

GISC 2025

Global ICT Standards Conference 2025

Standardization Capability

Implementation of educational programs based on the skills and knowledge of standardization personnel

Emi Yoshino
Senior Manager, NTT Precision Medicine

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Abstract

| Implementation of educational programs based on the skills and knowledge of standardization personnel

Standardization Capability

University education on standardization plays a significant role in broadening the base of standardization experts and supporters.

This presentation shares a workshop-style university lecture designed to deepen students' understanding of the importance and value of standardization activities, giving them hands-on experience with the skills and knowledge required for standardization experts.



01. Introduction and Background

| Emi Yoshino

- **2025 - Waseda University**
- 2024 - NTT Precision Medicine
- **2021 - 2024 TTC: The Telecommunication Technology Committee**
- 2020 - 2021 NTT
- 2008 - 2020 NTT East

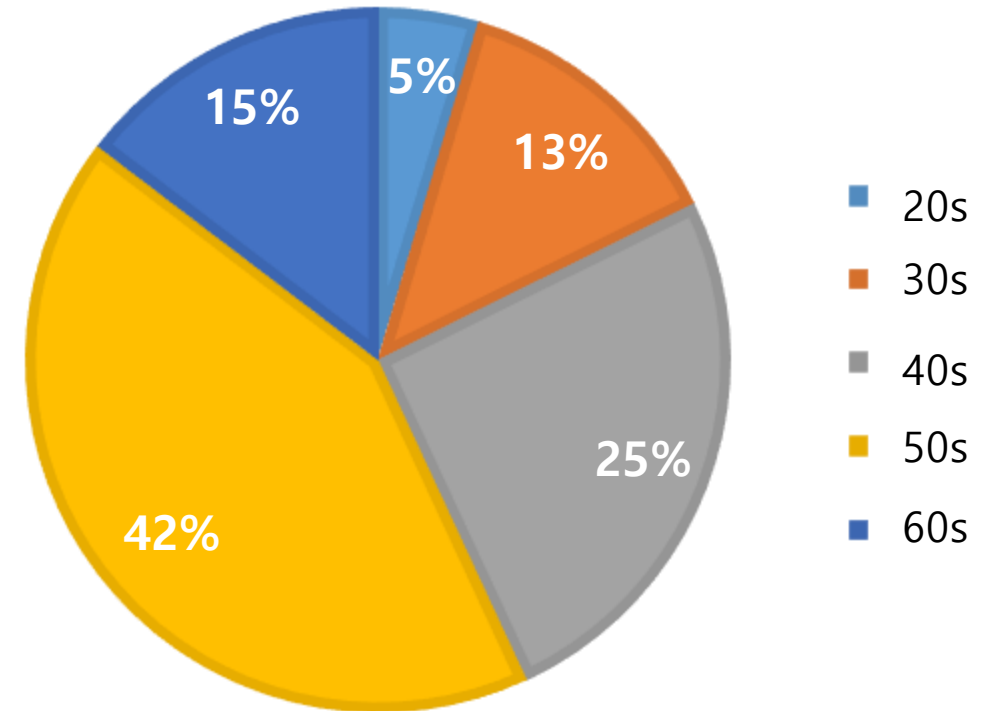


01. Introduction and Background

| Age Composition of Japanese Standardization Practitioners

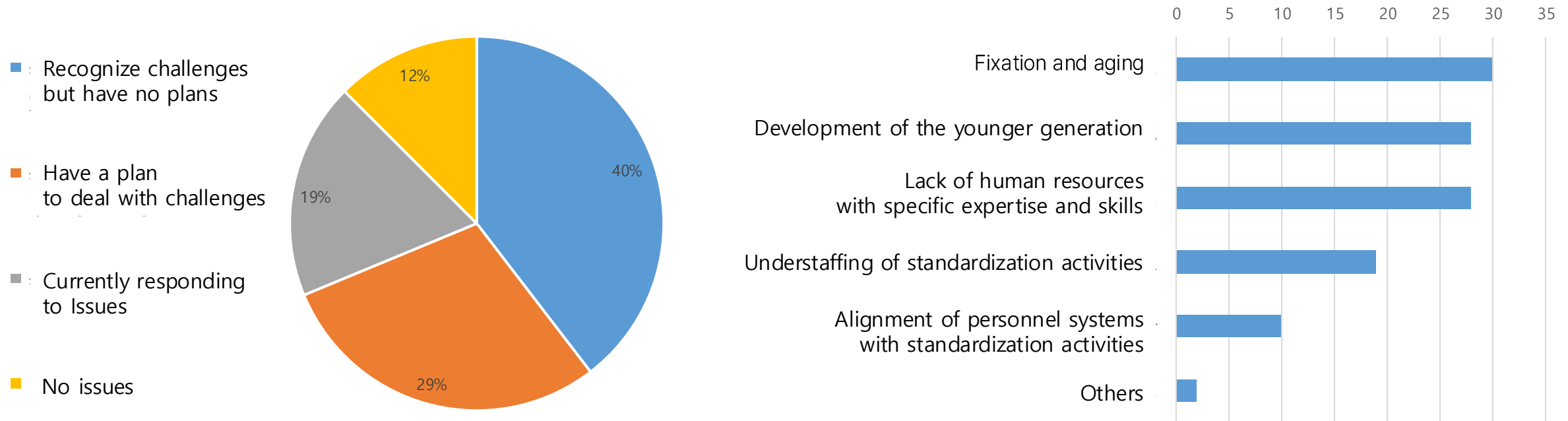
Age structure of participants from Japan
at ITU-T SG or TSAG meetings in FY 2022

- Participants from Japan in their 50s or older account for 57% of all Japanese participants.
- Among chairpersons and vice-chairpersons, 78% are in their 50s or older.



01. Introduction and Background

| Challenges and Responses in Developing Standardization Personnel at Japanese Companies



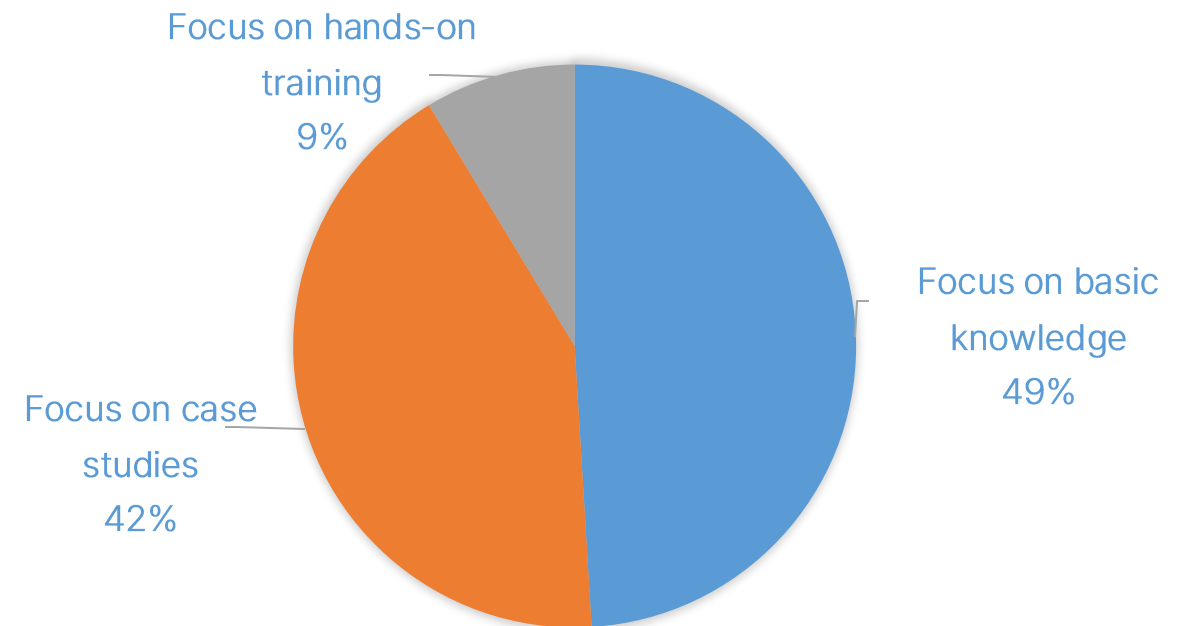
*Results of "Questionnaire on evaluation and development of human resources for standardization" for TTC members
(December 2023, Responses: 48 Members, Survey Format: Web (Microsoft Forms))

01. Introduction and Background

| Standardized education at universities

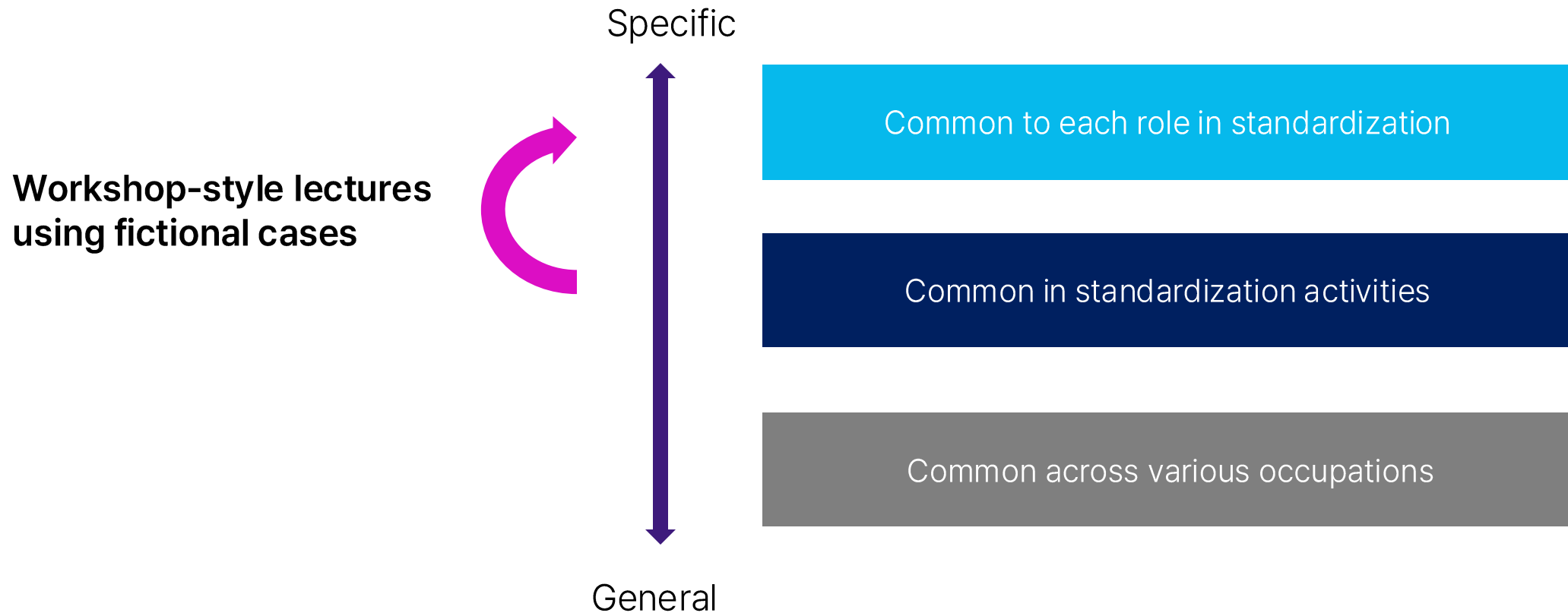
- In 2022, we identified all 29 Japanese universities offering standardization education, primarily in the information and communications field.
- Furthermore, we selected seven universities providing comprehensive standardization education and analyzed their lecture content based on publicly available syllabi.

Content of Lectures on Standardization
at Japanese Universities



01. Introduction and Background

| Approaches to Deepen Student Understanding



01. Introduction and Background

| Waseda University

- Private University in Shinjuku, Tokyo.
- Founded: 1882
- Faculty: 5,468
- Undergraduate Students: 41,965
- Graduate Students: 8,256
- Library Resources: 5.8 M books



01. Introduction and Background

| Waseda University Alumni



01. Introduction and Background

| Lecture: Information and Communications and International Standardization

- April - July, 2025
- 5 lecturers
- 14 sessions
- 106 Undergraduate and graduate students in the Department of Science and Engineering



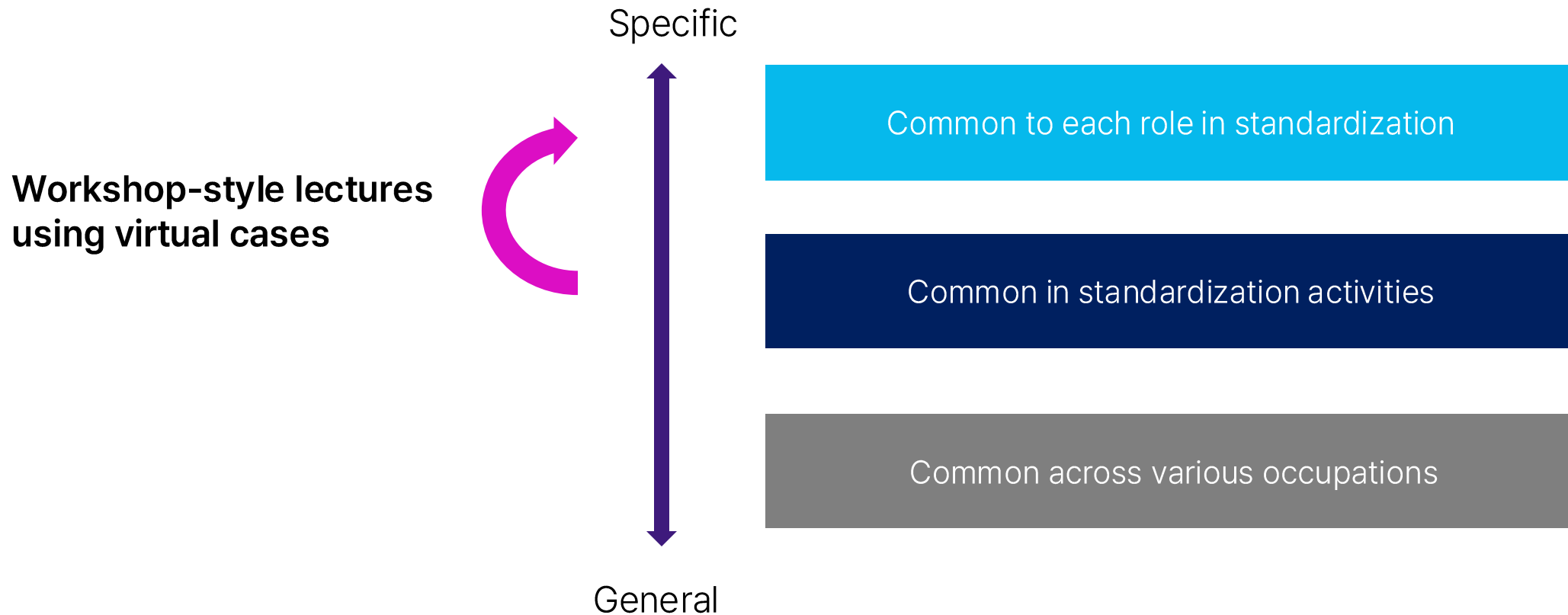
01. Introduction and Background

| Program

1	Major Standardization Organizations' Structures and Their Activities (1)	JSA
2	Accessible Design and Standards	JSA
3	ISO Management System Standards (QMS and EMS) and Certification	JSA
4	How to Develop International Standards (1)	JSA
5	How to Develop International Standards (2)	JSA
6	Standardization of IoT Taking an Example of Home Networking	JAIST
7	Standardization of IoT - Standardization of Link Technologies	JAIST
8	Standardization of IoT - Standardization of IoT Network Systems	JAIST
9	Necessity and Significance of Standardization in the ICT Field	TTC
10	Human Resources for Standardization	NTT
11	Major Standardization Organization' Structures and Their Activities (2)	TTC
12	Workshop1: Standardization Strategy	NTT
13	Workshop2: Mock Meeting	NTT
14	Review of the course and exercise	JSA/TTC

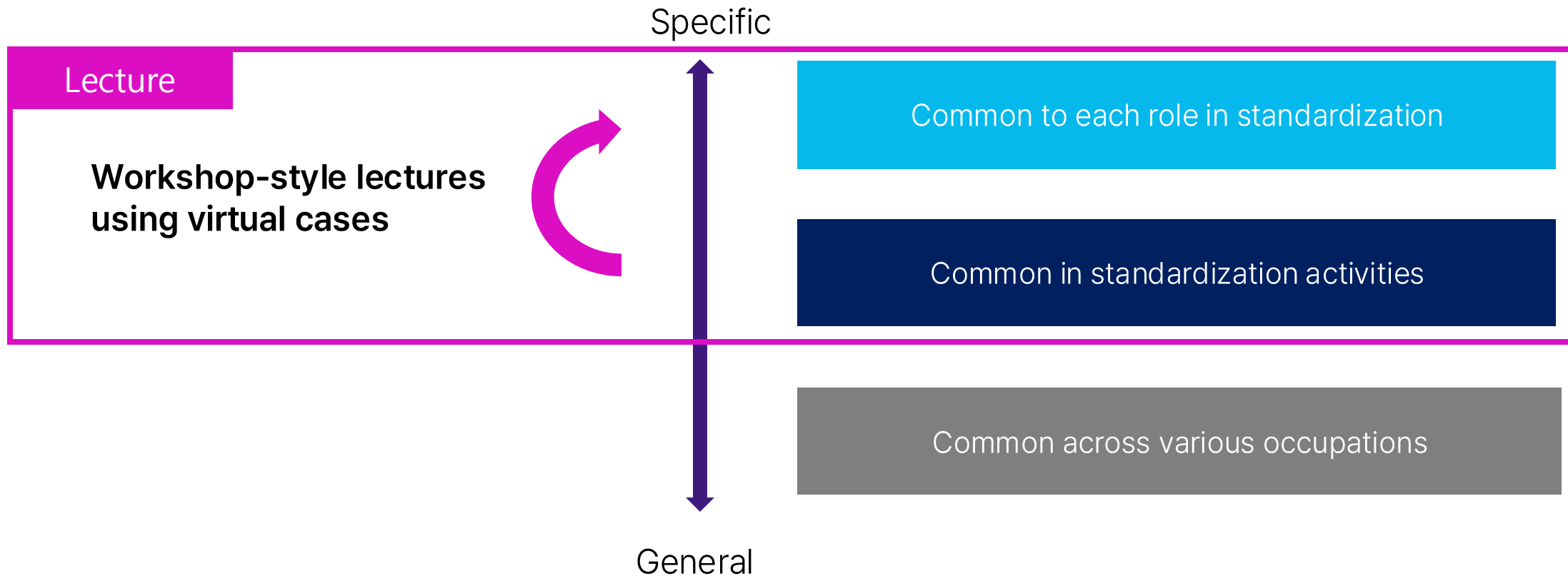
02. Capacity Building Framework for Standardization

| Knowledge system referenced in the lecture



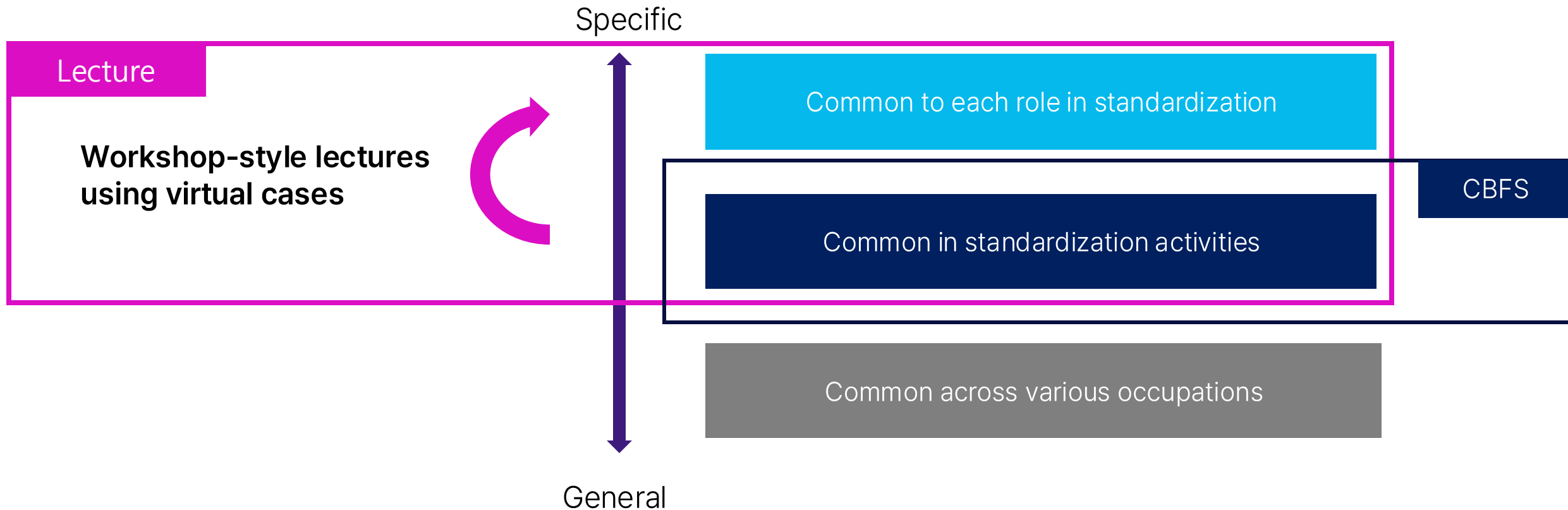
02. Capacity Building Framework for Standardization

| Knowledge system referenced in the lecture



02. Capacity Building Framework for Standardization

| Knowledge system referenced in the lecture



02. Capacity Building Framework for Standardization

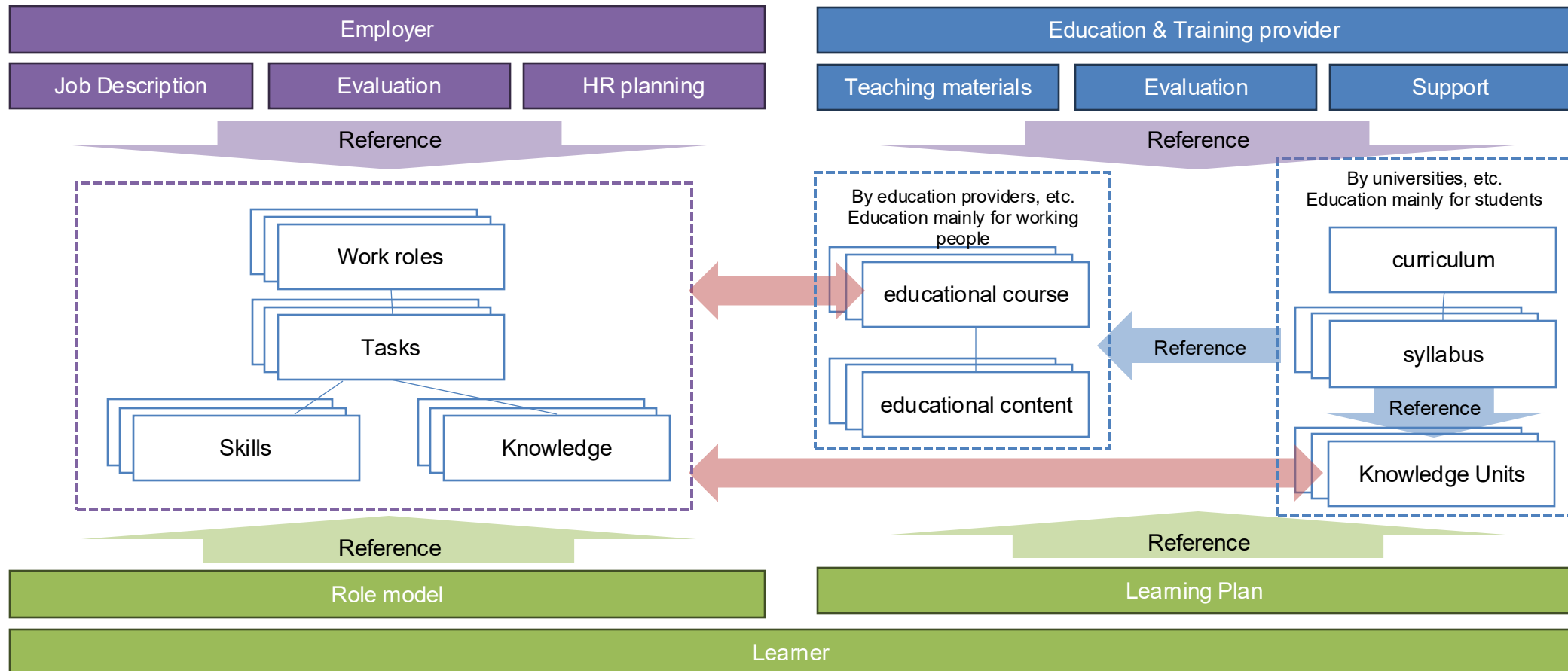
| Overview

CBFS: Capacity Building Framework for Standardization

- Initiated in 2024 by the TTC Capacity Building Advisory Group
- Objectives
 - Integration of objectives through the creation of a common language among stakeholders
 - Alignment of human resources development among stakeholders through the definition of ideal profiles for standardization activities
- Use cases:
 - Employer: Evaluation, recruitment, HRD planning for standardization
 - Education & Training Provider: Development educational materials, training and support design, evaluation
 - Learner: Career planning, development, learning planning, skill acquisition through standardization activities

02. Capacity Building Framework for Standardization

| Building block structure



02. Capacity Building Framework for Standardization

Tables

Work Role List

Work role ID	Role name	Role description	Task ID	Job to be executed
WR 01	Strategy development and decision making	Deciding on strategies and policies, including company-wide standardization	T01001	Clarifying the positioning of the standardization strategy in the company's top policies and strategies (Management strategy, business strategy, etc.)
			T01002	Determining, disseminating, and promoting company-wide standardization policies and strategies
			...	...
...	...	...	...	...
WR04	Perform standard development	Contact, edit, and negotiate with individual standards organizations	T040XX	...

Task List

Task ID	Description of Operations	Relevant Knowledge	relevant skills
T01001	...	K00X	S00X
		K0XX	S0XX
...	...	...	...
...	...	...	...

Knowledge List

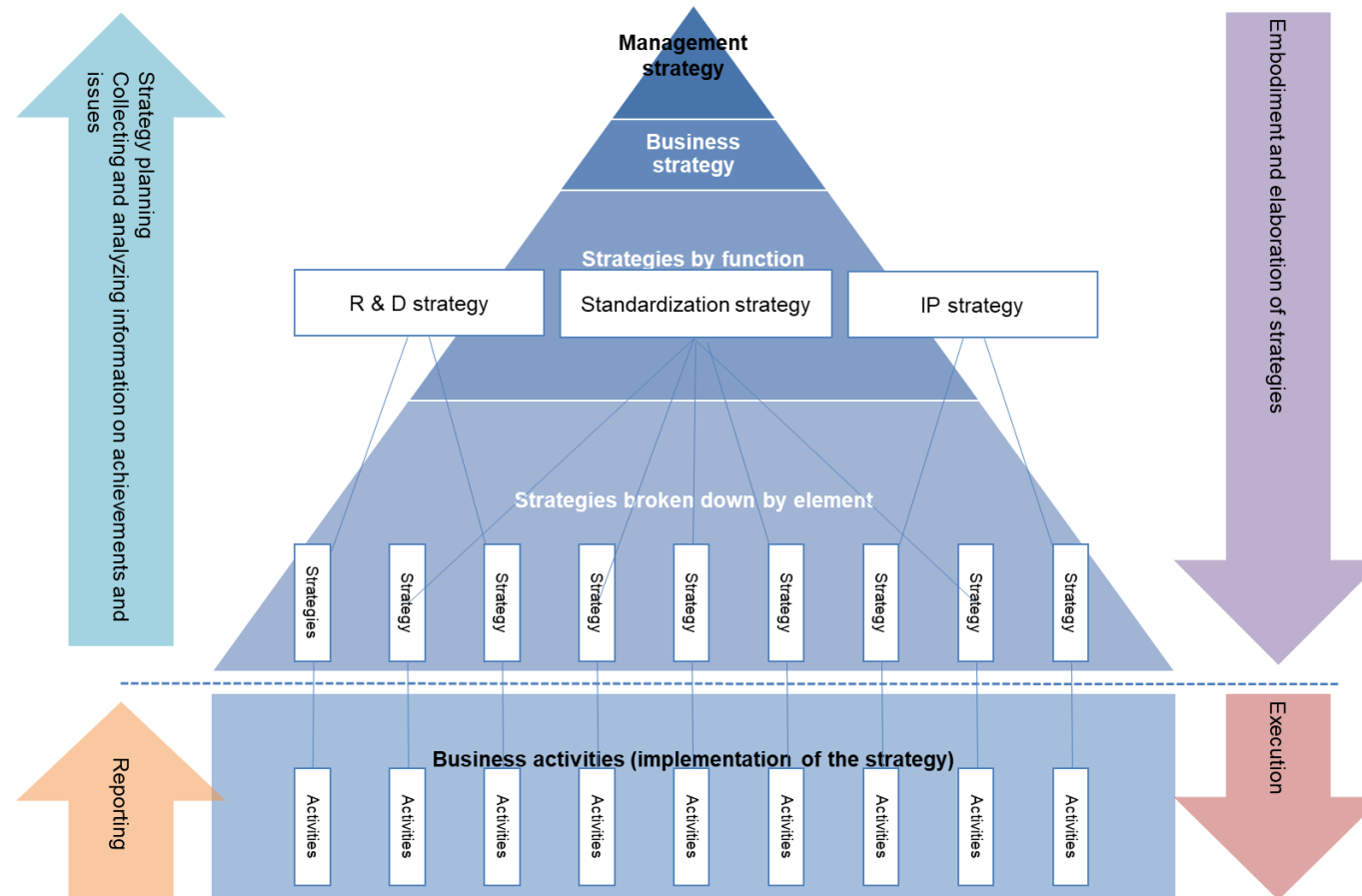
Knowledge ID	Knowledge Name	Knowledge Description
K001	...	...
...	...	...
K00X	...	...
...	...	...

Skill List

Skill ID	Skill Name	Skill Description
S001	...	...
...	...	...
S00X	...	...
...	...	...

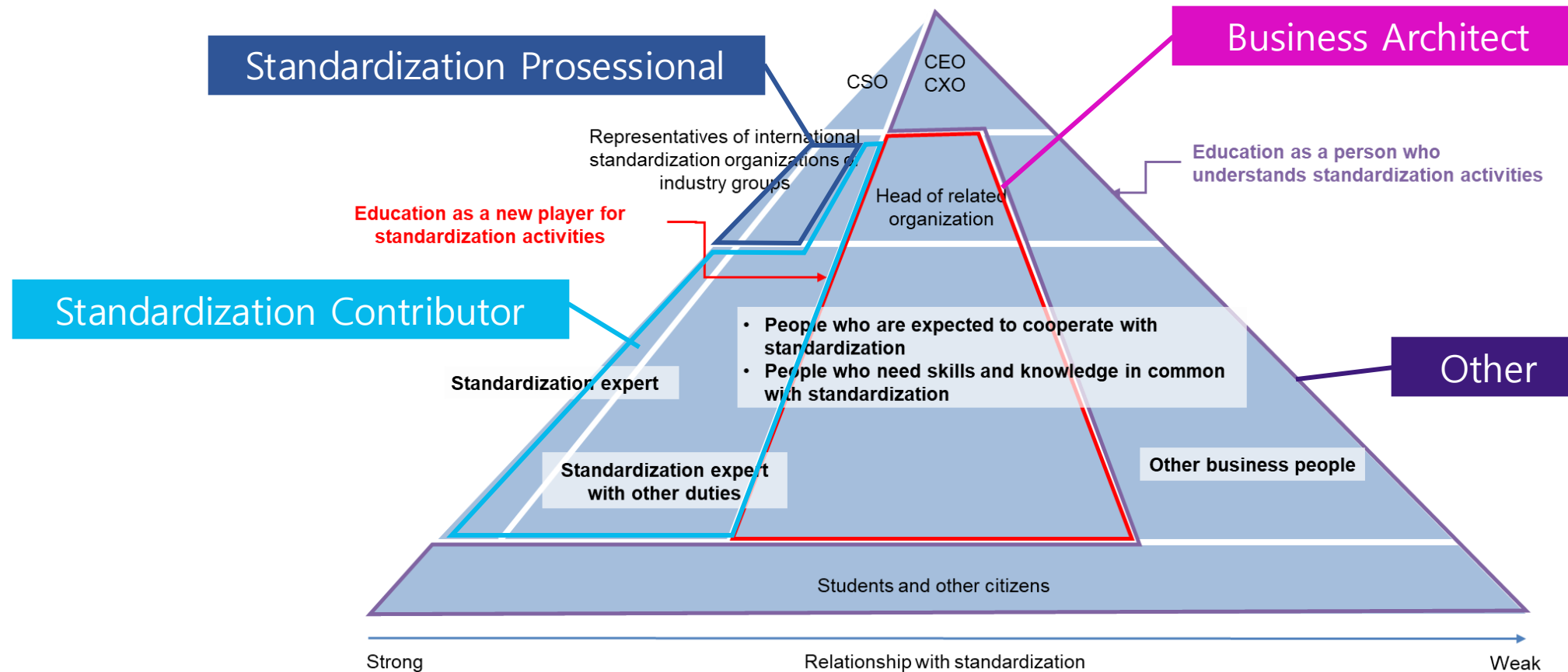
02. Capacity Building Framework for Standardization

| Hierarchical example of strategy



02. Capacity Building Framework for Standardization

| Work roles



02. Capacity Building Framework for Standardization

| Work roles for standardization activities

Work Role	Description
Standardization Professional	As an officer in charge of standardization activities, he/she gathers and coordinates opinions from multi-stakeholder organizations, regions, countries, etc., and leads consensus building from a neutral standpoint. He / She also manages the activity group he/she is in charge of. Formulate and promote standardization strategies for his/her company, research institute, etc., and contribute to the improvement of international competitiveness.
Standardization Contributor	To formulate proposal strategies based on domestic and international standardization trends, make proposals to standardization organizations, and promote the dissemination of standards for the international and domestic standardization of services and R&D results of its own companies, research institutes, etc.
Business Architect	Formulate international standardization strategies from management strategies. Formulate IP and standardization strategies and oversee the career development and evaluation of standardization personnel. Build relationships with internal and external stakeholders for business development.
Other	Not directly involved in international standardization, but will study the international strategy of the company. Study the areas covered by international standardization

03. Implementation and Achievements

| Goals and challenges

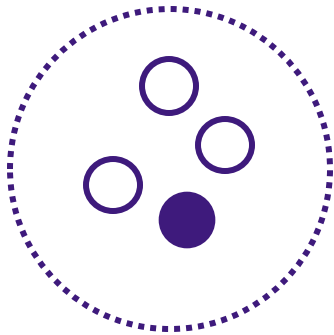
- Students will determine how they wish to engage in standardization based on their own experiences and areas of expertise, enabling them to participate proactively.
- To achieve this:
 - Understand the roles available for individuals involved in standardization activities
 - Learn the tasks associated with these roles and the skills and knowledge required to perform them
 - Identify which roles suit them best and which roles they aspire to take on in the future
 - Understand how to complement their own shortcomings within a team and maximize the team's overall strength

03. Implementation and Achievements

| 3 days program

DAY 1

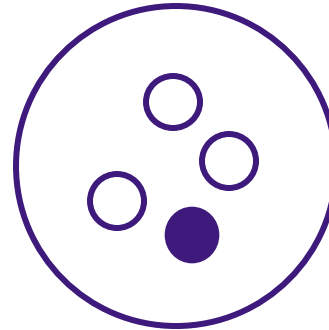
Human Resources for
Standardization



Individual Competencies

DAY 2

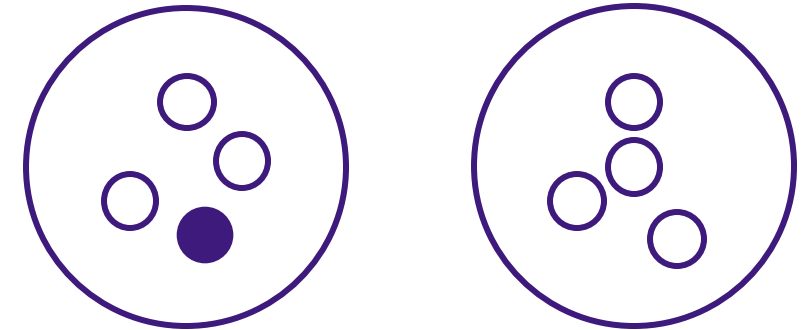
Standardization Strategy



Team Building

DAY 3

Mock Meeting



Interteam Negotiations

03. Implementation and Achievements

| Journey to learn about standardization personnel and skills

Scope	Learning	Format
Individual	Potential Role Suitability Assessment	Preliminary Assignment
	Skills and Competencies for Standardization Activities	Role Play
Team	Complementary Skills & Team Strength	Group Work
	Approaches for Each Role in Formulating Standardization Strategies	Group Work
Interteam	Interteam negotiations	Mock Meeting

03. Implementation and Achievements

| Potential suitability assessment / Standardization Professional

3

以下の業務に取り組んでみたいかを、自分が得意そうか、興味があるかといった観点からお答えください。（質問1-11共通）

Please answer whether you would like to work on the following tasks from the viewpoint of whether you think you would be good at them or whether you are interested in them. *This is a common condition for questions 1-11

自社技術を利用した製品・サービスを国際的に広く普及させるため、国際標準化会議の場で、関連技術に対する優位性を説得力を持って説明し、自社技術の標準化を勝ち取る

To win standardization of the company's technology by persuasively explaining its superiority over related technologies at international standardization meetings in order to promote products and services that use the company's technology internationally.

回答	平均	合計
とても取り組みたい Very willing to work on it	21%	7
どちらかというと取り組みたい Somewhat willing to work on it	27%	9
あまり取り組みたくない Not very willing to work on it	30%	10
取り組みたくない Not willing to work on it at all	15%	5

03. Implementation and Achievements

| Potential suitability assessment / Standardization Professional

4

以下の業務に取り組んでみたいかを、自分が得意そうか、興味があるかといった観点からお答えください。（質問1-11共通）

Please answer whether you would like to work on the following tasks from the viewpoint of whether you think you would be good at them or whether you are interested in them. *This is a common condition for questions 1-11

利害の対立する世界各国の人々が参加する国際会議の場で、それぞれの意見を理解し、中立的な立場で、合意形成の調整をする

Understands and coordinates consensus building from a neutral standpoint at international meetings attended by people from around the world with conflicting interests.

回答	平均	合計
とても取り組みたい Very willing to work on it	 21%	7
どちらかという取り組みたい Somewhat willing to work on it	 45%	15
あまり取り組みたくない Not very willing to work on it	 21%	7
取り組みたくない Not willing to work on it at all	 6%	2

03. Implementation and Achievements

| Potential suitability assessment / Standardization Contributor

5

以下の業務に取り組んでみたいかを、自分が得意そうか、興味があるかといった観点からお答えください。（質問1-11共通）

Please answer whether you would like to work on the following tasks from the viewpoint of whether you think you would be good at them or whether you are interested in them. *This is a common condition for questions 1-11

自社または他社製品が標準に適合しているかをテストし、製品の品質管理やサービスの安定運用を確実にする

Test your products or those of other companies for conformity to standards to ensure quality control of products or stable operation of services.

回答	平均	合計
とても取り組みたい Very willing to work on it	45%	15
どちらかという取り組みたい Somewhat willing to work on it	24%	8
あまり取り組みたくない Not very willing to work on it	15%	5
取り組みたくない Not willing to work on it at all	9%	3

03. Implementation and Achievements

| Potential suitability assessment / Business Architect

11

以下の業務に取り組んでみたいかを、自分が得意そうか、興味があるかといった観点からお答えください。（質問1-11共通）

Please answer whether you would like to work on the following tasks from the viewpoint of whether you think you would be good at them or whether you are interested in them. *This is a common condition for questions 1-11

自社技術を効果的に製品・サービス化し、事業目標を達成するために、自社内の研究開発部門、新規事業開発部門、経営幹部等の橋渡し役を担う

Act as a liaison between the company's R&D department, new business development department, and executives to effectively commercialize the company's technology into products and services and achieve business goals.

回答	平均	合計
とても取り組みたい Very willing to work on it	27%	9
どちらかというと取り組みたい Somewhat willing to work on it	30%	10
あまり取り組みたくない Not very willing to work on it	30%	10
取り組みたくない Not willing to work on it at all	6%	2

03. Implementation and Achievements

| Potential suitability assessment / Other

8

以下の業務に取り組んでみたいかを、自分が得意そうか、興味があるかといった観点からお答えください。（質問1-11共通）

Please answer whether you would like to work on the following tasks from the viewpoint of whether you think you would be good at them or whether you are interested in them. *This is a common condition for questions 1-11

標準化の意義を理解し、標準化活動を支援する立場で、研究開発、製品・サービスの開発、普及等を行う

Understand the importance of standardization and support standardization activities, including research and development, product and service development, and promotion.

回答	平均	合計
とても取り組みたい Very willing to work on it	30%	10
どちらかという取り組みたい Somewhat willing to work on it	39%	13
あまり取り組みたくない Not very willing to work on it	21%	7
取り組みたくない Not willing to work on it at all	3%	1

03. Implementation and Achievements

| Skills and knowledge required for standardization activities

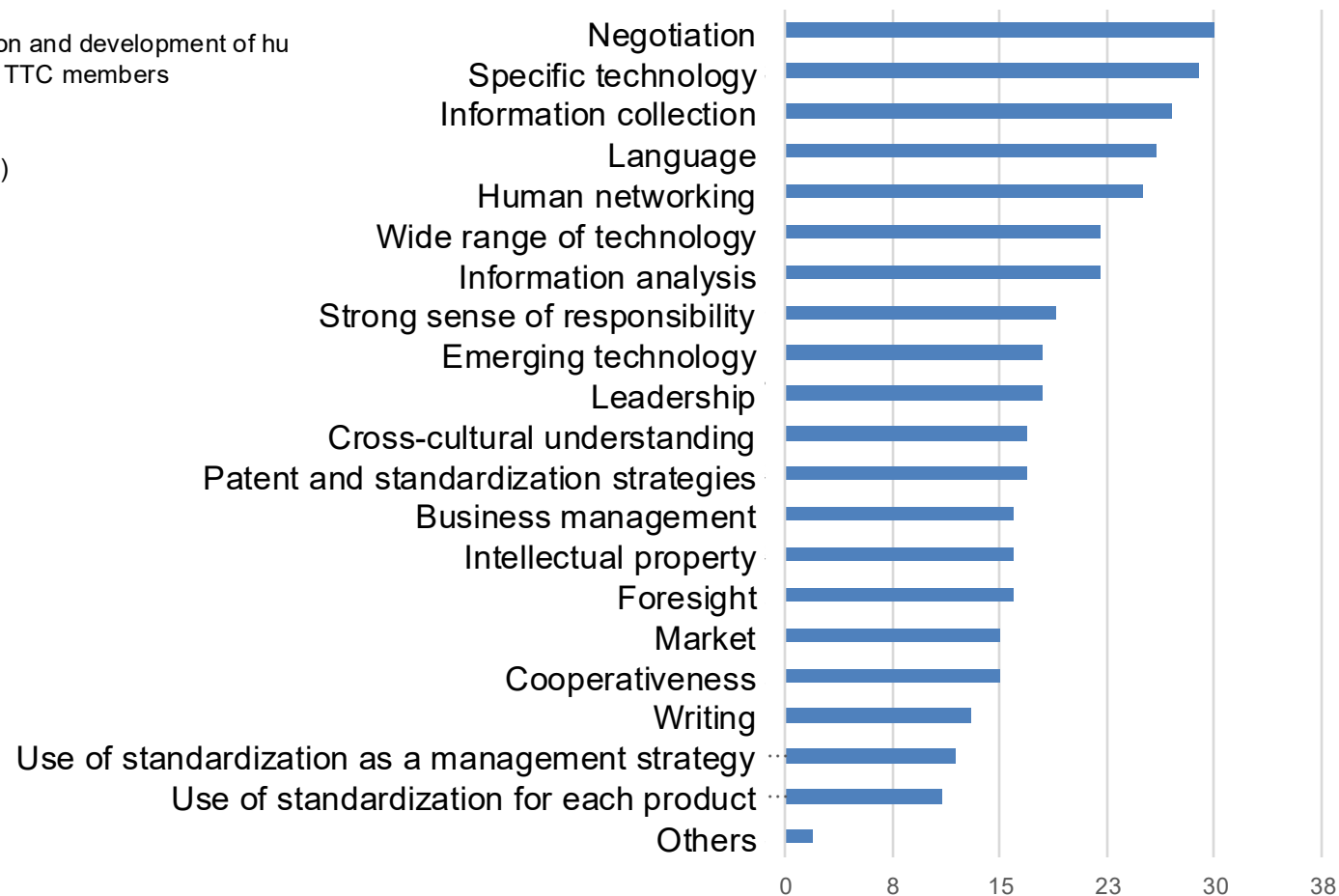
*Results of "Questionnaire on evaluation and development of human resources for standardization" for TTC members
December 2023
Responses: 48 Members
Survey Format: Web (Microsoft Forms)



03. Implementation and Achievements

| Skills and knowledge acquired through standardization activities

*Results of "Questionnaire on evaluation and development of human resources for standardization" for TTC members
December 2023
Responses: 48 Members
Survey Format: Web (Microsoft Forms)

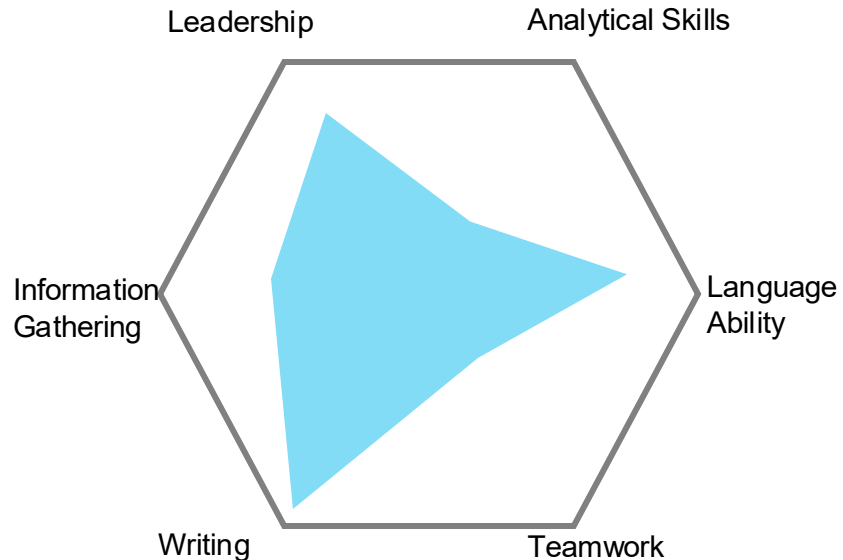


03. Implementation and Achievements

| Team building

Students try to build effective teams by finding partners whose strengths and weaknesses complement their own, as identified through the assessment results.

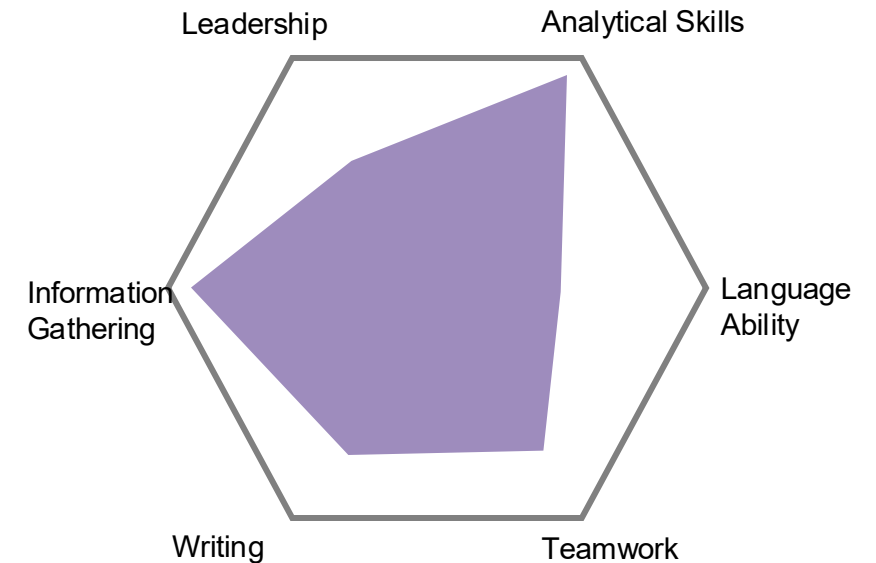
A's standardization abilities and skills



**Overcome
weaknesses by
comparison**

**Build a team with
complementary
talent**

B's standardization abilities and skills



03. Implementation and Achievements

I Develop business strategy including standardization strategy

Develop a business strategy for the following fictional company.

- Company Name: BioRee
- Head office: Nishi-Waseda, Shinjuku-ku, Tokyo
- Establishment: July 2, 2010
- Started business based on research results at Waseda University
- Number of employees: 100
- Capital: 100 million yen
- Annual sales: 3 billion yen
- Business description:
 - R&D, production, import/export and sales of genetically modified crops
 - R&D, production, import/export, and sales of seeds and seedlings
 - Development, production, import/export, and sales of food products using genetically modified crops
- Corporate philosophy: To solve social issues through biotechnology with the vision of "Lighting the Future 100 Years Ahead with the Power of Plants"



03. Implementation and Achievements

| Mock meeting

- Meeting: Plant-based Air Purification Technology Subcommittee, 1st meeting
- Purpose: Define plant-based air purifiers and develop international evaluation criteria
- Key participants: BioRee, PureX, BioRee method supporters, PureX method supporters, representatives of national standards bodies, third-party researchers
- Background:
 - BioRee's high-performance plant-based air purifier was successfully developed into a product and gained market acceptance.
 - The success of the market has led several other companies to market plant-based air purifiers.
 - PureX, a manufacturer of health appliances such as air purifiers and water purifiers, also entered the plant-based air purifier market, and BioRee and PureX are now competitors.
 - Quality evaluation standards for plant-based air purifiers have not yet been established, and some inferior products have begun to appear on the market.
 - BioRee and PureX decided to establish an international standard for product definition and performance evaluation in order to maintain market credibility, promote sound development of the technology, and win market dominance for their products.

03. Implementation and Achievements

| Fictional product: AirBloom One

High-performance genetically modified plants (PhytoClean α) are configured as the primary function of the air purifier



03. Implementation and Achievements

| Fictional product: GreenAura S

Non-GMO plants with certain air purification functions are configured as air purifier spatial effects.



03. Implementation and Achievements

| Key items to be discussed at the fictional standardization meeting



What is the definition of a plant-based air purifier, and in particular, what is the position of plants in it?

Main air purification functions

Healing decorations

How should we evaluate the performance of plant-based air purifiers?

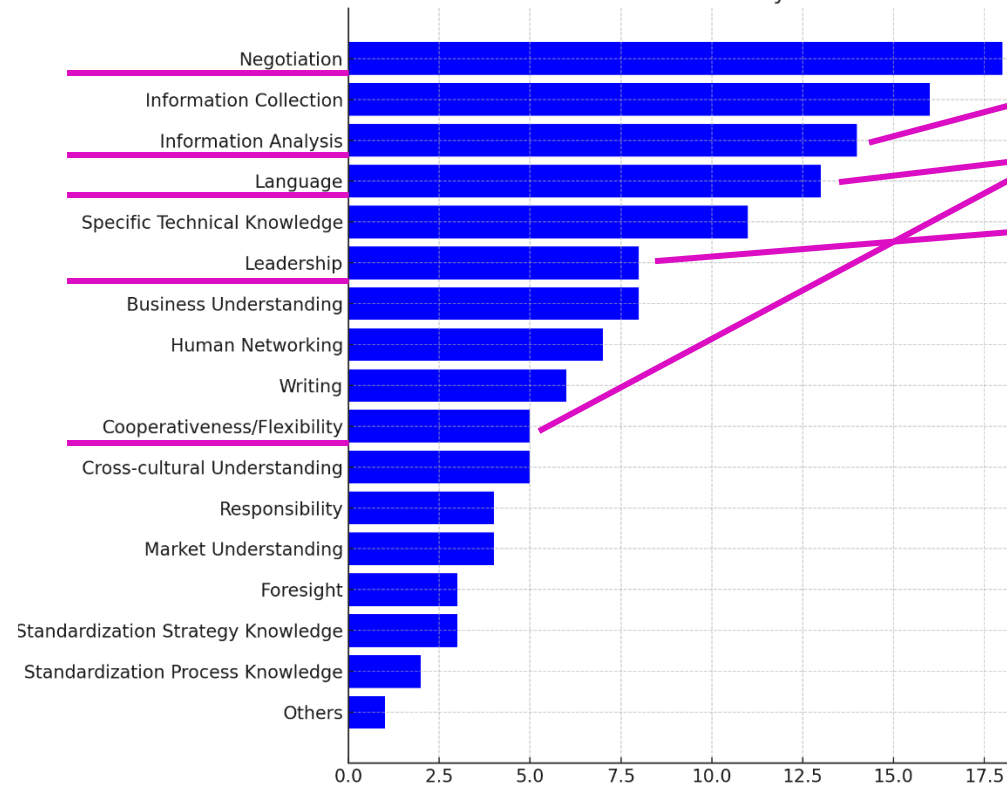
Evaluate plant functionality and maintenance

Evaluate the air purifier as a whole

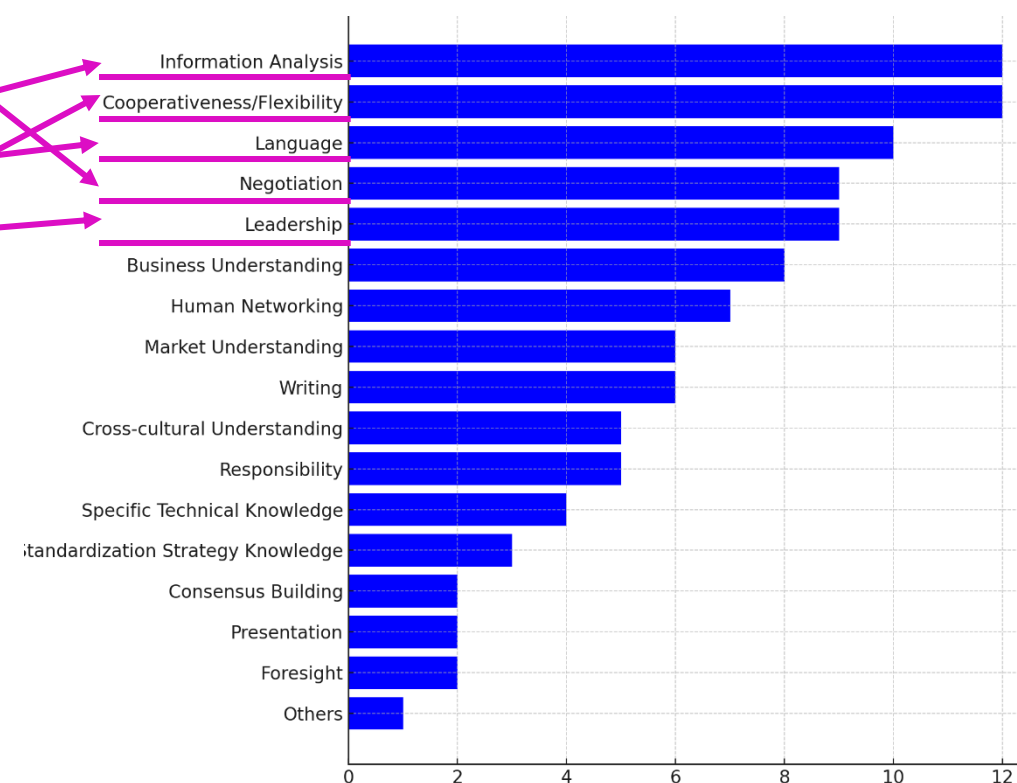
03. Implementation and Achievements

| Skills and knowledge acquired through workshop

Skills and knowledge students found necessary for standardization activities



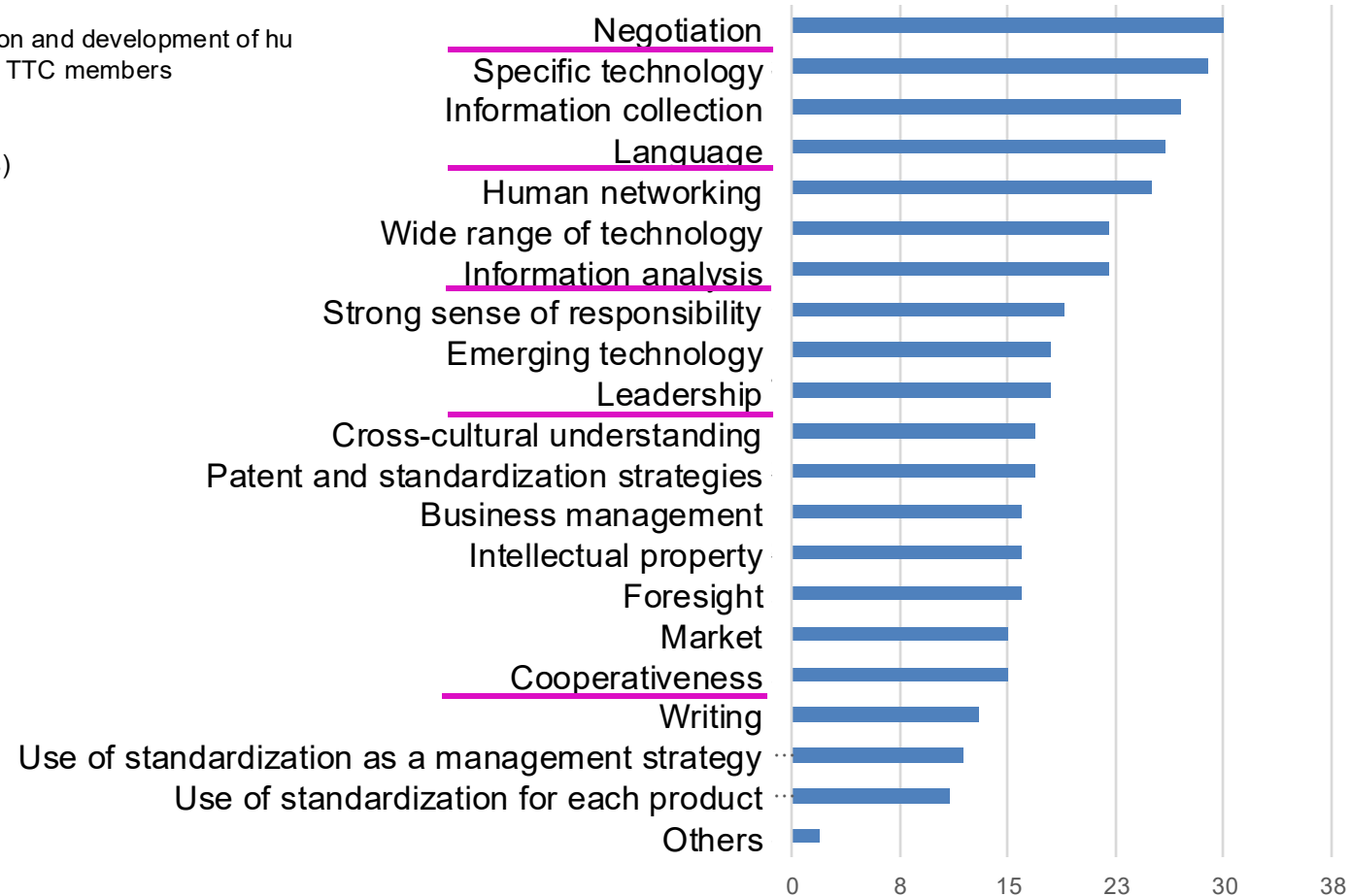
Skills and knowledge students acquired through workshop



03. Implementation and Achievements

| Skills and knowledge required for standardization activities

*Results of "Questionnaire on evaluation and development of human resources for standardization" for TTC members
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Survey Format: Web (Microsoft Forms)



03. Implementation and Achievements

| Examples of feedback from students

- My perception of standardization changed through this course. I learned that it involves not just creating specifications, but also having aspects like international strategy, intellectual property strategy, and social contribution. **Particularly in the group work, considering standardization strategy from a business perspective as a member of a company provided a valuable learning opportunity to understand standardization from multiple angles.**
- **Through group work,** I learned that standardization strategy serves as an essential foundation for deploying products and services in the global market, acting as a strategic tool that significantly influences a company's competitiveness and the value of its intellectual property. By advancing the work through role allocation that leveraged the strengths and areas of expertise of group members, **I learned the importance of the process of coordinating with diverse stakeholders, respecting each other, and reconciling differing opinions.**

03. Implementation and Achievements

| Conclusion and summary

- University education on standardization plays a significant role in broadening the base of standardization experts and supporters.
- In Japan in particular, passing on the baton to the next generation of standardization experts has become a critical challenge.
- It is difficult for students unfamiliar with standardization to grasp the appeal of standardization activities in companies through one-way lectures.
- By presenting ways for each student to engage with standardization activities suited to their experience and strengths, and having them experience both input and output through group work, we can enhance their understanding of and interest in standardization.
- In particular, workshop-style lectures enabled students to develop abilities essential for standardization activities—such as teamwork, negotiation skills, and leadership—which are difficult to acquire through one-way lectures.
- We will continue to improve the program and collect data to measure its effectiveness.

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- Thank you -

Emi Yoshino, Senior Manager, NTT Precision Medicine

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