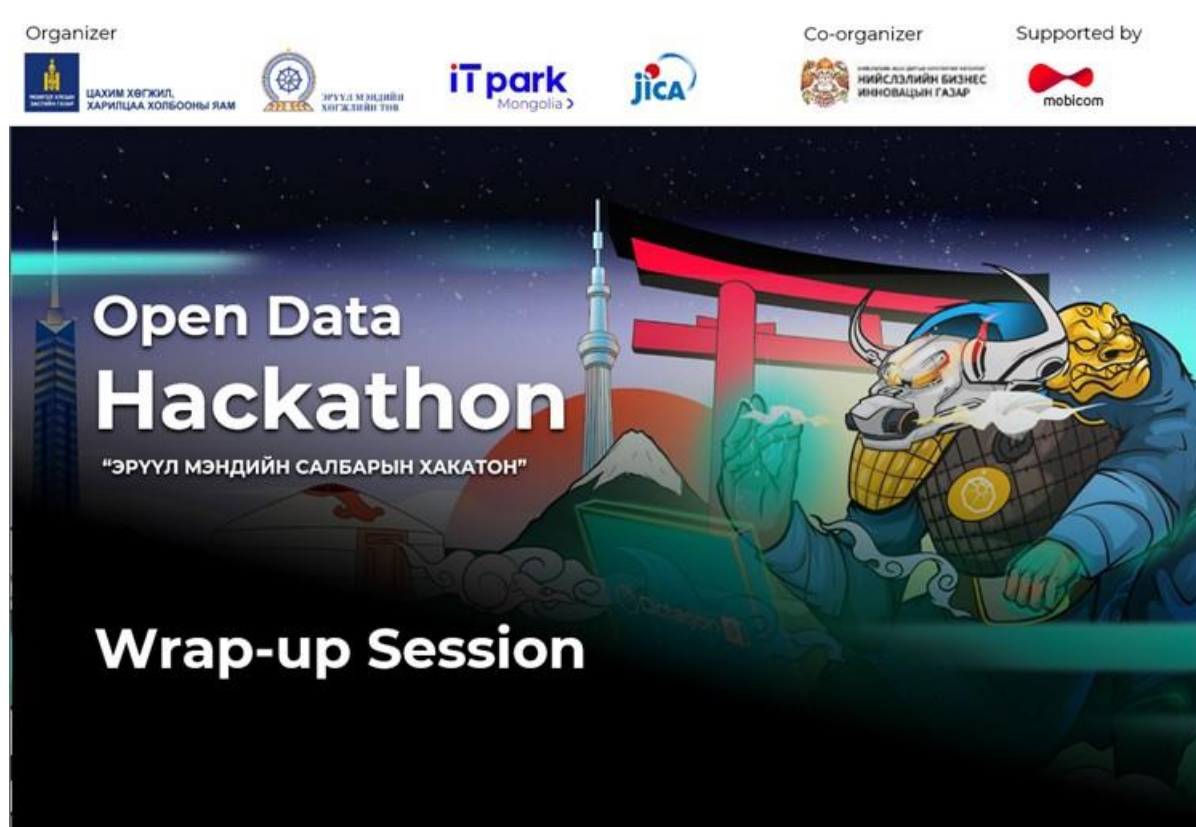


Figure 188 Banner for Hackathon Recruitment

(b) Holding the Hackathon

Table 111 Overview of the Hackathon

Schedule	Monday, September 2, 2024 – Friday, September 6, 2024
Venue	IT Park
Participating Teams	Team Anwjin Health Map Rookie Systems Care AI Prevention Healthcare Hey Doctor (Student Teams) Data Med
Target Fields	The business idea must pertain to the "Healthcare" field. Utilization of GEOTRA and its data provided by Mobicom is optional.
Implementation Details	- Participating teams will develop solutions that serve as prototypes for businesses utilizing open data to address challenges and improve public services in the healthcare sector in Mongolia. - Utilize open data provided by the Health Development Center. - Mentors will be available at the hackathon venue to provide advice from a technical development and business perspective. The mentors are provided by the MDDIC, the Ministry of Health, the Health Development Center, IT Park, and the Ulaanbaatar Innovation Hub. - The format of the prototype is not restricted (e.g., application, smartphone app, website, hardware, etc.). - In addition to open data, outputs that combine other commonly accessible and permissible web data or APIs are also acceptable.
Data Utilized (1) Data from Ministry of Health	330 statistical datasets held by the Health Development Center (such as mortality rates, birth rates, number of hospital beds, and other healthcare-related datasets).
Data Utilized (2) Location Information Data from Mobicom	GEOTRA: A marketing data with visualization and analytics function tool currently under development by Mobicom, utilizing mobile phone location data. Latitude and longitude data can also be downloaded in CSV format.
Mentors	- Enkhtulga Ganbat (MDDIC) - Altangerel Bolortulga (Health Development Center) - Enkhmanlai Khatanbaatar (e-Mongolia) - Bold Enkhjin (IT Park) - Gankhuyag Damdinsuren (Ulaanbaatar Innovation Hub) - Brandon Saffell (Deloitte Tohmatsu Financial Advisory LLC) - Jin Yoshida (Deloitte Tohmatsu Financial Advisory LLC)
Evaluation Method	- Scoring based on a score sheet - Product definition - Possibility of making a prototype - Profitability - Sustainability of business operation - Innovation - Attendance rate - Final decision determined by the judges' deliberation - Baatar Tungalag (MDDIC) - Davaa Sumiya (Health Development Center) - Bold Enkhjin (IT Park) - Batkhashig Zaya (JICA Mongolia Office) - Gankhuyag Damdinsuren (Ulaanbaatar Innovation Hub) - Brandon Saffell (Deloitte Tohmatsu Financial Advisory LLC)
Results	Winner: Rookie Systems (Awarded 20 million MNT (860,000 JPY) for PoC costs)

	• Runner-up: Data Med (Awarded 15 million MNT (640,000 JPY) for PoC costs) The above two companies conducted PoCs and presented their results in December.
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MDDIC, the Health Development Center, IT Park, and Ulaanbaatar Innovation Hub co-hosted an Open Data Hackathon from September 2 to 6, 2024. By the application deadline of August 26, 12 teams, including companies, had applied, and 7 teams were selected to participate in the hackathon, excluding those who withdrew at the last minute.

As a result of the hackathon, one of the seven teams withdrew, and six teams made their final presentations on their prototypes, receiving feedback and scores from the judges. The overall impression from all the judges was that each team had high technical levels, was rich in ideas, and presented prototypes that had the potential to be commercialized as businesses contributing to solving issues in the Mongolian healthcare sector. However, it was noted that all teams faced challenges in incorporating the open data provided by the Health Development Center into their prototypes. From the outset, incorporating open data into the final products was a condition for prototype development, and all teams were mindful of using the healthcare-related statistical data provided by the Health Development Center, the data from GEOTRA provided by Mobicom, or both throughout the hackathon. Nonetheless, the statistical data from the Health Development Center was limited to Excel files, which, while useful for identifying issues and insights in the Mongolian healthcare sector, posed challenges for direct incorporation into the prototypes. Given that several participating teams were considering the use of AI models, it became apparent that there was a strong need for big data and qualitative data, such as text, which could be more effectively used in AI models rather than just statistical data. For example, in the case of Data Med, they independently scraped qualitative data from the internet to use in their AI chatbot prototype. The location data from GEOTRA received positive feedback from participants, with needs expressed for using the data via APIs in applications and incorporating location data into apps (such as issuing alerts in densely populated areas). However, as GEOTRA was in a trial phase at the time of the hackathon and did not support APIs, it could not be incorporated into the prototypes. Nevertheless, the latitude and longitude CSV data from GEOTRA was well received, and with a longer hackathon period, there could have been more opportunities to utilize it in the prototypes. Additionally, as seen in the case of Data Med, all participating teams made efforts to use data other than that provided by the Health Development Center and GEOTRA, presenting ideas for using open-source big data and integrating with e-Mongolia for PoCs during their prototype presentations, indicating that participants were exploring all possibilities for collecting valuable data.

After considering the completeness of the prototypes, the feasibility of PoCs, and the future potential for commercialization, and following scoring on a score sheet and deliberation among the judges, Rookie Systems and Data Med were selected as the teams for PoCs.

In this hackathon, the statistical data provided by the Health Development Center was only used by the participating teams for identifying issues and generating insights. It became clear that the data with the highest demand from government agencies is location data, GEO data, big data, and unstructured data such as images, rather than statistical data. Applications utilizing location data, image diagnostics using machine learning algorithms, and chatbots have broad versatility and use cases, indicating a high demand for the openness of such government data. On the other hand, while statistical data is not entirely without value, it is deemed effective for generating insights and policy recommendations. Therefore, having access to both statistical data and big/unstructured data on an open data portal would increase its utility for private companies and developers.

Table 112 Overview of Each Participating Team's Prototype

Team	Issues to be addressed	Solution	Open Data Utilized (Excerpt)
Anvvjin	Management of hospital bed availability and allocation of inpatients in domestic hospitals is not being done appropriately	AI-powered hospital booking system linked with real-time hospital bed availability	Annual open data on hospital bed information (provided by the Health Development Center) Real-time bed availability information
Rookie System	High volume of unnecessary calls, resulting in 30% of emergency calls (119 in Japan) not being answered	AI Bot for preliminary call screening at call centers (diagnosis based on symptoms, urgency assessment)	Data on the usage of emergency calls (only summary data, used for understanding the issue) Acquisition of test results from private hospitals during PoC
Care AI	Children's dental cavities	Educational app for children's tooth brushing Display of brushing history and risk levels	Tooth image data (not open data)
Prevention Healthcare	Preventable diseases like diabetes and hypertension	Personalized risk assessment, preventive measures suggestions, early detection advice	Personal information such as age, gender, family medical history Various test results from hospitals Targeting customers aged 40 and above using GEOTRA
Hey Doctor	Inappropriate use of medication by children when left alone:	Educational app for children's health Child monitoring function	Data on diseases and injuries Location information of crowded areas (high accident risk) provided by GEOTRA
Data Med	Lack of medical access, shortage of doctors, and insufficient medical information in rural areas:	Chatbot providing medical and drug information	E-Clinic (suggestions from 120 doctors) WHO and Ministry of Health guidelines Acquisition of data from pharmaceutical companies during PoC



Figure 189 Scenes from the Hackathon

MENTOR SCHEDULE				
TIME	Monday (September 2nd)	Tuesday (September 3rd)	Wednesday (September 4th)	Thursday (September 5th)
MINISTRY OF DIGITAL DEVELOPMENT, INNOVATION AND COMMUNICATIONS	9:00-12:00	-	-	10:00-11:00, 13:00-14:00
CENTER FOR HEALTH DEVELOPMENT	9:00-14:00	13:00-15:00	13:00-15:00	10:00-12:00
IT PARK	9:00-17:00	10:00-11:00	9:00-11:00	9:00-11:00, 15:00-16:00
INNOVATION HUB	9:00-12:00	-	10:00-12:00	11:00-12:00
E-MONGOLIA	-	15:00-17:00	13:00-14:00	14:00-15:00
DELOITTE	9:00-17:00	11:00-17:00	9:00-17:00	9:00-17:00

Figure 190 Mentoring Timetable

(c) Implementation of PoC and Hosting of Results Presentation and Networking Event

The top two winners of the Open Data Hackathon, Rookie Systems and Data Med, conducted their PoCs from September to November 2024 to refine the services/applications they developed during the hackathon. Given the need for hands-on support in Mongolia for the PoC implementation, DX Mongolia was selected as a local subcontractor, with Mr. Tuguldur and his team providing mentoring support for the PoC. The results of these PoCs were reported to MDDIC, the supervising authority. To further promote the use of open data and to foster interaction with academia, ICT businesses, and venture capitalists, and to accelerate the commercialization of services utilizing open data, a results presentation and networking event was held on December 6, 2024.



Figure 191 Presentation Scene of Data

During the hackathon, Data Med aimed to collect disease-related information from sources such as E-Clinic (suggestions from 120 doctors), WHO, and Ministry of Health guidelines, and to provide medical and drug information through a chatbot. For the PoC, to improve the accuracy of the chatbot's responses, Data Med partnered with the online pharmacy MEIC, received drug-related information from them.

As a result, Data Med completed a chatbot, as shown in the figure below, and discussions are underway to release the chatbot as a service through MEIC. The progress of this venture as a business is commendable. However, from the perspective of utilizing open data, it can be said that open data alone was insufficient for commercialization, and they had to rely on information from private companies to improve accuracy, highlighting the limitations of open data utilization.

Helper chatbot for online pharmacy



Figure 192 Data Med's Chatbot

During the hackathon, Rookie System identified that there were a high number of unnecessary emergency calls and a low response rate for high-urgency calls, based on data on emergency call usage. They developed a preliminary screening app for call centers using an AI Bot. Specifically, the AI Bot aimed to diagnose symptoms to assess urgency and appropriately respond to other non-urgent inquiries. For the PoC, Rookie System collaborated with the private hospital GYALS, training the AI Bot with 100 medical test results to improve response accuracy.

While the identification of the social issue was accurate and the approach to solving it was appropriate, it became clear, similar to Data Med, that constructing a solution solely with open data was challenging.



Figure 193 Presentation scene on Rookie System

Medical test

100 гаруй өвчтөний
шинжилгээний мэдээлэл
болон эмчийн зөвлөмж



ISO15189:2013 стандарты
МАҚАДДАҢ АҚТ 2004/01/01 ДСЖН

2009 жыл сәуірінен 2013 жыл 11 сәуіріне қызыл түрлендірілген

ҒЫЛ АНАГАХИ УКААНЫ ТӨБ
ХАР: 63Д 40 ХОРО, ЭНКАТАВНАНЫ БҒҒОН ЧЕЛРОФ - 61А
УТАС: 11-45781, 7575411 БЗБ: WWW.GYALS.MN

ЗАКАЛЫҒЫН НО: 331954

РЕКСТ:

ЗАДҒЫН АЙН КОР:

ВАРЫНЫ КОР:



НАС:

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ЦИФРОКОДҒЫН ЭКЭННІ ТӨРӨП: **Бөтөнше**

ЦИФРОКОДҒЫН ТӨВӨРӨКӨННІ БС-8000 MINORAT



ОҒҒЫН: 2019-12-20

ОҒҒЫН: 2019-12-20

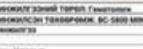
ОҒҒЫН: 2019-12-20

ЦИФРОКОДҒЫН	ХАҒЫТ	КОДҒЫ	АҒАЛЫН ЭКЭННІ	ТҒАДЫҚ
АҒАТ	11.61	g/s	8.02-8.03	
АҒАТ	86.71	g/s	39.39	
АҒАТ	14.48	g/s	5.1-5.26	
АҒАТ	11.08	mm/s	3.20	
АҒАТ	21.20	g/s	8.1-8.39	
АҒАТ	36.40	mm/s	24.19	
АҒАТ	14.20	g/s	5.40	
АҒАТ	21.18	g/s	8.0-8.39	
АҒАТ	87.22	g/s	39.1-39.2	
АҒАТ	8.19	mm/s	3.8-7.2	

СӨРҒЫ АҒАҒ:

ЦИФРОКОДҒЫН ЛАВОНАТ:

БАТАЛ АЖАҒУУСЫН ЭНН:



ОҒҒЫН: 2019-12-20

ОҒҒЫН: 2019-12-20

ОҒҒЫН: 2019-12-20

ЦИФРОКОДҒЫН	ХАҒЫТ	КОДҒЫ	АҒАЛЫН ЭКЭННІ	ТҒАДЫҚ
АҒАТ	5.04	mm/s	4.02-4.07	
АҒАТ	5.16	mm/s	4.02-4.07	
АҒАТ	7.04	g/s	19.1-19.2	
АҒАТ	69.9	g/s	46.1-46.3	
АҒАТ	86.8	g/s	39.1-39.2	
АҒАТ	21.2	g/s	20.7-20.8	
АҒАТ	21.6	g/s	20.2-20.5	
АҒАТ	21.8	mm/s	16.0-16.7	
АҒАТ	41.2	g/s	38.1-38.5	
АҒАТ	51.8	g/s	31.8-31.9	
АҒАТ	19.6	g/s	9.1-9.2	
АҒАТ	8.1	g/s	7.1-7.2	

Figure 194 Medical Test Results Utilized by Rookie Systems

A panel discussion was conducted with Mr. Tuguldur from DX Mongolia as the moderator. The decision was made to hold an open discussion with all attendees participating, rather than designating specific panelists, in order to gather a variety of opinions from the diverse participants presented. MDDIC explained that the legal framework for open data has been established, and a repository for open data has been created. They expressed a desire for the next phase to involve both government and private companies inputting data.

Representatives from the NUM requested that, in addition to inputs from the government and private companies, useful data from e-Mongolia being transitioned to the open data platform.

It was noted that both companies participating in the PoC utilized AI, highlighting that not only quantitative data but also complex information such as text and medical test results are valuable for AI training. This led to a discussion on the need to expand the traditional concept of open data.

In relation to this, MDDIC posed a question about whether it would be better to publish raw data or processed data (including infographic data summaries). While the Ministry believed that processed data held more value (as storing only raw data did not add value for the Ministry), the majority of participants expressed a preference for raw data.

Finally, Mr. Tuguldur emphasized the importance of continuing discussions on open data in forums involving industry, government, and academia, similar to the current panel discussion. He proposed the establishment of a working group and recommended that MDDIC allocates a budget for this purpose. MDDIC responded positively to the idea of forming a working group and indicated that they would consider the financial aspect.

(d) Evaluation

For PP(5), the following measures were taken to address the anticipated issues identified beforehand.



Figure 195 Scene from the panel discussion

Table 113 Anticipated Issues and Countermeasures for PP(5)

Evaluation Item		Outcome	Anticipated Issues	Countermeasures
Achievement of Objective		Addressed	Ensuring a sufficient number of applicant companies and the realization of a certain number of prototype developments	Secured sufficient applicant companies and led to prototype development, allowing two companies to proceed to PoC.
Resources	Personnel	Resolved	Need to arrange mentors for engineers in addition to MDDIC	Coordinated with MDDIC, and so on, which provided e-Mongolia engineers as mentors.
	Costs	Resolved	Cost adjustments for co-hosting with MDDIC	Adjusted through meetings with MDDIC and other co-hosts, reaching general agreement on venue and mentor budgets, and executed within the initial budget.
	Operation Sub-contractor	Resolved	Need to arrange an appropriate local subcontractor for PoC support	Selected DX Mongolia, which has extensive PoC experience, as the subcontractor.
Preparation	Program Content	Resolved	- Mismatch between data sought by private sector and data provided by government, and private sector was unable to conceive business ideas due to data-centric approach - There may not be a sufficient number of prototype developments. - Depending on the quality of the prototypes, it may not be possible to hold a matching event with investors.	- Proper understanding of private sector needs through pre-discussions with stakeholders - Prior notification to private companies about data formats on the open data portal - Unification of data formats used - Decided on event feasibility after meetings with the hackathon program managers at the MDDIC.
	Participation of Companies (Recruitment /Selection)	Resolved	Possibility of insufficient number of applications	- Reviewed notification methods for the canceled hackathon hosted by MDDIC - Maximized use of effective notification methods and available networks.
Operations	-	Addressed	Possible ambiguity in role distribution among mentors	Coordinated with co-hosts in advance, ensuring appropriate mentor placement.
After Implementation	-	Addressed	Potential criticism of ambiguous evaluation criteria	Created a scoring sheet and established clear evaluation criteria.

After conducting the hackathon, a survey was administered to participants to gather feedback on the hackathon and to collect opinions on the current state and challenges of open data in Mongolia from a user perspective. The results are detailed below.

Table 114 Survey Results from Participants Following the Open Data Hackathon

1. Evaluation of This Hackathon Program					
Rating (5-point scale)	1	2	3	4	5
Number of Respondents	0	0	2	2	4

2. Self-Evaluation in This Hackathon Program					
Rating (5-point scale)	1	2	3	4	5
Number of Respondents	0	1	1	4	2

3. Did Mentoring and Lectures Support Prototype Development?					
Rating (5-point scale)	1	2	3	4	5
Number of Respondents	0	0	2	4	2

4. Was Five Days a Sufficient Period for Development?		5. Would You Participate in Other Open Data Hackathons?	
Yes	5	Yes	6
No	3	I don't know.	2

6. Was Early September a Suitable Time for the Hackathon?		7. Was the Venue Suitable for Hosting the Hackathon?	
Yes	5	Yes	8
No	3	No	0

8. Did You Know About Open Data Before Applying?		9. Was the Provided Data Sufficient for Prototype Development?	
Yes	3	Yes	2
No	5	No	6

10. Are the Currently Released Statistical and Time Series Data by the Government Valuable for Development?	
Yes	3
No	5

11. What Kind of Data Held by the Mongolian Government or Ulaanbaatar City Would You Like to Use?
Early screening medical data
Unprocessed data
Data in API-accessible formats
Public transportation data
Stock market data (stock prices, raw market indicators, etc.)
Personal data
Niche data

12.What Measures Do You Think Are Effective to Promote the Use of Open Data? (Multiple answers allowed)	
Diversification of data formats	6
Diversification of data types	6
Frequent hosting of hackathons and datathons	4
Introduction of overseas examples	3
Integration of open data portals	2

From the above survey results, it is evident that the overall evaluation of the hackathon itself was high, and there were no significant issues regarding the timing or the venue of the event. However, participants frequently pointed out that the types and amounts of data provided were insufficient for open data development. As

indicated in Question 10, statistical and time series data are not highly valuable for business use as open data. Participants expressed a need for data which are easier to integrate with diverse types, formats, and quantities such as medical imaging data, data that can be integrated via API, public transportation data, and big data for AI modeling as described in Question 11. From the perspective of high value in business use. Additionally, considering these needs, the most frequently mentioned area for improvement in Mongolia's open data portal was the diversification of data types and formats.

(e) Suggestions for Support Measures

The following are proposed support measures to promote the utilization of open data within Mongolia. It is important to note that open data involves multiple stages, including data collection and cleansing, data utilization, and the actual resolution of social issues and the improvement of public services. Comprehensive support spanning all these stages is necessary to achieve a deeper understanding and practical application.

(1) Capacity Building for ICT Personnel

- ✓ (Government side) Development of capacity-building programs aimed at enhancing the ability to utilize open data for private sector use: Development of skills for government agency staff in data collection methods, standardization and unification of data formats, and improvement of portal graphics and UI with private sector use in mind.
- ✓ (Private sector side) Provision of case studies demonstrating the business benefits of making corporate data public (including examples from Japan and other countries, techniques for anonymizing personal data, etc.) to increase interest in the openness of private sector data. (For reference, examples of private sector data being made open in other countries are included.)

Table 115 Examples of Private Sector Data Openness in Various Countries

Newmont Corporation (Canada) *Formerly GoldCorp Inc.	In 2000, the company published its geological data on its website and held a contest called the "Gold Corp Challenge" with a cash prize, which allowed them to receive analysis results from a wide range of experts, leading to their growth into a major corporation.
Uber (USA)	In 2017, Uber launched "Uber Movement," making billions of anonymized traffic data from various cities available as open source for non-commercial purposes and reusable.
HealthData 29 (Spain)	The platform anonymizes medical data from patients in private hospitals nationwide and provides it free of charge to researchers. The development of the platform was supported by Microsoft's Open Data Campaign. *Open Data Campaign: An initiative led by Microsoft to promote the openness of data across industries, government, and academia, aiming to alleviate the concentration of data within a few companies or organizations and enabling all organizations, regardless of size, to utilize data and contribute to solving societal issues.

(2) Support for Developing Action Plans/Strategies Aimed at Improving Public Services and Solving Social Issues

- ✓ Support for the Mongolian government in determining policies for the utilization of open data based on the needs of private companies identified through hackathons and business demonstration programs (as mentioned in PP(5)), and in formulating action plans aligned with these policies.

(3) Support for Establishing and Operating Public-Private Working Groups and Creating Opportunities for Engagement with the Private Sector

- ✓ (Government side) Organizing workshops with the private sector: Understanding private sector needs (promising data fields, formats, etc.) through discussions based on the results of PP(5).

Chapter 8 Trade Environment in Mongolia's ICT and Digital Industry

Through the course of this study, it became clear that supporting overseas expansion is one of the key measures for promoting Mongolia's ICT and digital industry, as well as its startups. Therefore, in considering future support measures, an additional survey was conducted on the trade environment between Mongolia and Japan, as well as with Central Asia, which is considered a promising destination for overseas expansion.

1. Trade and Foreign Investment Environment in the ICT and Digital Industry in Mongolia

1) Background and approach of the survey

In this study, it was confirmed that, for the promotion of Mongolia's ICT and digital industry, it is important for companies within the industry to aim beyond the limited domestic market and expand into overseas markets, particularly targeting Japanese and the neighboring Central Asian markets. To promote overseas expansion, it is essential to understand the status and challenges of trade and investment agreements, as well as regulatory frameworks, in neighboring countries that Mongolia and Mongolian companies are likely to consider for expansion.

As one of the exit strategies for ICT startup companies, attracting investment from major foreign companies is anticipated. However, there is a lack of well-organized information regarding foreign investment regulations of Mongolia and neighboring countries. With regard to investment regulations, it is also necessary to identify challenges related to designing conditions and incentives that facilitate technology transfer from foreign companies, while maintaining Mongolia's appeal as an unregulated test market.

For the survey on trade and investment agreements and regulations, in addition to Mongolia, two countries from Central Asia—Kazakhstan and Uzbekistan—were selected. Both countries have organizations—Astana Hub⁴³ in Kazakhstan and IT PARK⁴⁴ in Uzbekistan—that support the activities of ICT startup companies and are advancing collaboration with Mongolia's IT Park. These organizations are expected to become key topics of discussion when Mongolian companies consider expanding into Central Asia in the future.

A study was conducted on the current status of agreements, related laws, and regulations concerning trade and foreign investment in the three aforementioned countries. Specifically, the laws and agreements listed in the table below were examined. The study focuses on investment-related laws and foreign investment laws that define the investment environment, while also examining licensing laws and sandbox laws from the perspective of enhancing Mongolia's appeal as a test market. In addition to the laws listed in the table, information was also organized regarding tax laws, customs laws, corporate registration laws, and company laws, focusing on notable aspects related to trade and foreign investment.

Table 116 Key Laws for Survey in Mongolia and the Two Central Asian Countries (Kazakhstan and Uzbekistan)

	Mongolia	Kazakhstan	Uzbekistan
Investment-related Law	○	○	○
Foreign Investment Law	○	○	○
Licensing Law	○	○	○
Sandbox Law	○	—	○
Trade and Investment Agreements with Mongolia	—	○	○

Information on each law and agreement was organized primarily from the following four perspectives: 1) Objective, 2) Scope of Application, 3) Specific Provision for Foreign Investors, Support Measures for Investors (under investment-related law, etc.). In particular, the study focused on whether there are any excessive regulations or provisions that could hinder the formation of business models by investors, especially in the context of foreign investors generating profits in Mongolia, Kazakhstan, and Uzbekistan and repatriating those profits to their home countries.

⁴³ <https://astanahub.com/en/>

⁴⁴ <https://it-park.uz/en/itpark>

2) Mongolia

(a) Summary: Challenges and Potential for Investors

This section summarizes the potential and challenges of Mongolia's investment environment from the perspective of foreign investors. Evaluating the state of legislation and its implementation, Mongolia is considered to have established an investment-friendly environment. However, for certain foreign investors, there are perceived risks of disadvantage, particularly in procedural aspects such as corporate registration and dispute resolution. The potential and challenges of the Mongolian market for foreign investors have been organized as follows.

Firstly, based on the state of legislation and related frameworks, the following outlines the attractions, advantages, and potential challenges for foreign investors entering the Mongolian market.

<Opportunities for Foreign Investors>

- There are minimal investment regulations or barriers, allowing free market entry (Licensing Law).
- A national-level data integration infrastructure is being developed, promoting procedural efficiency through digitalization (e.g., streamlining permit and licensing processes, expanding online services).
- The Investment Law provides various non-tax incentives. For example, while employing foreign workers requires approval in accordance with the Labor Migration Law (to be discussed later), foreign investors meeting specific requirements related to their investment sector may receive support for obtaining such approvals and increasing the number of employees. Additionally, exemptions from employment fees, multi-entry visas, and permanent residency permits may be granted, demonstrating the establishment of a legal framework that is favorable to foreign investment inflows (Investment Law).
- The Investment Law offers proactive tax incentives to investors, such as tax exemptions (e.g., customs duties and value-added tax on materials for factory construction) and deductions for specific activities.
- Foreign investors are allowed to establish companies, with no specific requirements regarding the employment of local personnel during the establishment process (Corporation Law).

<Challenges for Foreign Investors>

- While legal frameworks to attract foreign capital are being developed, challenges remain due to the lack of public comment periods during the drafting and enactment processes, leading to sudden implementation. Additionally, low transparency in the enforcement of these laws and the administrative bodies responsible for their implementation contributes to persistently high judicial and administrative risks.
- Corporate names must be registered in Cyrillic script and cannot duplicate or closely resemble the names of other entities. The determination of similarity is broadly interpreted, often resulting in desired names being rejected on the grounds of potential confusion with existing corporate names. Consequently, registering a corporation has become increasingly challenging over the years (Corporate Registration Law).
- When foreign investors withdraw from Mongolia, the deregistration process requires certificates from the court and the tax authorities, which can sometimes be time-consuming and costly (Corporate Registration Law).
- While Mongolia demonstrates a welcoming attitude toward foreign capital inflows, labor migration laws require the employment of Mongolian workers in proportion to the number of foreign workers hired, as part of domestic employment protection measures. This requirement could potentially hinder foreign investors from entering the Mongolian market (Labor Migration Law).
- Free trade agreements (FTAs) are planned with the Eurasian Economic Union (EAEU), including Central Asian countries, and South Korea. Companies from countries benefiting from these agreements are expected to gain favorable conditions for sourcing materials within Mongolia, which could place Japanese companies at a disadvantage (Customs Law).
- There is no tax treaty between Japan and Mongolia, creating a tax environment where Japanese investors face higher tax risks, such as the possibility of double taxation, compared to investors from treaty countries like South Korea.
- There is a lack of accumulated experience in dispute resolution, particularly in the use of real estate and land, where foreign investors face certain restrictions on their rights. The inability of government institutions to effectively resolve disputes in this area poses a significant risk for investors.

(b) Overview of Each Law

The following provides an overview of individual laws and agreements.

A. Investment Law (ХӨРӨНГӨ ОРУУЛАЛТЫН ТУХАЙ)⁴⁵

The Mongolian Investment Law is enacted with the aim of protecting the legal rights and interests of investors, establishing general legal guarantees for investments, promoting investments, stabilizing the tax system, defining the authority of state institutions regarding the rights and obligations of investors, and regulating other matters related to investments. Notably, the 2013 amendment stipulates that the scope of application generally does not differentiate between domestic and foreign investors.

While foreign investors are, in principle, subject to the same regulations as Mongolian investors, certain industrial sectors impose specific restrictions on foreign investors in order to protect domestic businesses. Firstly, foreign state-owned enterprises (where 50% or more of the shares are directly or indirectly held by a government) face certain entry restrictions. Under the law, these entities are required to obtain approval from the Ministry of Economic Development if they intend to acquire more than 33% of the shares of a Mongolian company in sectors such as mining, banking, finance, publishing, media, telecommunications, and defense. In particular, in the mining sector, projects related to mineral resources of strategic national importance, such as uranium and rare earth elements, are exclusively reserved for state-owned enterprises, and foreign investors are not permitted to participate. As an exception, the rights related to land and real estate are separately stipulated under the Constitution and the Land Law (2002). While foreign investors can acquire usage rights for land and real estate, they are not permitted to exercise ownership rights. Additionally, usage rights cannot be pledged, transferred, or sold. Although such regulations exist, entry into the ICT and digital industries is permitted as long as it does not involve national defense or national security concerns.

Additionally, under the law, foreign investors are granted the right to convert legitimate income and profits into any foreign currency of their choice and transfer them abroad. Transfers must be completed within a maximum of one week, depending on the transaction amount, unless there is a shortage of foreign currency in the Mongolian market. Under the Domestic Currency Settlement Law (enacted in 2009), the prices of goods and services traded within Mongolia must, in principle, be displayed and settled in the domestic currency unless exempted by the Central Bank of Mongolia. However, if one of the contracting parties is a foreign entity, the Investment Law permits the contract price to be displayed in a foreign currency.

The Investment Law also outlines policies aimed at supporting various investors and providing incentives. These supports are divided into tax incentives and non-tax support. As part of the tax incentives, exemptions from customs duties and value-added tax are provided for imported equipment and machinery used in the construction of facilities in sectors such as power, railways, nano- and biotechnology, as well as in the production of construction materials, petroleum, agricultural products, and export-oriented goods. These supports are primarily limited to hardware-related assistance; however, they are likely to apply to ICT and digital sector companies in connection with future initiatives such as the establishment of data centers. Such support is determined based on applications submitted by foreign entities to the tax authority, requiring case-by-case negotiations and confirmations. In connection with tax incentives, a Tax Stabilization Certificate is established, which guarantees investors who receive the certificate the application of stable tax rates for up to 18 years. These rates include corporate income tax, customs duties, value-added tax, and mineral royalty tax, making it easier for investors to develop long-term business plans. The certificate is amended to reflect any reductions in applicable tax rates, but it does not reflect increases. Entities holding the certificate can continue paying taxes at the original rates (Article 17, Paragraph 4).

Non-tax support measures are diverse and include rights to land ownership and use for up to 60 years (foreign investors are limited to usage rights only, which can be extended by up to 40 years under contracts), assistance with various registrations and regulatory relaxations in designated free trade zones, permissions and cost reductions to increase the number of foreign workers in sectors such as infrastructure, manufacturing, science, and education, financial support and guarantees for export-oriented innovation projects, and the provision of multiple-entry or permanent residence visas.

⁴⁵ <https://legalinfo.mn/mn/detail/9491>

B. Licensing Law (ЗӨВШӨӨРЛИЙН ТУХАЙ /Шинэчилсэн найруулга/) ⁴⁶

The Mongolian Licensing Law aims to regulate the issuance, extension, suspension, reinstatement, revocation, registration, and management of licenses in cases where specific activities may pose risks to national security, financial stability, public interests, residents' health, or the environment, as well as in cases involving the restricted use of natural resources and public assets of the country. The law also lists the sectors in which activities require licensing within Mongolia, along with the respective authorities responsible for granting such licenses. The law does not establish separate provisions for foreign investors and imposes the same regulations on all investors, with no specific preferential measures identified for foreign entities.

Similar to the Investment Law, conducting business in sectors such as mining, banking, finance, publishing, media, telecommunications, and national defense within Mongolia requires obtaining permits from the relevant regulatory authorities. For example, in the area of Fintech services, activities such as setting prices and conducting transactions in foreign currencies or settlement units, engaging in credit information-related operations, and providing payment services require authorization from the Bank of Mongolia. Furthermore, non-bank financial institutions offering electronic payment and remittance services must obtain approval from the Financial Regulatory Commission (FRC).

C. Sandbox Regulation

In Mongolia, regulations related to the sandbox environment in the financial services sector were outlined in 2023 through directives jointly issued by the FRC, the Ministry of Finance, and the Bank of Mongolia. By submitting an application based on these directives and the guidelines published by the FRC, businesses can gain access to the sandbox environment. This allows them to test and introduce products or services without being constrained by the existing regulatory framework or waiting for the necessary regulatory environment to be fully developed.

Access to the sandbox environment is conditional upon being a legal entity registered in Mongolia and meeting various financial requirements, which are equally applicable to entities established in Mongolia by foreign investors. Furthermore, the products and services tested within the sandbox environment must have appropriate objectives and meet specific technical requirements. Among the technical requirements, entities are expected to possess a data center meeting Tier 2 standards and ensure encryption of personal information, among other criteria.

Participants in the sandbox are allowed to test products and services that have not yet been approved by financial regulatory authorities within the sandbox environment. However, they are required to inform consumers in advance about this fact and the associated risks, as well as clearly state these details in the contract with the consumers. Additionally, when exiting the sandbox, participants must submit an application to the FRC. If the FRC determines that the product or service can be introduced to the market, the participant can proceed to develop a detailed implementation plan and launch the service under the supervision of the FRC.

Additionally, a Sandbox Office has been established as the entity responsible for conducting investigations and analyses related to various applications and transition plans, and for providing recommendations and notifications to the FRC. The office is composed of representatives from the FRC and the Bank of Mongolia, the Minister of Finance, the Minister of Digital Development, Innovation, and Communications, as well as other researchers and experts.

D. Japan-Mongolia Economic Partnership Agreement (EPA)

The Japan-Mongolia Economic Partnership Agreement (EPA) has also been reviewed as a relevant legal framework and agreement concerning Mongolia. Related public-private joint research began in 2010, and following bilateral negotiations based on the findings of this research, the agreement was signed in 2015 and came into effect on June 7, 2016. The agreement aims to expand trade between the two countries, improve the investment environment in sectors such as energy and mineral resources, and strengthen partnerships. Furthermore, it envisions the development of digital industries and related investments through mutual cooperation between Japan and Mongolia.

Firstly, Chapter 10 of the agreement outlines the general principles of cooperation regarding investments between the two countries. Both Japan and Mongolia grant national treatment and most-favored-nation treatment to the activities of investors from the other country within their respective territories. Furthermore,

⁴⁶ <https://legalinfo.mn/mn/detail?lawId=16530780109311>

Article 7 of the same chapter prohibits the imposition of performance requirements, thereby confirming that no restrictions will be placed on foreign investors regarding exports, procurement, or sales. It also stipulates that the transfer of intellectual property, such as through technology licensing agreements, will not be subject to government intervention. This provision is considered particularly effective in promoting investments in the digital industry. Additionally, Article 11 of the same chapter explicitly addresses the transfer of funds, ensuring that funds related to the investments and properties of investors from the other country can be transferred without obstacles. The agreement also guarantees that, as a general rule, there are no restrictions on the repatriation of profits to the investor's home country.

In addition, Chapter 9 includes various provisions to promote electronic commerce, establishing the principle of technological neutrality in e-commerce and stipulating preferential measures related to the digital industry. Both countries have agreed not to impose customs duties on electronic transmissions between them (Article 3). Furthermore, Article 4 stipulates that digital product—such as computer programs, text, videos, images, sound recordings, and other digitally encoded items—will receive the same treatment as domestic products, ensuring non-discrimination between the two countries. Article 10 prohibits requirements related to the location of computer-related facilities, meaning that Japanese investors can conduct business in Mongolia without the need to invest in local infrastructure, such as data centers. However, exceptions are allowed if the measures are necessary to achieve legitimate public policy objectives. Additionally, Article 11 establishes provisions regarding source code, ensuring that neither country requires the disclosure of source code owned by investors from the other country as a condition for importing, distributing, selling, or using software. However, exceptions may be made for software used in critical infrastructure.

As part of the practical arrangements following the implementation of the agreement, manuals on the utilization of the EPA have been prepared by JETRO and the Japan Chamber of Commerce and Industry. However, these manuals primarily focus on the issuance of certificates of origin for exports and the application of tariff preferences. No specific follow-up measures regarding the practical aspects of utilizing the agreement for investment activities were identified.

E. Other relevant laws and regulations

In Mongolia, it has been observed that foreign investors are subject to certain special provisions under other laws and regulations applicable to operating businesses within the country.

Firstly, Article 25 of the Tax Law requires foreign investors to register as taxpayers and to submit transfer pricing documentation along with their tax returns.

In addition, the Corporate Registration Law stipulates the types of corporate entities that foreign investors can establish and the procedures for registration. Specifically, foreign investors can acquire legal entity status as a Limited Liability Partnership (LLP), a Representative Office, or a Permanent Establishment (PE). To engage in revenue-generating activities within Mongolia, the establishment and registration of either an LLP or a Permanent Establishment is required. In recent years, the registration process has become more accessible for foreign investors due to the introduction of the government-managed investor information platform known as e-invest.mn. However, corporate names must be registered in Cyrillic characters, and Mongolia does not allow duplication or similarity with the names of other entities. As a result, if the desired name is deemed similar to an existing corporate name and might cause confusion, registration may be denied. This has made it increasingly difficult to obtain desired corporate names over the years. The criteria for determining similarity are detailed in Article 3 of the "Corporate Name Verification Regulations"⁴⁷.

When foreign investors establish a corporation in Mongolia and hire workers locally, it is essential to review relevant laws and regulations, including the Labor Law (amended in July 2021). Particularly concerning the employment of foreign workers, related provisions are outlined in the Law on Labor Migration (АЖИЛЛАХ ХҮЧНИЙ ШИЛЖИЛТ ХӨДӨЛГӨӨНИЙ ТУХАЙ), which was amended in December 2021. This law aims to regulate the rights of Mongolians working abroad, as well as the rights of foreign nationals and stateless persons working or being employed in Mongolia, ensuring the protection of their legitimate interests. Specifically, Article 22 of the law states that the number and proportion of foreign workers employed in Mongolia must be approved by the government for each economic sector, with these figures being compiled annually by relevant authorities. The purpose of restricting the number and ratio of foreign workers is to protect domestic workers in Mongolia, particularly trainees and interns in apprentice positions. Article 22, Paragraph 4,

⁴⁷ <https://legalinfo.mn/mn/detail?lawId=208780&showType=1>

stipulates that employers must hire Mongolian trainees in numbers equivalent to at least 30% of the foreign workers they employ. Furthermore, Articles 23 and 24 outline the procedures for obtaining the necessary permits to employ foreign workers. Employers are required to submit information to the authorities regarding the skills of the foreign workers, the necessity of those skills, and work plans. Only after obtaining the required permits can employers proceed to hire foreign workers.

Additionally, when employing foreign workers, it is necessary to consider the implications of the "Law of Mongolia on Sending Workers Abroad and Receiving Workers and Specialists from Abroad." Article 9 of this law stipulates employment fees, requiring monthly payments to provide means for employing foreign workers and generating income in Mongolia. These funds are accumulated in an Employment Promotion Fund and are designated for job creation and unemployment countermeasures. According to this law, Mongolian companies must pay an amount roughly equivalent to twice the minimum wage in Mongolia for each foreign worker employed. While Mongolia demonstrates a proactive stance toward foreign investment inflows, its employment policies are designed to protect domestic workers. Foreign investors should carefully consider this aspect when planning their operations.

Additionally, as part of the regulatory framework relevant to the development of the ICT and digital industries, the status of regulations on the circulation and management of personal information and data in Mongolia has been reviewed. In 2022, Mongolia enacted the Law on the Protection of Personal Information (ХҮНИЙ ХҮВИЙН МЭДЭЭЛЭЛ ХАМГААЛАХ ТУХАЙ), which establishes regulations related to the collection, processing, use, and security of personal information and data. Article 3 of this law outlines its scope of application, which extends to the collection, processing, and use of information through technological devices and software. Articles 6 and 7 specify the conditions under which state agencies, individuals, and legal entities are permitted to collect, process, and use information. In principle, such activities are only allowed with the consent of the data subject or based on legal or contractual grounds. Additionally, certain types of information—such as personal health data, communications, genetic and biometric information, and digital signature keys—are classified as highly sensitive information. The law grants certain state agency personnel the authority to collect and manage such information, while also establishing a Human Rights Commission to provide recommendations to data controllers and to prevent violations of human rights and freedoms in the handling of information. Article 25 grants the MDDIC the authority to ensure the implementation of the law, promote its adoption, and provide support in collaboration with relevant agencies to protect information in the digital environment. Foreign investors operating businesses in Mongolia must pay particular attention to Article 14. This article regulates the provision of information to foreign individuals, legal entities, and international organizations. It prohibits the transfer of information to such parties unless specified by law, international treaties, or with the consent of the data subject. As a result, foreign investors are generally required to confine the circulation of information to entities such as LLPs established in Mongolia. Any linkage to their home country is permitted only under separate contracts or agreements.

3) Kazakhstan

(a) Summary: Challenges and Potential for Investors

In Kazakhstan, as in Mongolia, support measures are established without distinguishing between domestic and foreign investors. However, this has also led to a tendency for foreign investors to be at a disadvantage in competition with local businesses. For foreign investors, the following points are considered potential advantages and attractions, as well as challenges.

<Opportunities for Foreign Investors>

- Foreign investors are treated equally with domestic investors and are eligible to receive support such as loans and grants from government agencies for innovation activities. Additionally, systems related to tax incentives, investment dispute resolution, and other aspects of investment activities are detailed and codified in the Entrepreneurial Code.
- By adopting the structure of a Limited Liability Partnership (LLP), foreign investors can easily establish subsidiaries regardless of their nationality. Moreover, this structure provides the advantage that investors' liability for the losses of the entity is limited. (Corporate Registration Law)

<Challenges for Foreign Investors>

- In principle, foreign investors are treated equally with domestic investors under the Entrepreneurial Code. As a result, the advantages of being a foreign company, such as tax incentives, are limited. Therefore, it is essential for foreign investors to make investment decisions based on clearly identified reasons for market entry, taking into account factors such as market maturity, while recognizing that they may be at a disadvantage compared to local companies in areas such as language and network-building.
- There are challenges in government governance, with corruption observed within the bureaucratic system. Concerns have been raised regarding the transparency and consistency of regulations, and there is a lack of stability in the legal environment. This not only affects existing investments but also poses significant risks for investors.
- Procedures such as company registration require the use of Kazakh or Russian languages. (Corporate Registration Law)

(b) Overview of Each Law

The following provides an overview of individual laws and agreements.

A. Investment-related Law

Kazakhstan's Corporate Law, Investment Law, and Foreign Investment Law are consolidated into a single framework known as the Entrepreneurial Code. This code is designed to define the legal, economic, and social conditions and guarantees that ensure entrepreneurial freedom. It also aims to regulate public relations arising from the interaction between businesses and the state, including state regulation and support for entrepreneurship.

The scope of application of this law encompasses all activities conducted in Kazakhstan aimed at generating net profits through property ownership, production of goods, sale of products, execution of works, or provision of services. These activities are carried out based on private property rights (private entrepreneurship) or the management and operational rights of state enterprises (state entrepreneurship). The law treats foreign investors and domestic investors equally. Therefore, no special preferential provisions are established for foreign investors. However, Articles 241-1 to 241-10 of the law stipulate state support for innovation activities. State support measures for innovation activities include co-financing by venture funds and the provision of innovation grants (Article 241-7). Additionally, regulations regarding an experimental mode for testing innovative projects are outlined in Article 241-10.

In addition, Articles 273 to 296-2 of the law stipulate various forms of state support for investment activities. These include guarantees for the legal protection of investors' activities (Article 276), conditions for granting investment incentives (Article 286), customs duty exemptions (Article 287), guarantees of stability (Article 289), tax incentives (Article 290), the conclusion of investment contracts (Article 294), special investment contracts (Article 295-1), investment agreements (Article 295-2), investment commitment contracts (Article 295-3), and the resolution of investment disputes (Article 296).

In particular, Article 290 provides for tax incentives, including reductions in corporate income tax, land tax, and property tax for priority investment projects, as well as exemptions from value-added tax (VAT) on the import of raw materials and supplies.

B. Licensing Law (О разрешениях и уведомлениях)

In Kazakhstan, a law concerning permits and notifications was established in 2014. This law was enacted with the aim of regulating the introduction and implementation of procedures for obtaining permits or submitting notifications for specific types of activities or actions conducted by private enterprises and other entities stipulated by related laws. Under this law, both public and private entities are obliged to obtain permits and send notifications to the relevant authorities in accordance with the regulatory requirements for each business. Engaging in activities, actions, or operations without obtaining the necessary permits may result in criminal or administrative liability.

The law grants the issuing authorities the power to verify compliance with the regulatory requirements stipulated by law and to refuse to issue permits if the requirements are not met. A list of fields requiring permits is included in the law, and it appears that permits related to ICT fields, such as data mining, may be necessary for ICT companies entering the market. Specifically, licenses for data mining are subject to a three-year validity period, and obtaining such licenses is also required for activities such as establishing data centers.

It is worth noting that the law does not include any special provisions for foreign investors. Foreign investors are entitled to obtain permits on equal terms with citizens and legal entities of the Republic of Kazakhstan (Article 20, Paragraph 2).

C. Sandbox Regulation

In Kazakhstan, there is no specific law regulating sandboxes, but related provisions can be found within the previously mentioned Entrepreneurship Code. Article 241-10 of the law includes regulations under the "experimental mode for the implementation of innovation projects," which allow businesses to introduce an experimental mode to trial projects requiring special norms or legal regulations. However, the development of detailed guidelines and legal frameworks is still underway and is being reviewed by the AI Fund, the MDDIC, and Aerospace Industry. Experimental implementations have already been carried out in fields such as energy, where technologies aimed at decentralization, digitization, and decarbonization of electricity networks have been tested.

D. Trade and Investment Agreements with Mongolia

In the framework of Kazakhstan-Mongolia relations, the "Agreement between the Government of Mongolia and the Government of the Republic of Kazakhstan on the Promotion and Mutual Protection of Investments" was established in December 1994. Based on this agreement, as well as the "Protocol on the Establishment of Diplomatic Relations" signed in 1992 and the "Treaty on Friendly Relations and Cooperation between Mongolia and Kazakhstan" signed in 1993, ongoing discussions regarding the promotion of bilateral investments have been conducted. In October 2024, the presidents of both countries met and signed a document aimed at strengthening their relationship as a strategic partnership. This document sets a goal of expanding bilateral trade to USD 500 million (approximately JPY 74.6 billion) by promoting dialogue on investment and economic cooperation between the two nations.

Furthermore, the two countries reaffirmed their agreement on key areas of cooperation, including "education, culture, science, and information technology," and outlined guidelines for strengthening collaborative frameworks in these areas. Notably, the implementation of joint projects related to e-Government, space technology, and digital development was mentioned, with an emphasis on forming investment projects in these related fields in the future.

E. Other Laws and Regulations

In Kazakhstan, foreign investors may be subject to special provisions under various laws when conducting business. Notably, Kazakhstan is a member of the Eurasian Economic Union (EAEU), and investors from this economic zone benefit from preferential treatment under certain laws. For example, the Customs Code (О таможенном регулировании в Республике Казахстан) and the Tax Code (О налогах и других обязательных платежах в бюджет) provide advantages. Under the framework of investment agreements, imported raw materials and other goods may be exempt from value-added tax (VAT) at the time of importation.

Furthermore, under the law on the state registration of legal entities and the accounting registration of branches and representative offices (О государственной регистрации юридических лиц и учётной регистрации филиалов и представительств), no special provisions are established for foreign investors. In principle, foreign investors can register under the same conditions as domestic investors.

If you wish to establish a company remotely in Kazakhstan, a Limited Liability Partnership (LLP) is commonly preferred by foreigners, as it does not require partners to bear unlimited liability for the partnership's losses⁴⁸. However, the company to be established must meet certain requirements, including having at least one founder (a legal entity), one director (preferably a resident of a Eurasian Economic Union member state), one shareholder (a legal entity), minimum authorized capital, and a registered office and address⁴⁹.

4) Uzbekistan

(a) Summary: Challenges and Potential for Investors

Uzbekistan has demonstrated a proactive stance as a nation in attracting foreign investment, with related legal frameworks being gradually developed. However, according to investment environment reports, such as those issued by the U.S. Embassy in Uzbekistan, the continuing bureaucratic political system is assessed as posing high political risks for investors.

Below, the attractiveness and challenges of Kazakhstan's investment environment, as discerned from laws and

⁴⁸ <https://www.globalization-partners.com/jp/globalpedia/kazakhstan/subsidiary/#gref>

⁴⁹ <https://www.kreston.com/ja-jp/doing-business-in/%E3%82%AB%E3%82%B6%E3%83%95%E3%82%B9%E3%82%BF%E3%83%B3/>

related reports, are outlined.

<Opportunities for Foreign Investors>

- Foreign investors can benefit from various tax incentives by meeting certain conditions, such as equity ratio and the presence of government guarantees (Foreign Investment Law).
- Foreign entities that make direct investments exceeding a certain amount are granted reduced customs duties for importing their own products into Uzbekistan (Customs Law).
- Under the Ministry of Investments and Foreign Trade, the Foreign Investment Promotion Agency was established in 2019. A budget has been allocated to develop investment programs, disseminate information, and provide legal and other forms of support to attract foreign investment.
- In the digital industry, a business ecosystem centered around IT Park has been established. By registering with IT Park, companies can benefit from various tax incentives and office leasing opportunities.
- There is a strong trend toward promoting public-private partnerships (PPPs), and the establishment of a National Investment Fund has been decided to further this initiative (scheduled for 2024).

<Challenges for Foreign Investors>

- The government lacks transparency, and insufficient disclosure of financial information has been pointed out.
- Due to the bureaucratic system, processes such as company registration and obtaining various licenses are often lengthy, complex, and time-consuming. While the legal framework is in place, there are practical challenges in implementation.
- The government develops investment programs annually and tends to prioritize investment projects in key sectors. Certain fields, including non-ferrous metals and minerals, are legally restricted from private capital inflows, with significant government involvement and a focus on state-owned enterprises (Law on State Property Management, 2023).
- Although the monitoring of foreign investments is stipulated in laws and regulations, there is no standard review body in place, posing the risk of arbitrary interventions.

(b) Overview of Each Law

The following provides an overview of individual laws and agreements.

A. Investment Law / Foreign Investment Law

In Uzbekistan, a law concerning investments and investment activities (Об инвестициях и инвестиционной деятельности) has been established. For foreign investors, a separate law has been enacted to regulate their activities and outline various incentives aimed at promoting investment.

The law "On Investments and Investment Activities" regulates the general relationships in the fields of investments and investment activities conducted by both foreign and domestic investors. Additionally, the law defines companies with 15% or more foreign investment as "enterprises with foreign investment operating within the territory of the Republic of Uzbekistan," distinguishing them from foreign investors.

The law defines forms of investment as the establishment of legal entities, acquisition of securities, acquisition of intellectual property, and acquisition of rights to use land and natural resources. It grants investors the rights to conduct free investment activities, enter into related contracts, and freely use the profits obtained from their investments. At the same time, both domestic and foreign investors are obligated to pay taxes, fulfill contracts, and comply with relevant laws and regulations.

The government, as a principle, guarantees the rights of investors and states that investments and other assets are not subject to expropriation or similar actions by the state. Since the aforementioned definition of investment forms includes the acquisition of land rights, investors, including foreign entities, are permitted to acquire land and real estate as part of their activities.

Under the same law, investors are guaranteed the free movement of funds in foreign currencies, allowing for unrestricted reinvestment as long as they fulfill obligations such as tax payments (Article 17). This means that profits earned in Uzbekistan can freely be transferred back to the investor's home country. Furthermore, the law also stipulates the legal status of foreign investors, guaranteeing fair and equal treatment as well as full and permanent protection and safety for foreign investments. It explicitly states that the legal status of foreign investments must not be less favorable than the legal status afforded to investments made by Uzbek entities and individuals (Article 46).

Additionally, foreign investors are granted the right to obtain residence permits and investment visas through

simplified procedures (Article 47). An investment visa is issued to support the stay and smooth investment activities of foreign investors in Uzbekistan. It provides investors and their families with rights such as employment, access to healthcare and education services, and the opportunity to receive secondary and higher education at educational institutions in Uzbekistan.

Based on the aforementioned law, the Ministry of Finance, the Tax Committee, and the Ministry of Economy of Uzbekistan have approved regulations on the application of tax incentives for enterprises attracting direct private foreign investment (Об утверждении Положения о порядке применения налоговых льгот для предприятий, привлекающих прямые частные иностранные инвестиции). These regulations allow foreign investors to benefit from various tax incentives.

Chapter 3 of the regulations outlines the conditions for applying tax incentives. Enterprises are eligible if at least 33% of their capital is contributed by foreign investors, their company headquarters are located outside Tashkent city or Tashkent region, and they do not receive guarantees from the Uzbek government. Additionally, to benefit from tax incentives, companies must allocate at least 50% of the revenue earned during the incentive period for reinvestment. Qualified enterprises are granted exemptions from corporate income tax, property tax, and unified tax. The duration of these incentives is determined based on the investment amount provided by foreign investors, enabling favorable business conditions for a period ranging from three to a maximum of seven years.

B. Licensing Law

In Uzbekistan, the Law "On Licensing, Permitting, and Notification Procedures" (О лицензировании, разрешительных и уведомительных процедурах) has been enacted to regulate the processes related to licenses, permits, and notification procedures for business activities. This law defines a "license" as a document granting the right to conduct specific types of business activities. Based on this, "permitting procedures" are defined as the processes for applications such as the extension, suspension, or resumption of business, while "notification procedures" refer to informing authorities about the commencement or termination of activities. Annexes to the law specify the business activities requiring these procedures and the supervisory authorities responsible for each sector.

For instance, the issuance of licenses related to the design, construction, and operation of communication networks is overseen by the Ministry of Digital Technologies, while licenses for operating payment systems, such as Fintech, are managed by the Central Bank of Uzbekistan. As a fundamental principle, the procedures under this law are required to be transparent, publicly accessible, and conducted in compliance with relevant legislation. Although separate procedures are required for obtaining licenses, permits, and notifications, the law stipulates that all related processes must be digitized and managed electronically. Furthermore, it specifies that required documents should be submitted through a centralized one-stop service. However, it remains unclear whether these provisions are effectively implemented in practice. Additional consultations with investors actively conducting business in Uzbekistan would be necessary to verify the practical application of these measures.

On the other hand, reports on Uzbekistan's investment environment, such as those issued by the U.S. Embassy in Uzbekistan, have highlighted concerns regarding the government's lack of transparency in areas such as public procurement and contract enforcement. Corruption within government institutions is frequently cited as an issue. In this context, the requirement for repeated procedures to obtain licenses and permits for business activities is often viewed by investors as a significant business risk, reflecting inadequacies in the regulatory framework.

C. Sandbox Regulation

In Uzbekistan, the National Agency of Prospective Projects has issued a decree (Об утверждении Положения о порядке предоставления специального правового режима «Регуляторная песочница» в сфере рынка капитала) providing a sandbox environment for foreign entities. This decree was formally approved and enacted by the Ministry of Justice in January 2024. The decree establishes a special legal framework for foreign investors and entities to pilot new financial products and services in Uzbekistan's capital markets. Companies registered in approved foreign jurisdictions are granted access to Uzbekistan's financial market test environment upon registration. While Japan is recognized as an approved foreign jurisdiction, Mongolia has not been granted this status.

The primary aim of this framework is to promote the financial and e-commerce industries, foster an environment for IT-driven financial innovation, and support the development of fintech services. Within this sandbox environment, there is no requirement to obtain previously mentioned licenses or permits, nor is there a need to

establish a branch or legal entity in Uzbekistan. Registration and recognition are based on qualifications issued in the approved foreign jurisdiction. The registration is valid for a period of three years, during which activities under the sandbox regulations can be conducted, and decisions regarding broader market deployment can be made.

The decree includes a visualized procedure for participating in the sandbox environment, along with a comprehensive list of the information required for registration. Furthermore, Article 7 of Chapter 2 outlines prohibited activities, including operations by investment intermediaries and foreign investors who have not obtained the appropriate licenses or permits from the approved foreign jurisdiction, as well as activities outside the scope of those defined for investment intermediaries under Uzbek law.

D. Trade and Investment Agreements with Mongolia

In recent years, active dialogue aimed at promoting trade and investment between Uzbekistan and Mongolia has been observed. In June 2024, bilateral negotiations were held between the presidents of both countries, during which multifaceted efforts to strengthen mutual cooperation were confirmed. Specifically, 14 documents were signed, including an intergovernmental program for trade, economic, and investment cooperation for 2024-2026, a memorandum of understanding on cooperation between chambers of commerce, and a memorandum on the establishment of a joint business council⁵⁰. Additionally, a plan to increase bilateral trade volume by 5 to 10 times over the next few years was outlined. Particularly in the digital industry, a meeting of the Intergovernmental Commission on Trade, Economic, Scientific, and Technical Cooperation was held in August of the same year. During this meeting, agreements were reached to establish trade and economic representative offices in Ulaanbaatar and Tashkent, with the Mongolian Chamber of Commerce and Industry and the Uzbek Chamber of Commerce and Industry tasked with overseeing their establishment. Furthermore, another meeting took place in June 2024, involving representatives from the private sectors of both countries, where project proposals for joint implementation were presented. The proposals included establishing a modern diagnostic center in Tashkent based on advanced technologies, as well as projects in light industry, digital technology, and the pharmaceutical sector⁵¹. Moving forward, regular joint business forums are expected to be held to promote these plans, alongside efforts to finalize a basic agreement on investor protection and taxation principles between the two countries. These initiatives aim to support the proposed projects and foster further bilateral cooperation.

E. Other Laws and Regulations

In Uzbekistan, a presidential decree has been issued concerning the improvement of the national registration system and corporate registration procedures. The decree aims to enhance the processes for national and corporate registration and promote the active use of non-contact forms in interactions with government institutions, utilizing advanced information and communication technologies. Based on this decree, the phased development and implementation of an automated system for corporate registration have been stipulated. From April 1, 2017, national registration and corporate registration can be conducted online 24/7 through a system integrated into the Unified Portal of State Services.

Although the decree does not contain specific provisions for foreign investors, Uzbekistan has, in recent years, taken steps to attract foreign investment. In 2019, the Agency for Attracting Foreign Investments was established under the Ministry of Investments and Foreign Trade, with this agency spearheading efforts to streamline related procedures. Specifically, foreign investors can register corporate entities through the agency's official website. The agency's role includes implementing a unified national investment policy aimed at attracting foreign investments and creating favorable conditions for foreign investors. It also provides information, legal, and other types of support to foreign investors, facilitates interactions between government institutions, organizations, and domestic entrepreneurs in the context of investment activities, and organizes such exchanges. Additionally, the agency is tasked with building and maintaining a database of information concerning ongoing and future investment projects involving foreign investors, as well as conducting systematic monitoring of their implementation⁵².

⁵⁰ <https://kun.uz/en/news/2024/06/24/uzbekistan-and-mongolia-strengthen-ties-with-14-new-agreements>

⁵¹ <https://www.newscentralasia.net/2024/06/24/leaders-of-uzbekistan-and-mongolia-agreed-to-prepare-a-new-program-of-multifaceted-cooperation/>

⁵² <https://lex.uz/docs/4438440#4439769>

2. Mongolia's Strengths and Development Scenarios

1) Content and Approach of the Research

This section identifies key sub-sectors within the ICT and digital industry (more specific business and technological areas that constitute the ICT and digital industry) to focus on. It also organizes key stakeholders in Mongolia, analyzes opportunities and challenges for Mongolia, and formulates countermeasures based on the results of this analysis. Furthermore, it proposes ideal partnerships with Japanese and Central Asian companies to facilitate the overseas expansion of Mongolian enterprises.

Research Items	Research Content	Research Method
Selection of Focus Sub-Sectors	Selection of sub-sectors to be prioritized in the ICT and digital industries *Primarily selected by backcasting from the goals of the Mongolian government	The draft was prepared by the study team and finalized through discussions with JICA
Analysis of Focus Sub-Sectors	Organization of Key Players and Key Stakeholders	Desktop Research
	Analysis of Opportunities and Challenges for Mongolia	Desktop Research Hearing/Interview Research
	Proposal for the Ideal Form of Collaboration Between Mongolian Companies, Japanese Companies, and Central Asian Companies for Overseas Expansion	The draft was prepared by the study team and finalized through discussions with JICA

Figure 196 Additional Research Content and Methodology Regarding Focused Sub-Sectors

2) Focused Sub-Sectors (Areas of Mongolia's Strength or Areas to Be Strengthened in the Future)

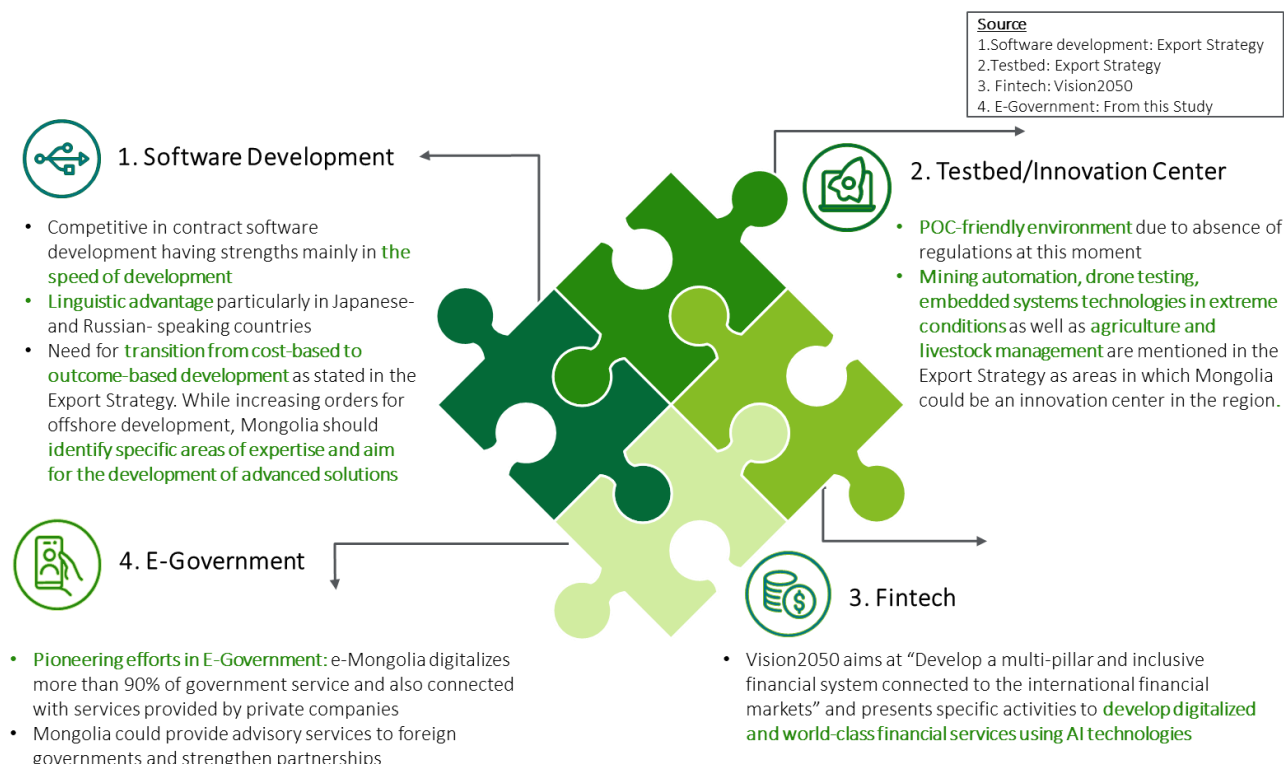
In Mongolia's ICT and digital industry, e-Government can be considered a strength for the country; however, there are currently no other areas that can be identified as strengths. Therefore, based on the goals and policies published by the Mongolian government, four focused sub-sectors were selected, including areas that the government aims to develop into strengths in the future.

The first area is software development. Currently, Mongolian companies engage in commissioned development from contracted clients, leveraging strengths such as development speed. However, the Export Strategy aims to transition from a cost-based industry model to an outcome-based one. Given Mongolia's small population, there is a limit to the expansion of commissioned development. In the future, it will be necessary to focus on the development and deployment of advanced software unique to Mongolia.

The second area is the Testbed/Innovation Center, whose development and strengthening are targeted under the Export Strategy. Mongolia has relatively lenient regulations across a wide range of fields, creating an environment conducive to conducting pilot tests for advanced countries. The Export Strategy aims to establish legal and regulatory frameworks, define priority areas, and develop Mongolia into an innovation center in the future.

The third area is Fintech. Vision 2050 aims for the development of a multidirectional and inclusive financial system connected to the international financial market. To achieve this, a specific goal has been set to develop world-class financial services based on digital platforms utilizing technologies such as AI.

The fourth area is e-Government. In Mongolia, more than 90% of administrative services have been digitized, and private sector services are integrated as well, demonstrating significant progress in e-Government initiatives. Furthermore, data integration infrastructure has been developed, placing Mongolia at an advanced level compared to other countries.



Source: VISION 2050 (2020), Export Strategy

Figure 197 Focused Sub-Sectors (Areas of Mongolia's Strength or Areas to Be Strengthened in the Future)

The key stakeholders for each focused sub-sector are shown in the figure below.

		1. Software Development	2. Testing/ Innovation Center	3. Fintech	4. E-Government
Public	Strategy and Policy Formulation	Ministry of Digital Development, Innovation and Communications, MDDIC	Government Ministries Responsible for Industry-Specific Regulations	MDDIC	MDDIC
	Others	Chamber of Commerce and Industry (Responsible for the development of the Export Strategy)		Financial Regulatory Committee, FRC (Implementing initiatives such as regulatory sandboxes) The Bank of Mongolia (Established an Innovation Office to promote FinTech development and regulatory framework improvement)	Other government ministries and agencies providing e-Government services (Developing systems such as e-barimt and e-report*2)
Private	Industry Associations	Mongolian Software Industry Association, MOSA	–	Mongolian FinTech Association Mongolian Banking Association (including FinTech companies)	–
	Key Companies (Examples*)	ICT Group, Mogul Group, NashaTech (contract-based development for Japanese companies), Fibo Clouds (Entering Central Asian market)	Newcom (Local partners for Aeronext Inc. 's drone business.)	AND Global, Hipay, Ard Financial Group, Storepay etc.	E-Mongolia Academy (State-Owned Company)
Japanese Stakeholders		Gotanda Valley (Supporting Japan-Mongolia business collaboration)	Private companies conducting PoC in Mongolia (e.g., Aeronext)	–	–

※1 The names of private companies are merely examples of specific companies and were not selected based on indicators such as revenue scale.

※2 e-barimt: A system for filing value-added tax (VAT) applications. Consumers can easily submit applications to the tax authorities by registering their receipts. e-report: A system for preparing financial statements and budget execution reports for the Ministry of Finance.

Figure 198 Key stakeholders for each focused sub-sector

Regarding the Testbed/Innovation Center, the Chamber of Commerce is responsible for drafting and implementing the Export Strategy, which includes this theme as a key goal. However, progress in the IT sector

remains minimal at present. On the other hand, separate from the Export Strategy, IT Park is involved in the development of the Testbed/Innovation Center. IT Park serves as an advisor to the newly established National Institute of Regional Development (NIRD), which is tasked with formulating economic development policies for seven regions. IT Park has proposed the establishment of IT hubs in six regions. Although the details of the IT hubs have not yet been finalized, there is a strong possibility that these hubs could fulfill the role of the Innovation Center mentioned in the Export Strategy.

3) Analysis of Opportunities and Challenges

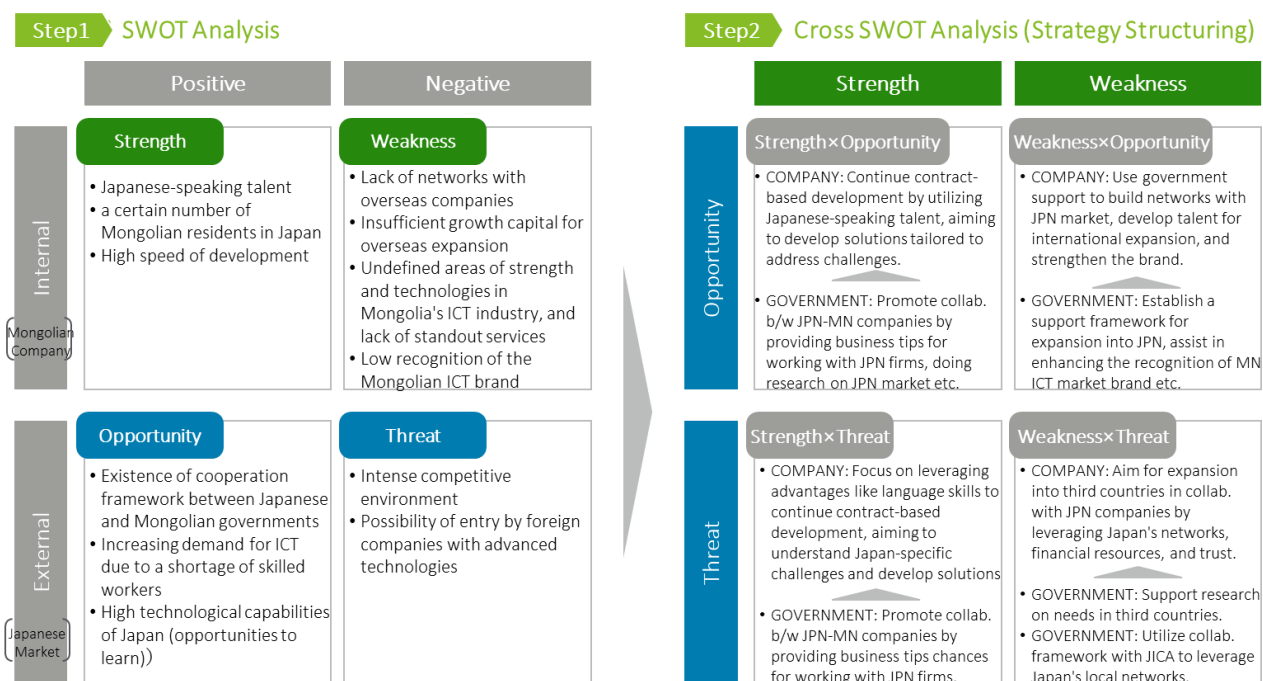
As outlined above, four areas have been identified as Mongolia's focused sub-sectors, representing its strengths or areas it aims to strengthen in the future. However, when considering JICA's support proposals, it is recommended to narrow the analysis to software development and the Testbed/Innovation Center.

Regarding Fintech, the domestic market in Mongolia is growing due to factors such as the emergence of Fintech companies offering financial services like microloans and revolving credit, leveraging the country's high-interest rate market. Additionally, the rise of domestic Fintech companies has been accompanied by swift progress in legal framework development within the country. However, Mongolia's Fintech industry has yet to produce any standout services. The global Fintech market is highly competitive, making it challenging for Mongolia's Fintech sector to achieve global competitiveness. While the Mongolian government views Fintech as a field it aims to strengthen, it is considered more effective for JICA's support proposals to address Fintech as one of the themes within software development rather than providing separate and specialized support for Fintech.

Regarding e-Government, the e-Mongolia Academy, which develops and operates e-Mongolia, plans to expand certain e-Mongolia services internationally and is currently conducting market research and selecting target countries for expansion. If the target countries lack data integration infrastructure, the Academy is considering providing consulting services for its establishment. However, the provision of consulting services for data integration infrastructure will depend entirely on the conditions and needs of the target countries. Given this, JICA's support methods are expected to align with those for the international expansion of the software development industry, and thus, e-Government should be treated as one of the themes within software development when considering support proposals. That said, JICA has been involved in supporting the construction of data integration infrastructure and providing related hardware infrastructure. It is conceivable that JICA and e-Mongolia could collaborate to jointly pursue the expansion of e-Mongolia services into third countries by combining JICA's existing support measures with e-Mongolia's expertise.

(a) Overseas Expansion Strategy of Mongolian Software Development Companies (Targeting the Japanese Market)

A SWOT analysis was conducted by positioning Mongolian companies as the internal environment and the Japanese market as the external environment. Furthermore, using the Cross-SWOT analysis method, specific strategies that should be adopted at both the company and national levels were examined by combining these elements.



Source: Created by the JICA Study Team based on various publicly available information and interviews

Figure 199 Overseas Expansion Strategy of Mongolian Software Development Companies (Targeting the Japanese Market)

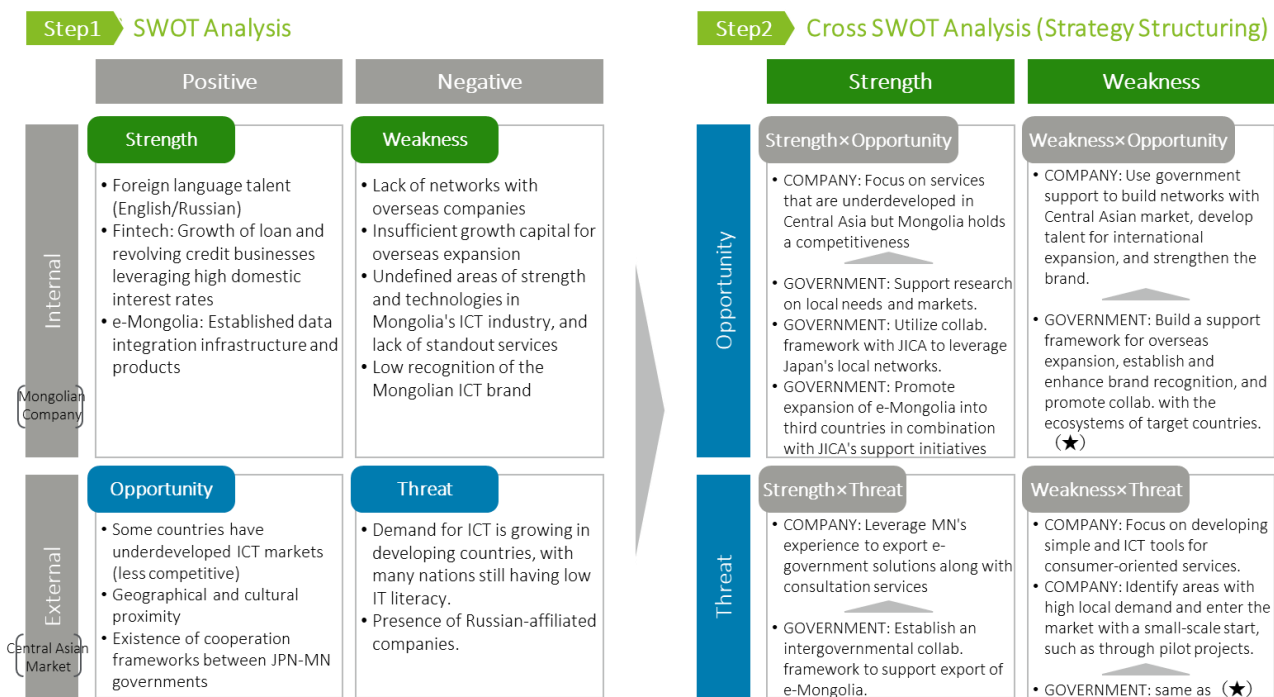
While Mongolian companies possess strengths such as a large pool of Japanese-speaking talent and fast development speeds, they also face challenges such as a lack of networks with overseas companies, insufficient growth capital for international expansion, undefined strong areas and technologies within the ICT industry, and low recognition of their ICT brand. As for the external environment, opportunities for Mongolian companies include the existence of Japan-Mongolia governmental collaboration frameworks, the increasing demand for ICT due to labor shortages in Japan, and Japan's high level of technological expertise, which provides learning opportunities for Mongolian companies. On the other hand, Japan's highly competitive environment and the potential entry of other countries' companies with advanced technologies pose significant threats.

By combining these elements, strategies for companies and corresponding government support measures were organized on the right side of the diagram. For the Mongolian government, the following support measures can be considered:

1. Promoting collaboration between Mongolian and Japanese companies through actions such as providing tips for doing business with Japanese companies, conducting surveys on challenges in the Japanese market, and organizing Japan-Mongolia events.
2. Strengthening Mongolia's capacity for international expansion by establishing a support system for entry into the Japanese market, assisting in the establishment and enhancement of recognition for Mongolia's ICT market brand, and promoting collaboration with Japan's ecosystem.
3. Supporting Mongolian companies' market entry by leveraging Japan's local networks in collaboration with JICA.

(b) Overseas Expansion Strategy of Mongolian Software Development Companies (Targeting the Central Asian Market)

A Cross-SWOT analysis was conducted by positioning Mongolian companies as the internal environment and the Central Asian market as the external environment, similar to the approach used for expansion into the Japanese market.



Source: Created by JICA Study Team based on various publicly available information and interviews

Figure 200 Overseas Expansion Strategy of Mongolian Software Development Companies (Targeting the Central Asian Market)

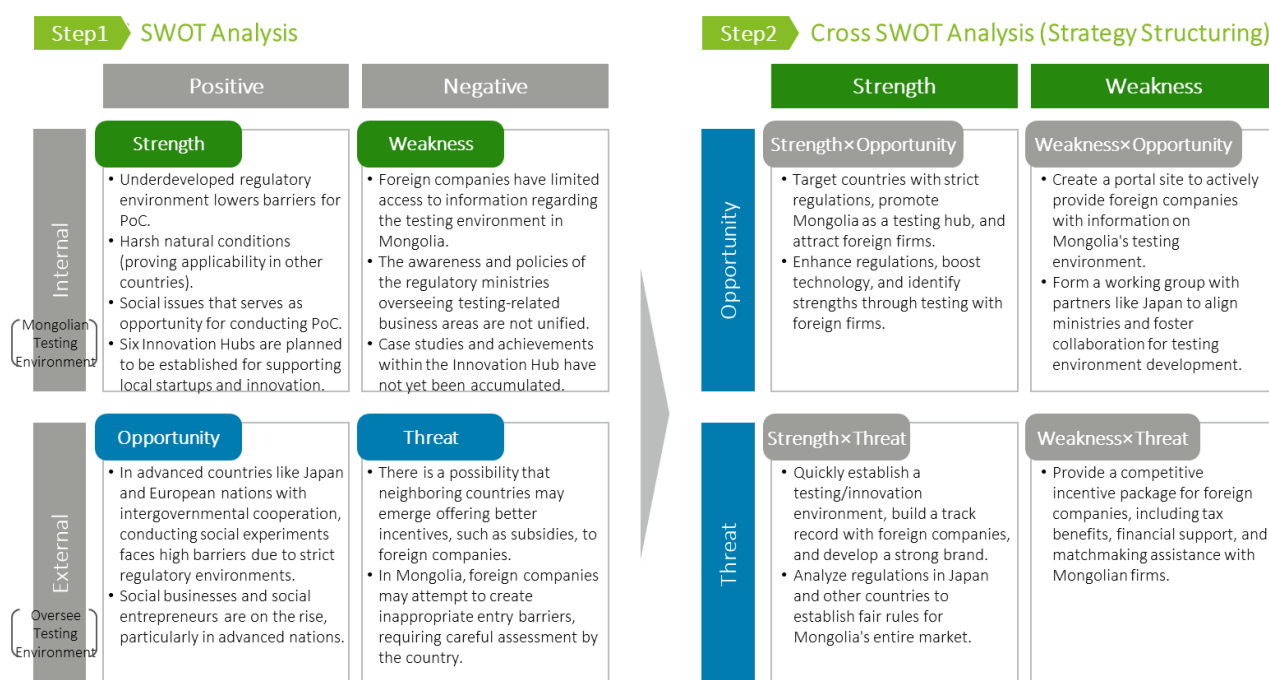
In Central Asia, where fintech and e-government are underdeveloped in many countries, the rise of Mongolian fintech companies and the technological expertise and know-how of e-Mongolia can serve as significant strengths. On the other hand, challenges such as a lack of networks with overseas companies, insufficient growth capital for international expansion, undefined strong areas and technologies within the ICT industry, and low recognition of the ICT brand remain similar to those faced during expansion into the Japanese market. As for the external environment, the underdeveloped ICT markets in many Central Asian countries present an opportunity for Mongolian companies due to the relatively low level of competition. However, it is important to note that IT literacy in the region is also underdeveloped, and the demand for IT services is lower compared to more advanced countries.

By combining these elements, strategies for companies and corresponding government support measures were organized on the right side of the diagram. For the Mongolian government, the following support measures can be considered:

1. Establishing a support system for overseas expansion: Strengthen Mongolia's capacity for international expansion by assisting in the establishment and enhancement of recognition for Mongolia's ICT market brand and promoting collaboration with ecosystems in other countries.
2. Utilizing JICA's local networks: Support Mongolian companies' market entry by leveraging JICA's networks in the region.
3. Promoting third-country deployment of e-Mongolia: Collaborate with JICA by utilizing its schemes and experience in building data integration platforms to expand e-Mongolia to other countries.

(c) Consideration of Growth Strategies for Mongolia's Testing/Innovation Center Market

A Cross-SWOT analysis was conducted by positioning Mongolia's domestic testing environment as the internal environment and overseas testing environments as the external environment.



Source: Created by JICA Study Team based on various publicly available information and interviews

Figure 201 Consideration of Growth Strategies for Mongolia's Testbed/Innovation Center Market

Mongolia has a regulatory environment that remains underdeveloped, resulting in fewer barriers to conducting PoC and similar initiatives. Additionally, for hardware companies such as those in the drone industry, Mongolia's harsh natural environment (particularly its extreme temperatures) offers an attractive testing ground. However, as noted earlier, while the development of a testing environment is a key goal under Mongolia's Export Strategy, progress is still limited at this stage. Furthermore, there is a lack of outbound communication about Mongolia's testing capabilities, leaving foreign companies with few opportunities to learn about or consider Mongolia as a testing destination. Another challenge lies in the lack of alignment among Mongolian government agencies responsible for approving testing initiatives across various business sectors, which hampers streamlined decision-making and implementation.

In terms of the external environment, the stringent regulatory frameworks in advanced countries such as Japan and European nations make it challenging to conduct PoC activities. This presents an opportunity for Mongolia, where such barriers are lower. Additionally, the rise of social businesses and social entrepreneurs, particularly in developed countries, could further position Mongolia as an attractive destination for collaboration and innovation.

On the other hand, there are potential threats, such as the emergence of neighboring countries offering better conditions, such as subsidies or incentives, to attract foreign companies. Moreover, there is a risk of foreign companies attempting to create inappropriate entry barriers in Mongolia, which could hinder fair competition and disrupt the local ecosystem.

These elements were combined to organize strategies Mongolia should adopt, as shown on the right side of the diagram. In terms of opportunities, effective strategies include selecting target countries with strict regulatory environments, enhancing recognition of Mongolia as a testing destination, and attracting foreign companies. Additionally, leveraging testing experiences with foreign companies to improve domestic regulatory frameworks, enhance technological capabilities, and identify strong areas of expertise would be beneficial. To address the challenge of limited access to information about Mongolia's testing environment, a potential solution would be to develop a dedicated portal site to actively provide foreign companies with detailed information about Mongolia's testing capabilities. Furthermore, forming a working group that involves development partners from target countries such as Japan could help align awareness among relevant government agencies and establish a cross-sectoral collaboration framework. This, in turn, is expected to accelerate and streamline the development of Mongolia's testing environment.

Regarding threats, effective measures include swiftly developing Mongolia's testing and innovation environment to build a track record of testing collaborations with foreign companies and establishing a strong brand. To prevent the formation of inappropriate entry barriers, Mongolia should focus on creating regulations that benefit the entire market by investigating and analyzing the regulatory environments of countries like Japan and others as benchmarks. Additionally, offering competitive incentive packages, such as tax advantages and matchmaking support with Mongolian companies, can help attract foreign businesses and strengthen Mongolia's position as a testing and innovation hub. These efforts would contribute to mitigating potential threats from neighboring countries offering more favorable conditions and ensuring a fair and dynamic market environment.

4) The Role of Collaboration Between Mongolian Companies and Japanese/Central Asian Companies in Overseas Expansion

The Mongolian government considers Central Asia and Japan as key destinations for the expansion of its ICT industry. According to the Export Strategy, Central Asia is evaluated as a relatively accessible market due to its less competitive environment and similarities with Mongolia's own market, making it easier for Mongolian companies to enter. On the other hand, Japan is recognized as a highly competitive market but one with significant demand. Therefore, the strategy emphasizes the importance of targeting niche markets or forming partnerships with local companies to successfully penetrate the Japanese market.

When expanding into Central Asia, it is considered effective to first establish successful case studies in ICT-advanced countries such as Kazakhstan and Uzbekistan, and then target other neighboring countries with less competitive environments. Additionally, when entering Kazakhstan and Uzbekistan, building a third-country expansion framework in collaboration with Japanese companies is seen as a strategic approach. In overseas expansion, building networks and gaining trust in the local market are crucial for customer acquisition, which necessitates partnerships with local entities. However, Mongolian ICT companies often lack both networks and international recognition, making it difficult for them to independently establish connections with local businesses. On the other hand, Japanese companies are globally trusted, and partnerships with the Japanese government or Japanese companies can serve as a strong point of appeal in overseas markets.

For Mongolian companies aiming to expand into Central Asia, collaboration with organizations like JICA and Japanese companies already operating in the region can be a viable strategy to address the challenges of network building and credibility. Such partnerships can provide Mongolian companies with the necessary support to navigate the local market and establish a foothold in the region.

For Mongolian companies seeking to expand into Japan, the long-term strategy should focus on identifying and concentrating on niche markets, as well as establishing and providing high-quality, innovative solutions tailored to local needs. The development of innovative solutions requires a significant enhancement of technological capabilities, which is challenging to achieve in the short term. Therefore, this goal should be positioned as a long-term objective.

In the short term, rather than competing solely on technological prowess, a more realistic strategy involves building partnerships with local Japanese companies. Collaborating with established entities in Japan can help Mongolian firms navigate the competitive market, leverage existing networks, and gain credibility, while gradually working toward their long-term goals of technological advancement and market differentiation.

		Central Asia	Japan [※]
[(Mongolian government's perspective)]	Competitive environment	- Compared to Japan and other developed countries, the ICT sector in Mongolia is still emerging, and the competitive environment is not intense. - However, the demand for ICT services and products can also be considered as still developing.	- Japan is a global leader in the ICT sector, with a highly competitive environment. - The domestic and global markets are dominated by major ICT companies.
	Mongolia's positioning	Considering the geographical proximity and similarities in market characteristics, Central Asia is a region well-suited for Mongolian companies to expand into.	- The Japanese market is highly advanced and competitive, making it challenging for Mongolian companies to enter. - Focusing on niche markets or collaborating with local companies will be key strategies for market entry.
[Insights from this Study]	Insights on Mongolian companies' market expansion	Establish success stories in Kazakhstan and Uzbekistan, the leading ICT nations in Central Asia. - Leverage low competition environments by capturing market share early in underdeveloped regions. - Utilize geographical and cultural proximity to better understand local needs and market characteristics. Develop a third-country expansion scheme in collaboration with Japanese companies.	[Short to Mid-Term] Establish partnerships with local companies. [Long-Term] Identify and focus on niche markets. [Long-Term] Develop and deliver high-quality, innovative solutions tailored to local needs. Note: Developing innovative solutions requires technological advancement, making it a long-term goal.
		- Comprehensive market research and provision of services tailored to local needs. - Intergovernmental collaboration and government-supported business matching assistance.	

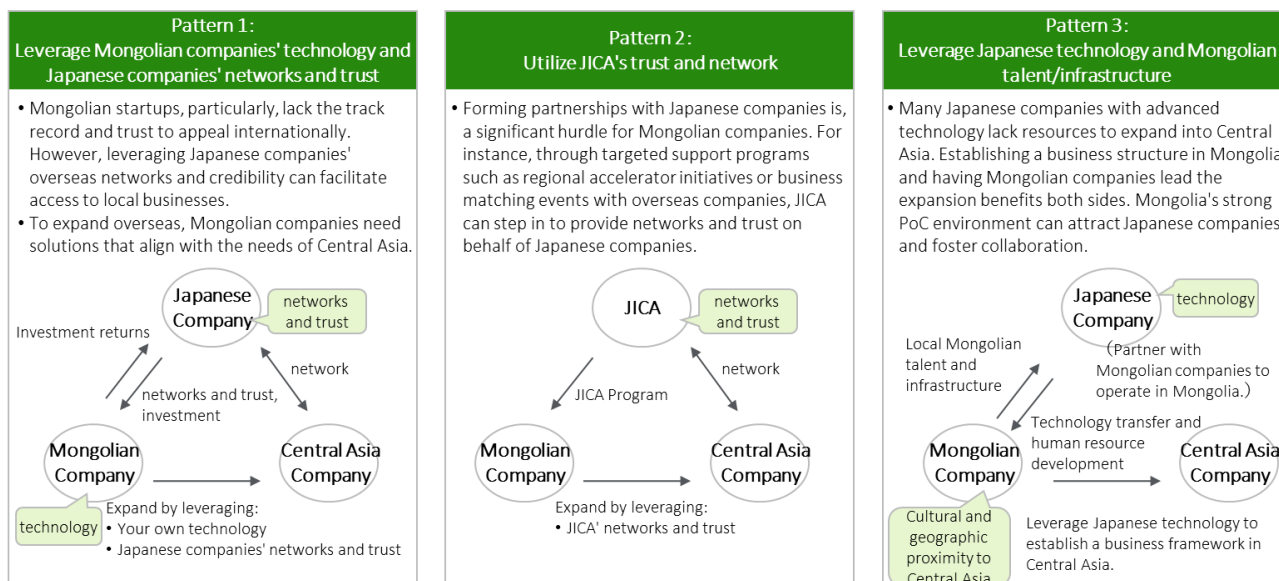
※ Mentioned as East Asia (Japan, China, South Korea) in the Export Strategy.

Source: Created by JICA Study Team based on various publicly available information and interviews
Figure 202 Recommendations for Mongolian Companies' Expansion Strategies into the Central Asian and Japanese Markets

As mentioned above, the Japanese market is highly competitive, making it difficult for Mongolian companies to enter. While building partnerships with local Japanese companies could be one strategy for entering the Japanese market, deploying services domestically in Japan is not easy, especially without advanced technologies that surpass those of Japanese companies. Therefore, it is proposed that, in their overseas expansion efforts, Mongolian companies collaborate with Japanese companies to target Central Asia rather than Japan itself.

In Central Asia, many countries still have underdeveloped ICT industries, which means there is potential for expansion even without highly advanced technologies or services. However, it remains crucial to have local networks and credibility when entering the market. As noted earlier, both JICA and Japanese companies possess established local networks in Central Asia. Forming collaborative frameworks with Japanese companies and pursuing joint efforts to enter the Central Asian market is considered one effective way for Mongolian companies to achieve success in their overseas expansion.

The following are some potential collaboration patterns:



Source: Created by JICA Study Team

Figure 203 Patterns of Collaboration Between Japanese and Mongolian Companies for Expansion into Central Asia

Pattern 1: As mentioned earlier, many Mongolian companies, particularly startups, lack the track record and credibility needed to appeal to international markets. By leveraging the networks and trust of Japanese companies, Mongolian companies can more easily expand their technologies and services into Central Asia. For Japanese companies, investing in Mongolian businesses provides the advantage of potential returns on their investment.

Pattern 2: Forming partnerships with Japanese companies, as described in Pattern 1, can itself be a significant hurdle for Mongolian companies. Without technology that meets international standards, it is difficult for Mongolian companies to secure investment or cooperation from Japanese businesses. In this scenario, JICA could step in to provide networks and credibility, supporting Mongolian companies in their expansion into Central Asia. Some Mongolian companies that participated in JICA's programs have commented that visiting companies through JICA programs is more effective in gaining trust from the host companies than visiting independently. Similarly, participating in JICA programs abroad could make it easier for Mongolian companies to approach other businesses (e.g., securing meetings or gaining trust). Specific programs could include regional acceleration programs to support expansion into Central Asia or business matchmaking events with international companies.

Pattern 3: This pattern involves utilizing the resources of Mongolian companies to expand Japanese companies' services and technologies into Central Asia. For example, Japanese companies could collaborate with local Mongolian partners to conduct PoC activities in Mongolia, establish business frameworks, and then have their Mongolian partners replicate similar business models in Central Asia. There are many Japanese companies with advanced technology but limited resources to allocate for large-scale business expansion into Central Asia. In such cases, Mongolian companies could take the lead in developing the Central Asian market, leveraging their geographical proximity and familiarity with the region. This collaboration would be mutually beneficial for both Japanese and Mongolian companies. Mongolia, with its advantageous PoC environment, could use this strength to attract Japanese companies and foster partnerships between Japanese and Mongolian businesses.

Chapter 9 Strategic Planning

1.Challenges and Strategies for Promoting ICT, Digital Industry, and Startups by MDDIC of Mongolia

This study has identified the challenges that need to be addressed to achieve the development of Mongolia's ICT and digital industry, as well as the promotion of startups, and has organized potential support measures by the Mongolian government and JICA. Regarding several proposed support measures by JICA, as outlined in Chapter 7, their effectiveness was verified through pilot projects conducted as part of this study. Based on the discussions thus far, the relationship between the challenges associated with the development of Mongolia's ICT and digital industry and the promotion of startups, and the possible measures that Mongolia should implement, is illustrated in the diagram below.

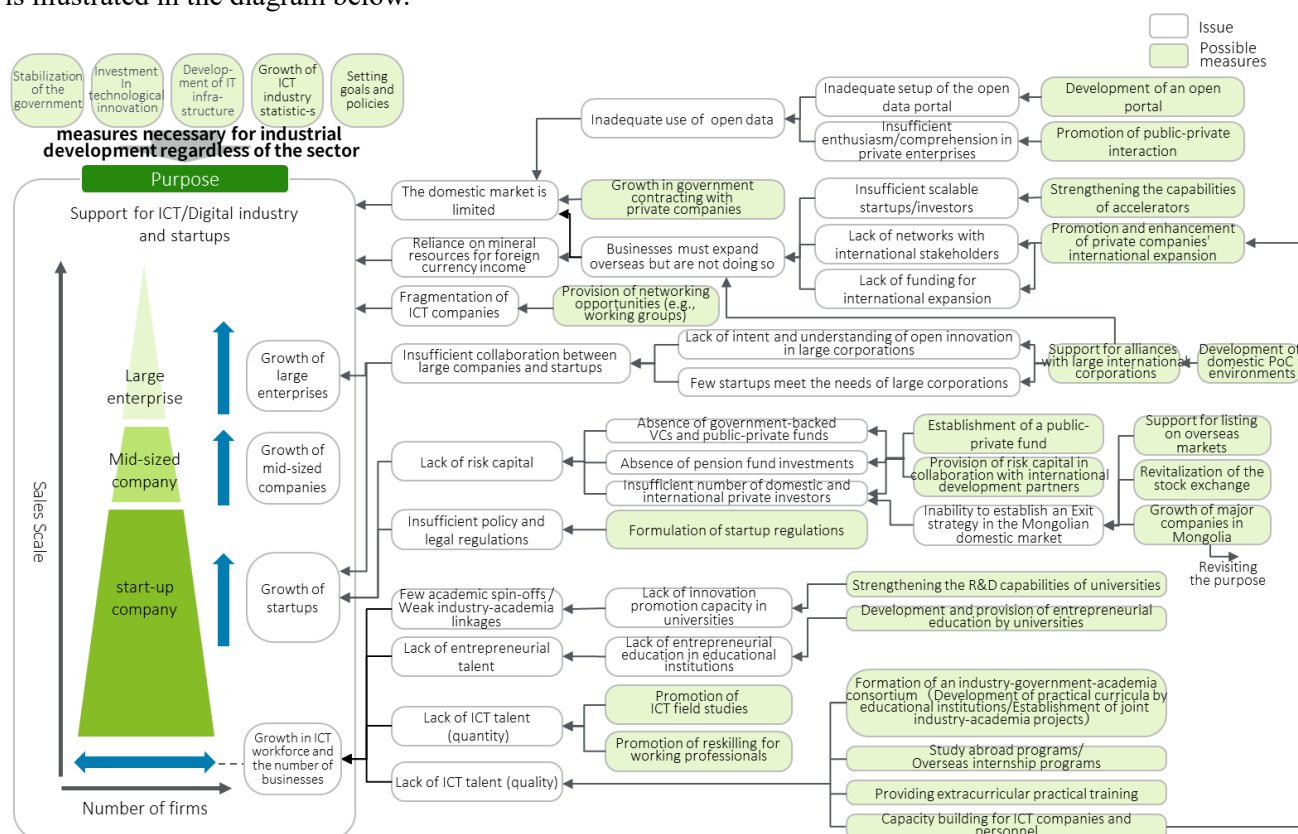


Figure 204 Challenges and Possible Measures for the Development of Mongolia's ICT and Digital Industry and the Promotion of Startups

The goal of promoting the ICT and digital industry, as well as startups, can be considered in two directions: increasing the number of ICT professionals and companies (horizontal axis) and expanding the revenue scale of large enterprises, medium-sized enterprises, and startups (vertical axis).

To address the shortage of ICT professionals, an approach should be taken to increase the quantity of talent by raising awareness among students about pursuing ICT-related fields and promoting the reskilling of working professionals. Additionally, to enhance the quality of talent, measures such as forming industry-government-academia consortium and offering internship opportunities should be implemented. Regarding the increase in the number of companies, strengthening R&D at universities and developing entrepreneurship education could serve as effective strategies.

For the growth of startups, it is necessary to establish financial support schemes, such as alliances with large enterprises, legal framework development, and public-private funds. Furthermore, as a method to support alliances with major overseas corporations, the development of domestic PoC environments can also be effective.

A common challenge, regardless of the distinction between large enterprises and startups, is the fragmentation and decentralization of ICT companies. To address this, providing opportunities for network formation, such as WG, can foster synergies and collaborative effects. Additionally, the limited domestic market and the reliance

on mineral resources for foreign currency earnings are factors that hinder the growth of companies. To counteract this, increasing government procurement from the private sector to create domestic demand and supporting the overseas expansion of private companies can be effective measures. Moreover, promoting the use of open data can lead to the creation of new markets and services.

2. Possible JICA's support for the Promotion of Mongolia's ICT/Digital Industry and Startups

There is significant room for JICA's support in many of the measures proposed in the previous sections, with specific support plans outlined in Chapter 4. This chapter presents JICA's support plans for each theme along with their priorities.

1) Approach to Prioritization

In Chapter 4, the following areas were identified as key focus areas for investigation: master plan development, overseas expansion of ICT and digital industries, ICT and digital human resource development, startup ecosystem development, and utilization of open data. In this Chapter, JICA's proposed support plans for these areas were organized and prioritized both across themes and within each theme. The order in which JICA should begin its initiatives was evaluated and categorized into short-term (to be initiated within 1–2 years), medium-term (to be initiated within 3–4 years), and long-term (to be initiated after 5 years or more). For prioritization across themes, the evaluation was based on whether or not an application form for Japan's technical cooperation was submitted by the Mongolian government. For prioritization within each theme, two criteria were used: (1) the impact of the proposed support compared to other support proposals and (2) the ease of implementation, including the need for and scale of additional resources. For themes deemed high priority, the prioritization of individual support proposals within those themes placed greater emphasis on (1) impact. Conversely, for lower-priority themes, the ease of implementation (2) was given more weight in determining the prioritization of individual proposals.

Among the support themes, overseas expansion and startup ecosystem development were deemed to have higher priority, as the Mongolian government submitted an application form for Japan's technical cooperation for these areas. These themes should be addressed by prioritizing measures of high importance and significant impact. For human resource development and open data utilization, where an application form for Japan's technical cooperation was not submitted, it is recommended to begin supporting measures that can be implemented without requiring additional resources. For measures that do require additional resources, it is suggested to continue discussions with the Mongolian government to develop medium- to long-term plans and provide support accordingly.

The development of a master plan was also evaluated as a key area for investigation; however, an application form for Japan's technical cooperation was not submitted by the Mongolian government. The Mongolian government recognizes the importance of establishing a growth strategy and advancing plans in alignment with it by involving relevant stakeholders. However, considering the rapid pace of technological progress and changing trends in the ICT industry, as well as the speed of the Mongolian government's response, it was indicated that medium- to long-term plans may become less effective. Consequently, the government suggested that plans spanning a maximum of 2–3 years might be more practical. For this reason, the creation of a master plan, which typically involves drafting plans covering 5–10 years, was not requested. Additionally, since there is only one proposed support measure within the master plan development theme, this chapter does not conduct prioritization within this theme.

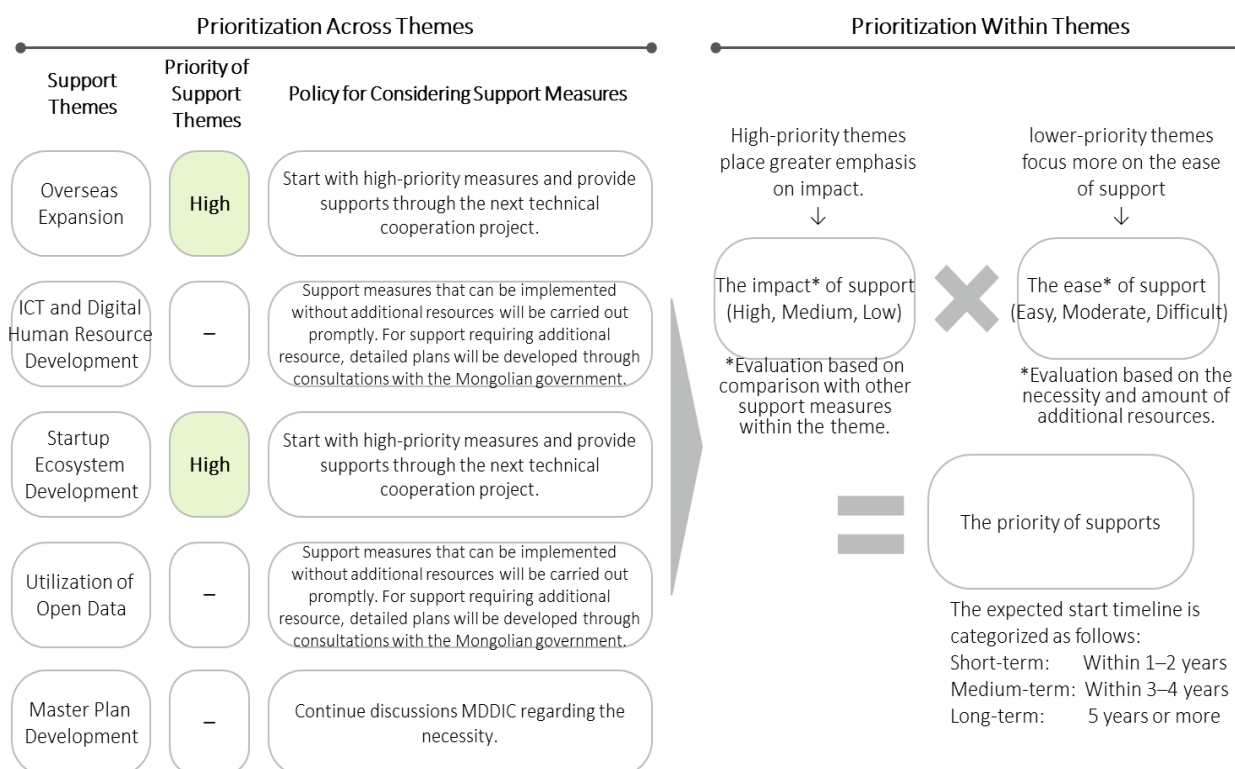


Figure 205 Methods for Determining Prioritization Across and Within Themes

The prioritization within each theme is proposed as shown in the table below. Details of each theme are explained in sections (2) to (5).

Table 117 Proposed support measures: ICT and digital industry promotion (overseas expansion of ICT and digital industries)

Theme	Challenge	Possible Supports				Evaluation of Priority		
		Support Menu	Main Activities	Scheme	Counterpart	Impact of Support	Ease of Support	Priority
Digital Trade Balance	- Limited networks with overseas companies. - Shortage of growth capital for overseas expansion. - Shortage of ICT human resources. - Lack of recognition of Mongolian ICT brand. - Limited statistics on the ICT industry	Establishment of a framework to support overseas expansion of Mongolia's ICT and digital industries	Organization and operation of working groups to support overseas expansion of Mongolia's ICT and digital industries. Consultation, monitoring and evaluation of measures to promote overseas expansion by public and private sectors.	Technical Cooperation	MDDIC, IT Park	High	Medium	Short-term
		Raising awareness of Mongolia's ICT and digital industries overseas	Formulating a branding strategy and unified tools to raise the awareness of Mongolia's ICT and digital industries overseas (with reference to J-Startup initiatives).			High	Medium	Short-term
		Human resource development contributing to overseas expansion of Mongolian ICT and digital industry	Development of human resources that will contribute to the overseas expansion of Mongolia's ICT and digital industries through technical and business training.			High	Medium	Short-term
		Promoting cooperation between Mongolian ICT and digital industry and overseas ecosystems	Cooperation between Mongolia's ICT and digital industries and overseas ecosystems will be promoted through the conclusion of MoUs (support for mutual regional development of startups, etc.), mission to Japan, and business matching.			High	Medium	Short-term
		Development of statistics on Mongolian ICT and digital industry (especially overseas transactions)	Maintaining of statistics on Mongolia's ICT and digital industry (especially overseas transactions).		National Statistics Office, Central Bank of Mongolia, MDDIC, IT Park	Low	Low	Mid-term

Table 118 Possible JICA's supports : ICT and Digital Human Resource Development

Theme	Challenges	Possible Supports				Evaluation of Priority		
		Support Menu	Main Activities	Scheme	Counterpart	Impact of Support	Ease of Support	Priority
Quantity of ICT Personnel	Shortage of ICT personnel. The factors include: - Students: Limited opportunities to develop an interest in pursuing studies in the ICT field. - Working Professionals: Lack of reskilling programs.	Encouragement to pursue studies in the ICT field	- Development of content and implementation of activities to promote the pursuit of studies in the ICT field for students before entering university or technical college. *In collaboration with Export Strategy 2.1.3: Conduct school awareness programs to expand interest in IT jobs	Technical Cooperation	Ministry of Education	High	Moderate	Mid-term
		Provision of employment opportunities for students and talent acquisition opportunities for companies	Continuation of Job Seminars as an opportunity of job matching (PP2 activity in this project) .	- (Handed over to local institutions)	MOJC	Low	Easy	Short-term
		Development of reskilling programs for working professionals	- Support for the development of government-led ICT reskilling programs for working professionals and the establishment of a delivery system. - Support for the development of a government support scheme for institutions capable of providing reskilling programs.	Technical Cooperation	Ministry of Education	Low	Difficult	Long-term
Quality of ICT Personnel	Low quality of ICT personnel. The factors include: - Students: Lack of opportunities to acquire practical skills - Teachers: Shortage of teachers - Employed person: Lack of in-company skills enhancement training	Industry-Government-Academia Consortium & Development of Practical Curriculum	First Step - Establish an industry-government-academia consortium and build a sustainable operational system. *In collaboration with Export Strategy 2.1.5: Establish a Public-Private IT Skill Development Council and conduct periodic meetings. Second Step - Develop a system for curriculum development that incorporates industry opinions. - Promote the implementation of industry-academia joint projects	Technical Cooperation	MDDIC, Ministry of Economy and Development, Cabinet Secretariat, Ministry of Education, Ministry of Family, Labour and Social Protection	High	Easy*	Short-term*
		Hosting business contests for students	Continuation of DX CUP (PP4 activity in this project).	- (Handed over to local institutions)	DX Mongolia	Medium	Easy	Short-term

		(To address the shortage of teachers) Establishment of study abroad or internship programs in Japan	• Establish study abroad/internship schemes in Japan.	Long Term Training	Ministry of Education	Medium	Moderate	Mid-term
		(To address the shortage of teachers) Support for establishing a system to provide online classes from Japan	• Securing partner universities in Japan and establishing a system for providing online classes by universities in Mongolia.	Technical Cooperation	Ministry of Education	Medium	Moderate	Mid-term

*Evaluation about Industry-Government-Academia Consortium & Development of Practical Curriculum: The impact of this support is significant; however, including all steps such as curriculum development would require considerable resources. Based on the approach of starting with feasible initiatives, the evaluation focused solely on the establishment of the first-step industry-academia consortium.

Table 119 Possible JICA's supports: Sutartup Ecosystem Development

Theme	Challenges	Possible Supports				Evaluation of Priority		
		Support Menu	Main Activities	Scheme	Counterpart	Impact of Support	Ease of Support	Priority
【Human Resources】 Education of Entrepreneurial Talent	• Although support for entrepreneurship is being provided, it has not led to significant results. There are few educational institutions that can offer high-quality programs related to innovation and entrepreneurship	• Entrepreneurship education program in collaboration with universities	• Implement an entrepreneurship education program in collaboration with educational institutions in Mongolia	Technical Cooperation	• Ministry of Education (MES) • IT Park	Medium	Easy	Short-term
		• Dispatchment of personnel to overseas startup ecosystems (including Japan)	• Dispatch personnel to businesses/universities in countries with advanced startup ecosystems. • Provide programs that allow participation in incubation facilities and events.			Medium	Easy	Short-term
【Business Development】 Business Strategies with Sufficient Total Addressable Market (TAM)	• Startups have not grown enough to expand overseas • There are not supporters with sufficient ability to assist in overseas expansion	• Qualitative Approach: Regional accelerator supporting expansion into Central Asia or Southeast Asia	• Provide an accelerator program that supports the expansion of Mongolian startups into their main target regions, Central Asia and Southeast Asia	Technical Cooperation	• MDDC • IT Park	High	Easy	Short-term
		• Quantitative Approach: Accelerator targeting pre-seed and seed startups	• Continue the current MONJA program with the aim of increasing the number of seed-stage startups			High	Easy	Short-term
【Financial Access】 Risk Capital from Domestic Investors	• The amount of funding flowing into startups is insufficient. The factors include: • There is no funding from government agencies (only subsidies). • The number of private investors is insufficient.	• Two-Step Yen Loan Investment Project	• Provide investment funds to VCs and banks through yen loans to counterparts	ODA Loan Program	Ministry of Finance	High	Difficult	Mid-term
		• Investor Education	• Implement educational programs for angel investors in collaboration with entities such as Angel Investment Clubs. The content is expected to cover the risks of investing in startups and approaches to valuation	• Technical Cooperation • ODA Loan Program	Ministry of Economic Development, Ministry of Finance	High	Difficult	Mid-term
【Financial Access】 Risk Capital from International Investors	• Few foreign investors interested in Mongolian startups, leading to a shortage of funds	• Support for the establishment and operation of public-private funds	• Support the establishment of a fund by joint investment of the Mongolian government and the private sector. • Provide yen loans from JICA to the Mongolian government for investment costs.	ODA Loan Program	Ministry of Finance	High	Difficult	Mid-term

			The aim is to increase the amount of funds and attract investments.					
【Financial Access】 Diversity (Equity Investment)	- In the private sector, investors consist only of angels, VCs, and business corporations, with only one VC, which is insufficient - no funding or loans provided by the government	Support for the establishment and operation of public-private funds	- Support the establishment of a fund by joint investment of the Mongolian government and the private sector. - Provide yen loans from JICA to the Mongolian government for investment costs. - The aim is to increase the amount of funds and attract investments.	ODA Loan Program	Ministry of Finance	High	Difficult	Mid-term
【Financial Access】 Diversity (Debt Financing)	- Few banks that provide loans to startups - no effective government support for lending	Support for the Mongolian government in establishing a system for SU loans (Two-Step Loan Yen Investment Project)	- Introduce the Japan Finance Corporation scheme to Mongolia - Provide the necessary funds for loans as yen loans through the Two-Step Loan mechanism	ODA Loan Program	Ministry of Finance	High	Difficult	Mid-term
【Financial Access】 Diversity (Grants)	almost no subsidies from the government or development agencies for startups, limiting their financing options	Implement a program to provide subsidies using sponsorship	Recruit sponsors in startups support programs (such as Broad Accelerator, MONJA, etc.), and provide subsidies to startups.	Technical Cooperation	IT Park	Medium	Easy	Short-term
Startup-friendly Laws, Regulations and Policies	- STF: A law that stipulates subsidies, but the amount is insufficient compared to other countries relative to GDP. - Investment Law: Tax incentives for investors are insufficient. - Innovation Law: Although there are tax reductions for startups, the definition of startups is unclear.	Support for the formulation of startup-related laws and regulations	- Support the formulation of startup laws - Consider deregulation measures that contribute to the creation of incentives, such as investment tax exemptions for investors - Establish and operate a working group (WG) related to the above	Technical Cooperation	MDDIC, Ministry of Economic Development	High	Medium	Short-term
Global/Local Network of Ecosystem players	Few relationships with overseas ecosystems, and unable to provide startups with a foothold for global expansion	Networking with local accelerators through overseas accelerators, MONJA, etc.	Collaborate with local accelerators to form a network in implementation of the forementioned abroad acceleration program.	Technical Cooperation	MDDIC IT Park	High	Easy	Short-term

Table 120 Possible JICA's supports : Open Data utilization (Open Data and Data Linkage)

Theme	Challenges	Support Content				Priority of Support Plan		
		Support Menu	Main Activities	Scheme	Counterpart	Impact of Support	Ease of Support	Priority
【Open Data】 Open Data policy development: Staff literacy	Low literacy among non-technical staff. Only executives and some employees recognize the importance of open data	Capacity Building Program for Open Data	Provide training to provide knowledge on open data and how to use it	Technical Cooperation	MDDIC, Local Government	Medium	Easy	Short-term
【Open Data】 Raw data collection: Amount of data set	Most of the open data is statistical data and there is no variety. Insufficient deep exploration of data items in cooperation with administrative agencies and local governments		Provide support to improve data collection skills (e.g., capacity building on how to collect real-time data) Prepare data sets useful to the private sector	Technical Cooperation	MDDIC, Ministries responsible for Open Data portals	High	Difficult	Short-term
【Open Data】 Open Data portal development: UI and quality of data catalog	Difficult to find useful data. Less visually appealing. Language constraints. Limited data format. Infrequently updated.		Enrich data set formats. Organize data preprocessing and easy-to-use data. Improve UI such as graphics of Open Data portal.	Technical Cooperation	MDDIC, Ministries responsible for Open Data portals	Medium	Medium	Short-term
【Open Data】 Secondary use of Open Data by private companies: Communication with the private sector	The existence and usefulness of open data are not recognized by private companies. Both the quantity and quality of the data set are insufficient, making it difficult to use.		Hold workshops for the private sector (The government strives to understand the needs of the private sector, and the private sector deepens its understanding of information dissemination by the government.) Develop Pilot Project 5 initiatives such as hackathons (e.g., rerun hackathons with different challenges)	Technical Cooperation	MDDIC	High	Easy	Short-term

【Data Linkage】 Survey of core systems at each ministry and local government	Increased data operation load due to differences in data infrastructure between local and central government	Capacity Building Program for Strengthening Data Linkage	Design data linkage infrastructure based on the actual state of core systems at each ministry and local government	Technical Cooperation	MDDIC	Low	Easy	Short-term
【Data Linkage】 Create Data Linkage infrastructure across ministries (including local governments)	-		Store data held by ministries, agencies and local governments in the Data Linkage system. Establish a system whereby ministries, agencies and local governments can utilize data from other agencies stored in the Data Linkage system.	Technical Cooperation	Ministry in Charge of XYP Management	Medium	Medium	Short-term
【Data Linkage】 Private industry Data Linkage (e.g., Mining, Finance, etc.)	Data held by the private sector is not utilized because the private sector does not provide the data		Select specific industries to promote Data Linkage. Recruit and select private companies to implement Data Linkage. Identify the data items to be linked. Establish data-sharing platforms such as Data Linkage system.	Technical Cooperation	MDDIC	High	Difficult	Mid-term
【Data Linkage】 Handling of personal information	-		Develop laws on the handling of personal information. Establish rules for handling personal information based on the law (in particular, stipulate legality requirements such as anonymization in practice).	Technical Cooperation	Ministry in Charge of XYP Management	Low	Difficult	Long-term

2) ICT and Digital Industry Promotion (Overseas Expansion of ICT and Digital Industry)

In Mongolia, the creation of the next pillar of industry is a major challenge to overcome the resource-dependent economy. Earning foreign currency through overseas expansion is a particular theme in promoting the ICT and digital industries. In addition, the promotion of ICT and digital industry can contribute to reducing the digital trade deficit in the medium to long term by not only earning foreign currency but also reducing overseas payments through the procurement of digital-related services at home.

Issues facing the overseas expansion of the ICT and digital industry include lack of networks with overseas companies, lack of growth funds for overseas expansion, lack of ICT human resources, lack of recognition of Mongolia's ICT brand, and lack of statistics on the ICT industry. In addition to the fact that these issues are interrelated, it is considered efficient and effective to develop support measures in a single package from system building to implementation of various measures.

To this end, we propose a technical cooperation project that includes the following five measures, as described in Table 122: ICT and Digital Industry Promotion (Overseas Expansion of ICT and Digital Industry): (1) establishment of a support system for overseas expansion of Mongolia's ICT and Digital Industry; (2) enhancement of overseas recognition of Mongolia's ICT and Digital Industry; (3) development of human resources for overseas expansion of Mongolia's ICT and Digital Industry; (4) promotion of cooperation between Mongolia's ICT and Digital Industry and overseas ecosystems; and (5) development of statistics on Mongolia's ICT and Digital Industry (especially overseas transactions). Of these five, (1) through (4) are measures that meet the needs of the Mongolian government and enterprises in particular. The impact of assistance is assigned to "high" and the priority is assigned to "high." On the other hand, (5) is assigned to "low" and the priority is assigned to "medium", because actions on this matter must be made in accordance with international standards set by the United Nations.

3) ICT and Digital Human Resource Development

This topic did not receive an application form for Japan's technical cooperation from the Mongolian government, and its priority is lower compared to other themes such as overseas expansion support or startup ecosystem development. Therefore, the prioritization was conducted with a focus on the ease of providing support (necessity and amount of additional resources required).

(a) Quantity of ICT Personnel

Awareness-raising activities aimed at increasing the number of students pursuing careers in the ICT field have a significant support impact, as they can substantially increase the pool of future ICT talent. However, if JICA were to provide support, additional resources would be required for activities such as developing awareness content and strengthening the capacity for awareness campaigns. Therefore, the ease of support is rated as "moderate," and the activity has been positioned as a medium-term priority.

Regarding job seminars, a pilot project was implemented with the expectation of handing over operations to Narni Nadaam, the organizing office of the Japan Festival, within the scope of this project. While the support impact is rated as low, as it is limited to event participants, no additional resources are required. Thus, the priority was evaluated as short-term.

The development of reskilling programs for working professionals is a support initiative that can increase the number of ICT personnel in the short term and is rated as having a large impact. However, even if existing Japanese programs are utilized, program development tailored to Mongolia will be necessary, requiring significant personnel, costs, and time resources for support. As a result, this activity has been positioned as a long-term priority.

(c) Quality of ICT Personnel

The development of an industry-government-academia consortium and the creation of practical curricula through it are considered to have a significant support impact. The lack of opportunities to acquire practical skills is a major factor hindering the improvement of human resource quality. By developing curricula based on the needs of the industry, it becomes possible to cultivate ICT professionals in higher education who are ready to contribute immediately to the workforce. Additionally, promoting collaboration among relevant institutions through the industry-government-academia consortium is expected to facilitate the implementation of joint projects between academia and industry, as well as the promotion of internships, thereby generating substantial ripple effects. Although support for curriculum development will require additional resources, the establishment of the industry-government-academia consortium as the first step can be formed based on the WG within this project. Based on the approach of starting with feasible initiatives, the evaluation focused solely on the establishment of the first-step industry-academia consortium, and the ease of support for this initiative is

evaluated as easy. Consequently, the priority is evaluated as a short-term initiative. Furthermore, the smooth formation of the industry-government-academia consortium can be ensured by continuing the WG established within this project even after its conclusion and holding an education-focused WG as a subcommittee. However, the current WG has a limited number of participants from educational institutions and the Ministry of Education. Therefore, it will be necessary to select and add new members to the group. In addition, to ensure that the consortium operates effectively and sustainably, it is crucial for the Mongolian government to take the initiative. A structure needs to be established where the Ministry of Education or MDDIC serves as the chair of the consortium and actively leads the discussions.

The hosting of a business plan competitions for students is envisioned as a continuation of the DX CUP, which was conducted as a pilot project within this project. While the support impact was evaluated as low since the beneficiaries are limited to event participants, the ease of providing support was rated as easy due to the minimal additional resources required. As outlined in Chapter 7, the collaboration between DX Mongolia and Nasha Tech, along with securing sponsorships and placing local personnel until coordination between the two companies is finalized, is expected to enable the continuation of the pilot project. Therefore, the priority is evaluated as a short-term initiative for immediate implementation.

As a response to the shortage of educators, the development of schemes for studying abroad and internships in Japan, as well as support for establishing systems to provide online courses in collaboration with Japanese universities, can be considered. These initiatives contribute to the cultivation of high-quality ICT professionals, not only improving the quality but also increasing the quantity of ICT talent. Since the beneficiaries of this support are not limited to event participants, such as in job seminars or DX CUP, the support impact is evaluated as medium. Regarding the ease of providing support, existing content that can be deployed in Mongolia is available, such as the internship schemes under MJEED and the Japan-Africa joint research and curriculum development support conducted by JICA in collaboration with the Matsuo and Iwasawa laboratories at the University of Tokyo for online courses. However, customization aligned with the specific objectives of this initiative would be necessary when deploying these resources horizontally. Thus, the ease of support is evaluated as moderate, and the priority is positioned as a medium-term initiative for implementation.

4) Startup Ecosystem Development

As in previous frameworks, the startup ecosystem is structured around the following five pillars: Human Resources, Business Development, Financial Access, Startup-friendly Laws, Regulations and Policies, and Global/Local Network of Ecosystem players.

(a) Human Resources

The support measures “Entrepreneurship education programs in collaboration with universities” and “Dispatch of human resources to overseas startup ecosystems (including Japan)” have been designated as third-priority themes, with a “medium” impact and “easy” feasibility.

This is because the development of entrepreneurial talent is important for strengthening the startup ecosystem in the mid- to long term, although its impact is not immediate. For this reason, the impact level is assessed as “medium.”

The feasibility is rated as “easy” due to the availability of several Japanese programs that support entrepreneurship education.

(b) Business Development

"Qualitative Approach" and "Quantitative Approach," which are the support menus for expanding target market size and overseas expansion strategies, have been set as the highest-priority themes, with "high impact" and "easy" support. The reason is that the creation of successful startups and the increase in the population of startups have a great impact on the growth of the startup ecosystem. In a country with a small population like Mongolia, building a business model based on overseas expansion is important for the growth of startups, but there are few strong support programs to support overseas expansion, and there is a lack of support. Startup support that focuses on support for overseas expansion has a high impact and can be implemented more effectively and efficiently because program management know-how and networks have been formed with overseas supporters in Mongolia, Japan, and other countries through the implementation of pilot projects (1) and (3). Therefore, this was selected as the highest priority theme.

(c) Financial Access

The support measures titled “Qualitative Approach” and “Quantitative Approach”, which aim to expand target market size and promote overseas expansion strategies, have been designated as top-priority themes, with high impact and high feasibility.

This prioritization is based on the significant role that both the creation of successful startups and the expansion of the startup population play in strengthening the overall startup ecosystem. In a country with a small domestic market like Mongolia, building business models that target overseas markets is essential for startup growth. However, current support programs for international expansion remain limited.

Support measures focusing on overseas expansion are expected to have a high impact and can be implemented efficiently and effectively, leveraging existing networks and program management know-how developed through prior pilot projects (1) and (3) in Mongolia, Japan, and other countries.

For these reasons, this initiative has been selected as a highest-priority theme.

(d) Startup-friendly Laws, Regulations and Policies

"Support for the formulation of laws and regulations related to startups" has the second highest priority, with "high" impact and "medium" ease of support. In the development of the startup ecosystem, it is important that various policies, laws and regulations related to startups are organized and operated in a systematic and appropriate manner. However, at present, there are no systematic policies, laws and regulations similar to startup acts, and the contents are not sufficient, so the impact is considered to be "large." On the other hand, regarding the ease of support, "medium" was selected because there are many stakeholders involved in the development of policies and laws.

(e) Global/Local Network of Ecosystem players

As stated in (b) Business Development, the impact of "Networking with local accelerators through regional accelerators and MONJA" is considered to be “High” because support for overseas development has a large impact on the growth of Mongolian SUs. As a concrete implementation plan, it envisages networking with overseas accelerators through a program implemented as a support measure for (b) Business Development, and the ease of support is "simple" because it is possible to utilize the network of the pilot project (3).

5) Utilization of Open Data

This theme, similar to the ICT/Digital Human Resource Development theme, has not received a formal request from the Mongolian government. Consequently, the overall priority ranking of this theme is lower compared to themes such as overseas expansion support or the establishment of a startup ecosystem. Therefore, prioritization was conducted with a focus on the ease of support (additional resources required and their volume).

In terms of priority, “Raw Data Collection: Volume of Data Sets” and “Secondary Utilization of Open Data by the Private Sector: Communication with the Private Sector” were identified as areas which have the greatest impact and being feasible for short-term implementation:

The reason for selecting "Raw Data Collection: Volume of Data Sets" as the top priority is based on the results of hackathons and PoC conducted, which revealed that the existing data sets (mainly statistical data) on Mongolia's open data portal were insufficient for business development and growth. This highlighted the need to improve the quantity of data available on the open data portal.

During the hackathons and PoC, many teams considered developing applications utilizing AI, indicating a high demand for data sets such as big data. However, statistical data, which cannot be used for AI modeling, was deemed unsuitable for application development and lacked practical use for participating teams. Given this outcome, the statistical data that currently dominates the open data portal is considered low in utility due to its limited quantity per dataset. Therefore, it is proposed to prioritize "Raw Data Collection: Volume of Data Sets" as a key theme and to implement initiatives aimed at increasing the volume and variety of open data in Mongolia, in order to enable the utilization of data other than statistical data—such as unstructured data, geospatial data, weather data, and sensor data—that is expected to be available in sufficient quantities and is highly compatible with AI on the open data portal.

On the other hand, this initiative is expected to take time, as it requires thorough discussions on what types of data, beyond statistical data, should be included on the open data portal.

The reason for selecting "Secondary Utilization of Open Data by the Private Sector: Communication with the Private Sector" as a top priority is based on findings from previous hackathons and PoC. It was observed that

the data desired by the private sector differed from the data currently published by the government on the open data portal. This underscores the necessity to create opportunities for Mongolian government agencies to understand what types of data are needed by the private sectors as providers of open data.

In this regard, Tuguldur from DX Mongolia, the PoC implementation contractor, plans to propose regular public-private dialogue sessions to Batzayat, Director General of the Strategic Policy and Planning Department at MDDIC. This proposal is currently under positive consideration.

For data integration, two themes, “Establishing a Cross-Ministry (including local governments) Data Integration Platform” and “Developing Industry-Specific Data Integration Platforms in the Private Sector (e.g., mining, finance)” have been prioritized:

The Cross-Ministry Data Integration Platform was selected with the view that promoting the domestic use of the existing integration platform, XYP, would be effective as a preliminary step before exporting the data integration platform internationally.

Regarding Developing Industry-Specific Data Integration Platforms in the Private Sector, the initiative aims to establish data-sharing platforms for Mongolia's key industries under private sector leadership, using Japan's examples as reference. This could lead to increased efficiency and revitalization of existing industries.

However, the establishment of industry-specific data integration platforms and data sharing require active participation from the private sector, as the framework can only begin with their involvement. Therefore, this initiative is seen as a medium- to long-term recommendation for JICA to support the development of Mongolia's data integration platforms in long term..

In parallel with the domestic utilization of Mongolia's existing XYP platform, one potential approach is to consider the international expansion of Mongolia's XYP as a product, in conjunction with the overseas expansion of Mongolian companies and their Export Strategy.

6) Future Consideration

This study aims to extensively gather information on the necessity of support related to the promotion of the ICT industry and to identify areas and approaches with high potential to contribute to industrial development. Based on this, it has identified two key areas as high-priority fields for support, which are also recognized by the Mongolian government as having need: the overseas expansion of the ICT and digital industry and the development of a startup ecosystem. Furthermore, specific support measures and their prioritization within these areas have been examined.

However, the ICT sector is rapidly evolving, and the external environment is constantly changing.

Additionally, changes in administration or governmental structure could potentially alter the policies of the Mongolian government. Therefore, when considering future support for this sector, it will be essential to conduct more detailed information gathering based on the findings of this study and to formulate specific support policies accordingly.