

# Transforming Higher Education through Micro-credentials

## 高等教育を変革するマイクロクレデンシャル

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# Outline

1. Micro-credentials and Need for International Collaboration
2. Micro-credential Framework
3. Relationship between Micro-credentials and Digital Badges
4. International Collaboration on Micro-credential

# What is a micro-credential?

## What ?

Compared to traditional degree programs, micro-credential are:

Smaller in volume  
(in study duration or load)

More targeted in term of skill or  
study topics

More flexible in delivery

## Why?

Educational  
advancement



Employment  
and wage  
advancement



Enjoyment  
and personal  
growth

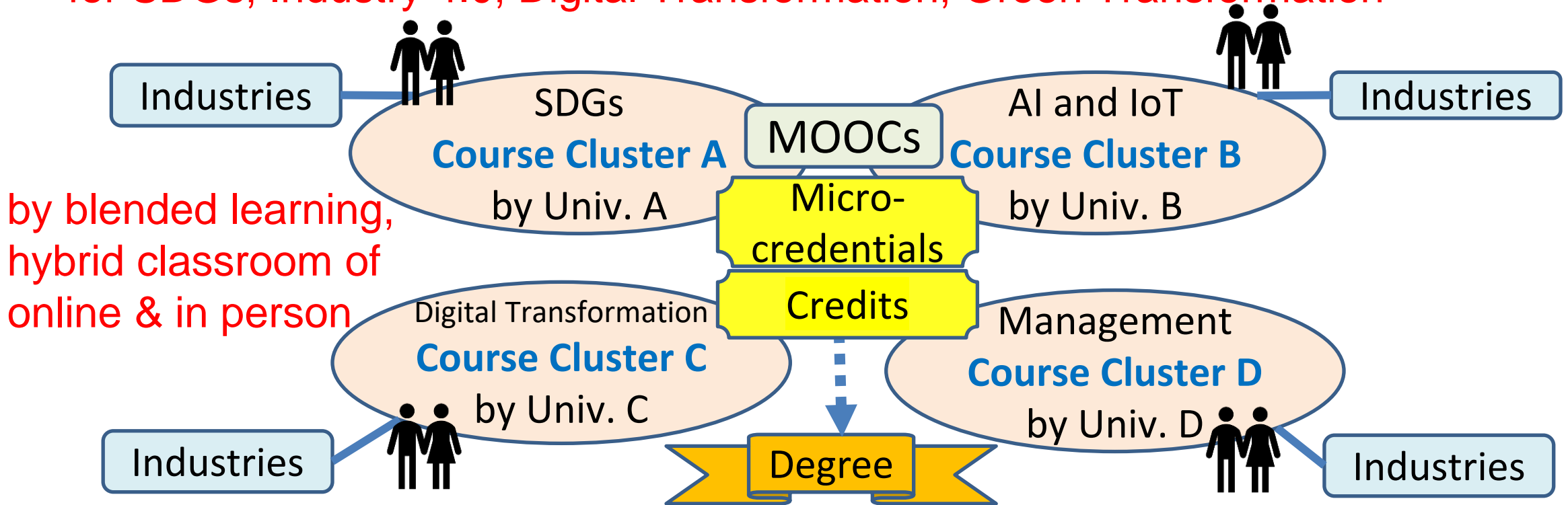


# Impact of Micro-credentials on Higher Education

- The transformation of higher education will change the learning process and qualifications. It will also increase student mobility among universities.
- Each university will offer distinctive educational programs and issue micro-credentials. (e.g., AI data science, management, energy, environment)
- Stacking of these Micro-credentials can lead to master's and bachelor's degrees.
- Learners can earn Micro-credentials as proof of their learning in line with their career goals.
- Standards for Micro-credential exchange in the Asia-Pacific region are expected to facilitate student and professional mobility.

# Higher and Lifelong Education Based on Global Industry-Academic Collaboration

for SDGs, Industry 4.0, Digital Transformation, Green Transformation



- **Course Clusters:** SDGs, Emerging Technologies, Digital Transformation, AI, Data Science, IoT, Robotics, Management, Conceptual skills, Human skills, Technical skills
- **Environment and Methods:** Blended Learning, Hybrid Classroom, Micro-credential, MOOCs, Global PBL, COIL, Digital Credential, Open Badges, CLR

# Definition, A micro-credential:

- is a record of focused learning achievement verifying what the learner knows, understands or can do.
- includes assessment based on clearly defined standards and is awarded by a trusted provider.
- has standalone value and may also contribute to or complement other micro-credentials or macro-credentials, including through recognition of prior learning.
- meets the standards required by relevant quality assurance.

# What **are** and **are not** acceptable as micro-credentials

## 1. What are recognized as Micro-credentials

- Part of an educational program or course of a higher education institution or vocational education institution whose **learning outcomes have been evaluated**.
- Courses and training courses of private training institutions, academic associations, professional associations, companies **whose learning outcomes have been evaluated**.

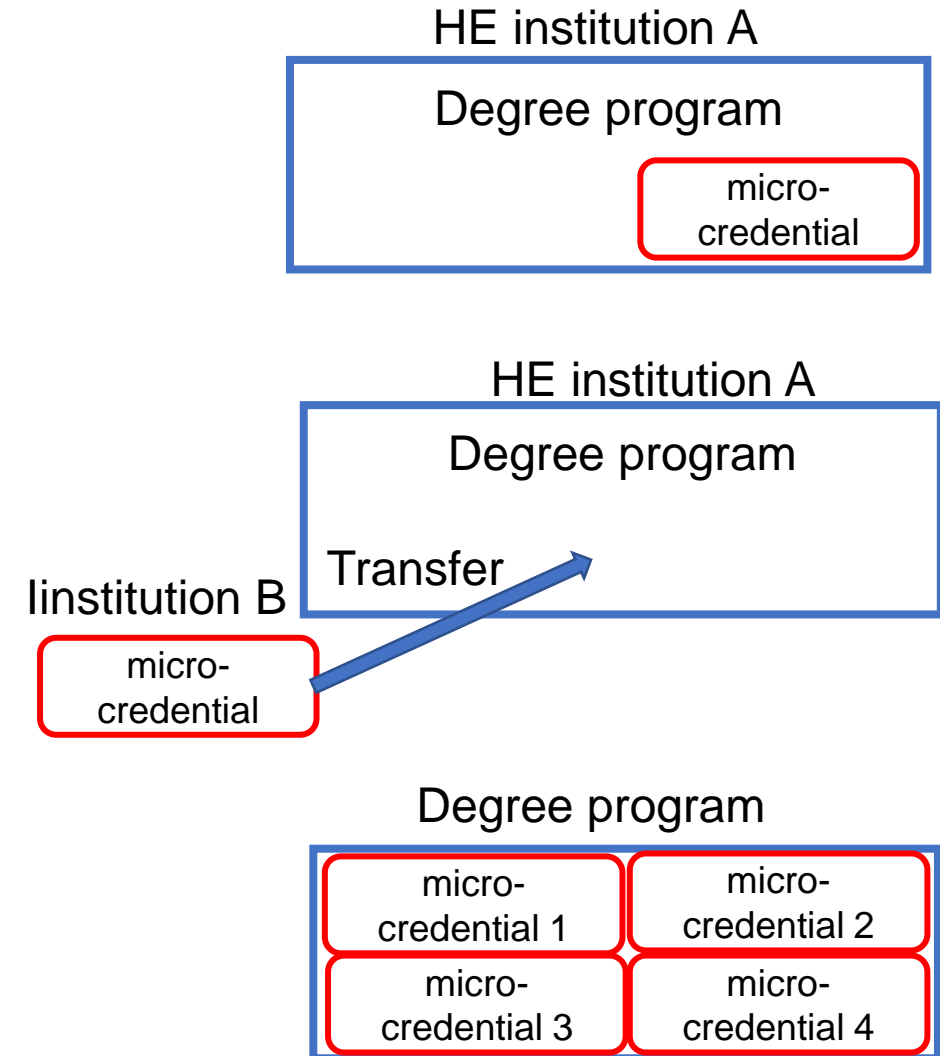
## 2. What are not recognized as micro-credentials

- Courses or training whose **learning outcomes have not been evaluated**.
- Certificates such as digital badges that can be obtained simply by participating in a course **without evaluation of the learning outcomes**.
- Certificates indicating completion of a higher education program, such as a bachelor's or master's degree (this is a macro-credential).



# Micro-credentials leading to a degree

1. **Inclusion model:** the micro-credential is designed as part of a degree program, so that after obtaining the micro-credential, students can obtain the degree by enrolling in the degree program.
2. **Recognition of prior learning:** after earning a micro-credential, students enroll in a degree program and credits of the micro-credentials are transferred to the degree program.
3. **Modular model:** higher education institution divides a degree program into several modules and issues a micro-credential for each module.



# Micro-credentials and Need for International Collaboration

- The rapid development of industrial structure and technology have attracted attention and efforts for micro-credentials, which allow learners to study a specific field and certify their academic achievements.
- Micro-credentials are expected to involve not only higher education institutions, but also private training institutions, associations, and enterprises for reskilling and upskilling.
- A common framework for micro-credentials is required for educational institutions to offer high-quality micro-credentials, for learners to choose micro-credentials, and for employers to evaluate micro-credentials.
- International cooperation on micro-credential frameworks is important to promote the use of human resources in the Asia-Pacific region.

# Requirements for Micro-credentials

- **Inclusiveness**: The benefits of micro-credentials should be available to all groups of learners.
- **Micro-credential framework** for the broad understanding and exchange of Micro-credentials. (both national and international)
  - Enhance the readability, portability, and acceptability of Micro-credentials.
  - Assure the quality of Micro-credentials
- **Employers' respect** in the value of Micro-credentials.
- **Electronic catalogs and portals** for learners to choose a Micro-credential.

# What should micro-credentials do?

- desired characteristics -

Targeted	Rapid [duration]	Flexible [sequencing or timing]	Stackable
Learning outcomes assessed	External assurance of programme or provider	Portable [applicable to study programmes in other HEIs]	Study load expressed in credits
Located with National Qualifications Framework	Employer role in credential design/ approval	Wage and occupation reporting	Self-sovereign digital identity [recipient ownership, vendor independence]

Regarding the establishment of the Micro-credential Joint Working Group

(Click here for Japanese translation)

# Micro-credential Joint Working Group

August 18, 2023

Japan Forum for Internationalization of Universities

Japan Virtual Campus Management Committee

Japan Massive Open Online Education Promotion Council

## Published the Micro-credential Framework 1.0 and Digitally Issuance Guideline 1.0 in April 2024.

Regarding the establishment of the Micro-credential Joint Working Group

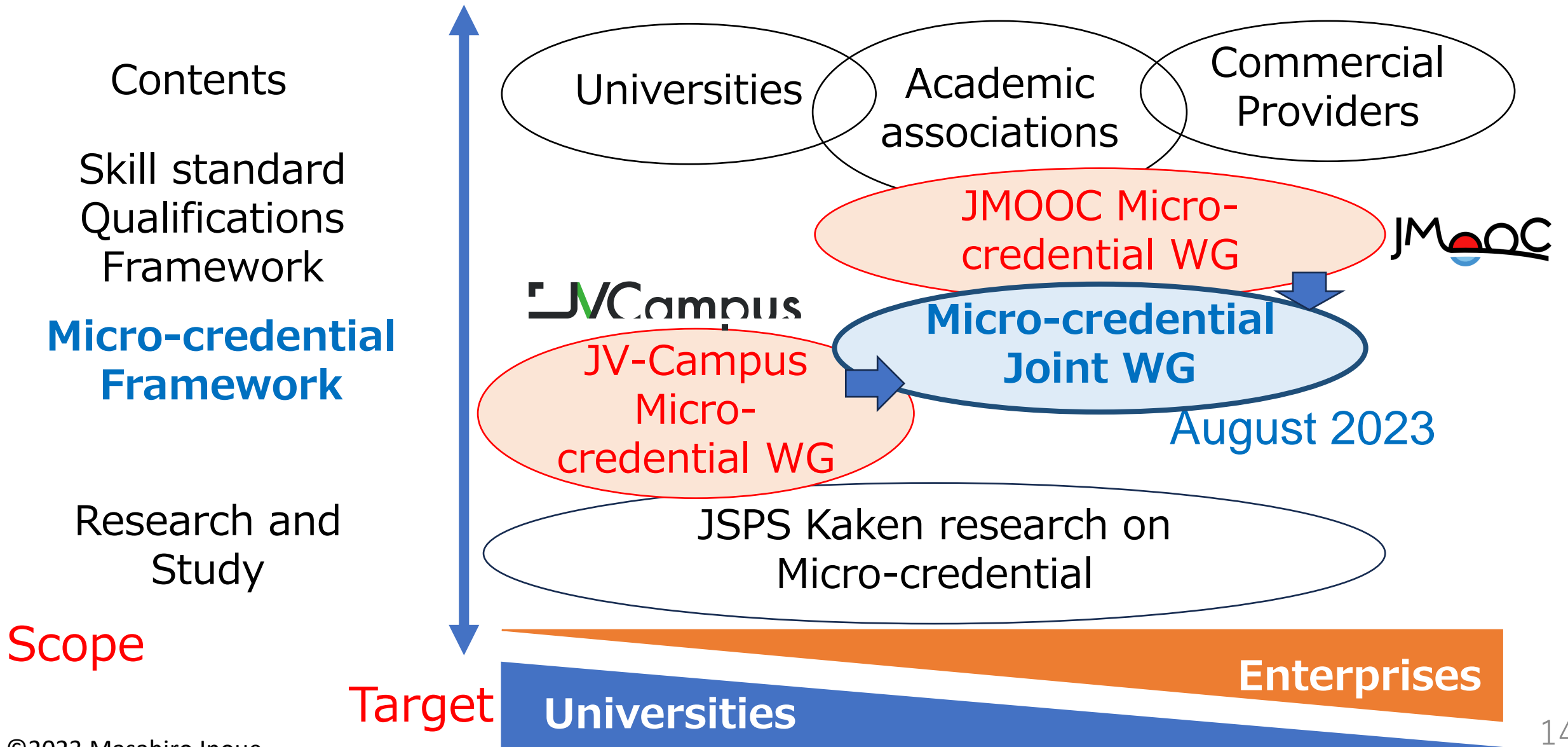
The Japan Forum for Internationalization of Universities, the Japan Virtual Campus Steering Committee (JV-Campus), and the Japan Massive Open Online Education Promotion Council (JMOOC) formed the Micro-credential Joint Working Group on August 18, 2023.

With the global development of the online learning environment, it is becoming possible for learners to freely select content and study without being constrained by time and space. In order to do so, it is necessary to clearly indicate the learning purpose, contents, and completion conditions of learning content, as well as quality assurance.

Micro-credential is a focused record of learning outcomes that proves what a learner knows, understands, or can do. Their learning achievements are assessed based on clearly defined standards, ensuring the quality of their education.

Through the activities of the Micro-credential Joint Working Group, the Japan Forum for Internationalization of Universities, JV-Campus, and JMOOC will promote the production and provision of Micro-credentials, as well as develop and collaborate on operational platforms, and

# JVCampus / JMOOC Micro-credential Joint WG



# An Empirical Study of Micro-credential Operation in University Networks in the Asia-Pacific Region

- Research supported by JSPS KAKENHI Grant Number JP22H01027
- 2022/4/1-2026/3/31
- Researchers: ASHIZAWA Shingo, INOUE Masahiro, YONEZAWA Akiyoshi, OTA Hiroshi, IKEDA Keiko, SEKIYAMA Takashi, HOND Naoya
- This study will identify the operational status and needs of Micro-credential (MC) in Japan and the Asia-Pacific region, and clarify the definition of requirements for operationalizing MC with quality assurance and international acceptability. In addition, we will analyze the conditions for the diffusion of MC in Japan, as well as the factors and issues that may hinder the diffusion of MC. In order to achieve these objectives, the following activities will be conducted.
  1. Survey of MC operations and needs in Asia-Pacific countries
  2. Formulation of MC operational guidelines with quality assurance and international acceptability
  3. Demonstration testing of the usefulness of the guidelines based on the network of universities in the Asia-Pacific region.



# Japan Virtual Campus



## Online International Education Platform



The Ministry of Education, Culture, Sports, Science and Technology (MEXT) has developed a new platform as part of its Top Global University Project (TGUP), designed to promote Japan's international education and exchange through the use of online

### Search by category

Natural science	Bioresources & Agriculture	Engineering	Data science	Architecture & Art
Medicine & Health	Education	Language	International affairs	Humanities & Social sciences
Business & Management	Qualifications & Examinations	Tourism	Others	

### Search by content type

Course	Program	Linked contents
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Japan Massive Open Online Courses

Lifelong Learning

University Education

Company Training

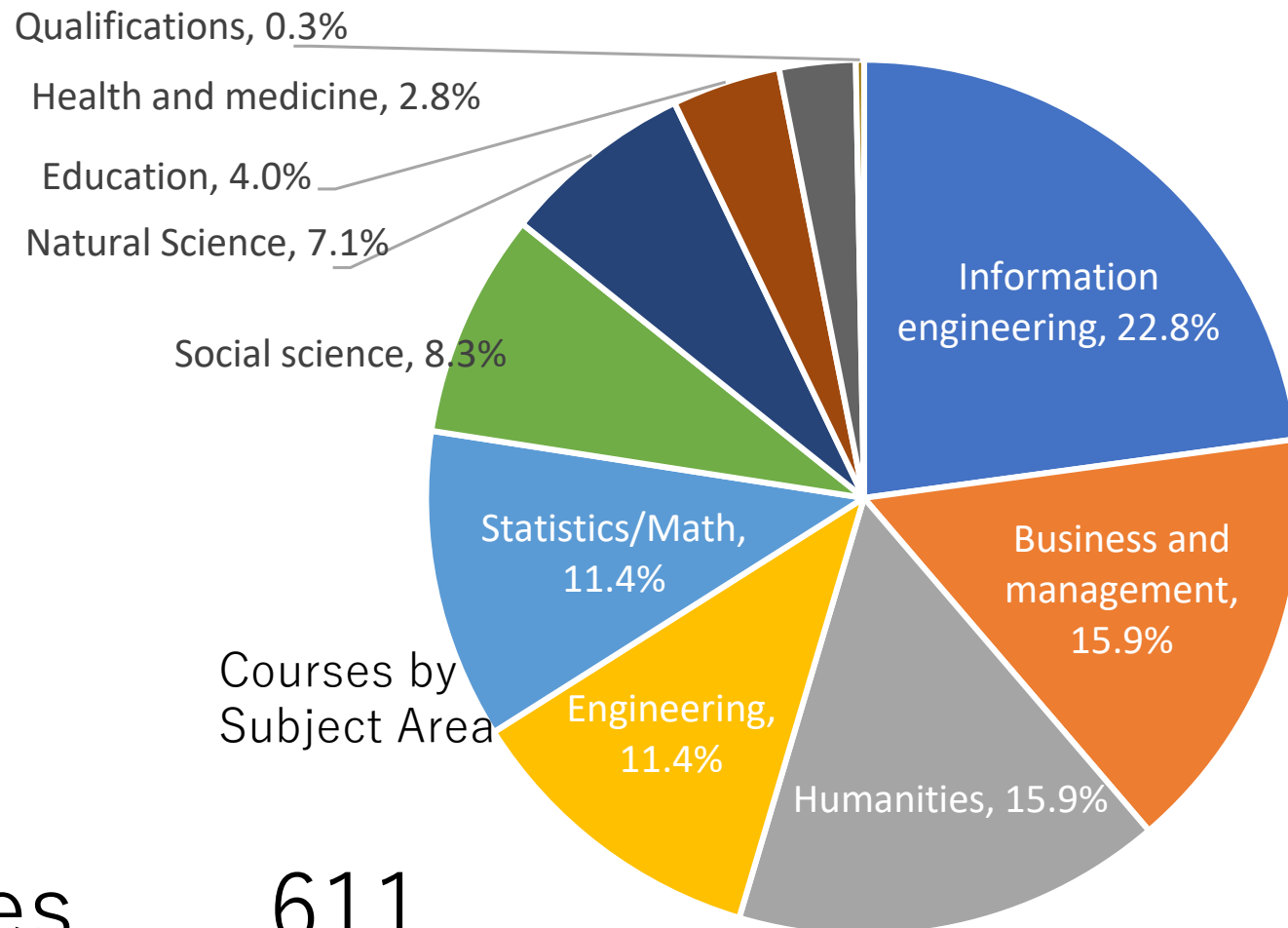
- JMOC certified courses
- Course registrants
- Total Learners

611

1,387,575

1,631,538

Courses (Unit: Number of courses)



# Micro-credential Framework

# Demand for common Micro-credential framework

1. We examined ways for learners to select micro-credentials (MC) and interoperate with them in the country and internationally.
2. The descriptors in MC frameworks developed by countries and regions have been investigated. The essential descriptors are learning outcomes, type of assessment, learner effort, and quality assurance.
3. To enhance interoperability of MCs, the **descriptors need to be standardized domestically and mapped internationally** to ensure equivalence.

# Objectives, Micro-credential framework:

- promote the development, earning, and utilizing of high quality Micro-credentials by establishing common guidelines for Micro-credentials
  - for **learners** who decide what to study,
  - for **organizations and institutions** who issue and accredit micro-credentials,
  - and for **employers and professional organizations** who need to understand the learning outcomes and competencies of their learners and employees.
- provide **descriptors** that clearly states the content of a Micro-credential and the conditions for its acquisition so that Micro-credentials can be compared, selected, and evaluated.

# Initiatives on Micro-credential Frameworks

- Frameworks should include:
  - Definition of Micro-credentials
  - Standard requirement for Micro-credentials
  - **Descriptors of Micro-credentials**
- National and regional Frameworks (existing and in progress)
  - Australia, National Microcredentials Framework, March 22, 2022
  - EU, A EUROPEAN APPROACH TO MICRO-CREDENTIALS, December 2021
  - Japan, Certification Program, January 23, 2008 (only for the HEIs)
  - **Japan, Micro-credential Framework Draft, October 2023**

 /  **Micro-credential Joint WG**

# Descriptors of Micro-credentials (proposed)

<b>Proposed reference descriptors</b>	<b>EU</b>	<b>Australia</b>	<b>Malaysia</b>
<b>Identification of the learner</b>	<b>Identification of the learner</b>	-	Name NRIC
<b>Date of issuing</b>	<b>Date of issuing</b>	-	Date of award
<b>Title of the micro-credential</b>	<b>Title of the micro-credential</b>	<b>Title</b>	Name of course
<b>Awarding body</b>	<b>Awarding body</b>	<b>Provider</b>	Awarding institution
Country/Region of the issuer	<b>Country/Region of the issuer</b>	-	-
<b>Content/ Description</b>	-	<b>Content/ Description</b>	-
<b>Learning outcomes</b>	<b>Learning outcomes</b>	<b>Learning Outcomes</b>	Learning Outcomes
<b>Form of participation</b>	<b>Form of participation</b>	<b>Delivery Mode</b>	Mode of delivery Method of learning and teaching
Language	-	<b>Language</b>	Language
<b>Learner Effort</b>	<b>Notional workload (in ECTS credits, wherever possible)</b>	<b>Learner Effort</b>	Student learning time
<b>Credit/ Other Recognition</b>		<b>Credit/ Other Recognition</b>	Credit hours/ equivalent
<b>Type of assessment</b>	<b>Type of assessment</b>	<b>Assessment</b>	Assessment
<b>Type of quality assurance</b>	<b>Type of quality assurance</b>	<b>Quality Assurance</b>	Quality Assurance
Level	<b>Level of the learning experience (EQF)</b>	-	Level of the course
Certification	-	<b>Certification</b>	-
Prerequisites needed to enroll	Prerequisites needed to enroll	<b>Prerequisite/s</b>	Enrolment Requirements
Stackability	Integration/stackability	Stackability	-

Note: **Mandatory**, Optional, -, None

# Descriptors of Micro-credentials

Mandatory

1. **Identification of the learner:** Number or Name
2. **Date of issuing:** Date micro-credential issued
3. **Title of the micro-credential**
4. **Awarding body:** Institution that issued the micro-credential
5. **Content/ Description:** Brief description
6. **Learning Outcomes:** Knowledge, skills, or competencies acquired by the learner upon completion
7. **Form of participation:**
  - (e.g., in-person, online, or blended, and whether synchronous or asynchronous learning.)

# Descriptors of Micro-credentials (cont.)

Mandatory

## 8. **Learner Effort:** Amount of learning required of learners

8. Total study time, including class time, study time outside of class, time spent viewing and watching on-demand materials and resources, and time spent on evaluation.
9. It is preferable to list class hours in addition to the amount of learning required of the learner (total hours of learning).

## 9. **Type of assessment**

- Ensure that the learning outcomes have been achieved based on clear criteria.

## 10. **Type of quality assurance**

- Describe the quality assurance applied to the micro-credential.
- Internal quality assurance is required within the institution. Publish a Uniform Resource Identifier (URI) indicating the institution's standards.
- If the institution has received third-party evaluation or accreditation as external quality assurance, indicate the name or URI

## 11. **Credit/ Other Recognition**

- The type of certification awarded upon completion of the micro-credential (credits awarded by HEIs or other recognition by associations).
- It may be listed in UCTS (UMAP credit transfer system, 1 UCTS is 38-48 hours of study and 13-16 hours of class time).



# Descriptors of Micro-credentials (cont.)

Optional

## 1. **Country/Region of the issuer:**

- Country or region that issued the micro-credential

## 2. **Language:** Languages used in teaching and assessment

## 3. **Level:**

- For higher education institutions, use the undergraduate level, master's level. The method of indicating Qualification Framework or the level of skill standards for each field may also be used.

## 4. **Certification:** Issuance of certificates of achievement

- (e.g., certificate of completion program, certificate with digital badge)

## 5. **Prerequisites needed to enroll:**

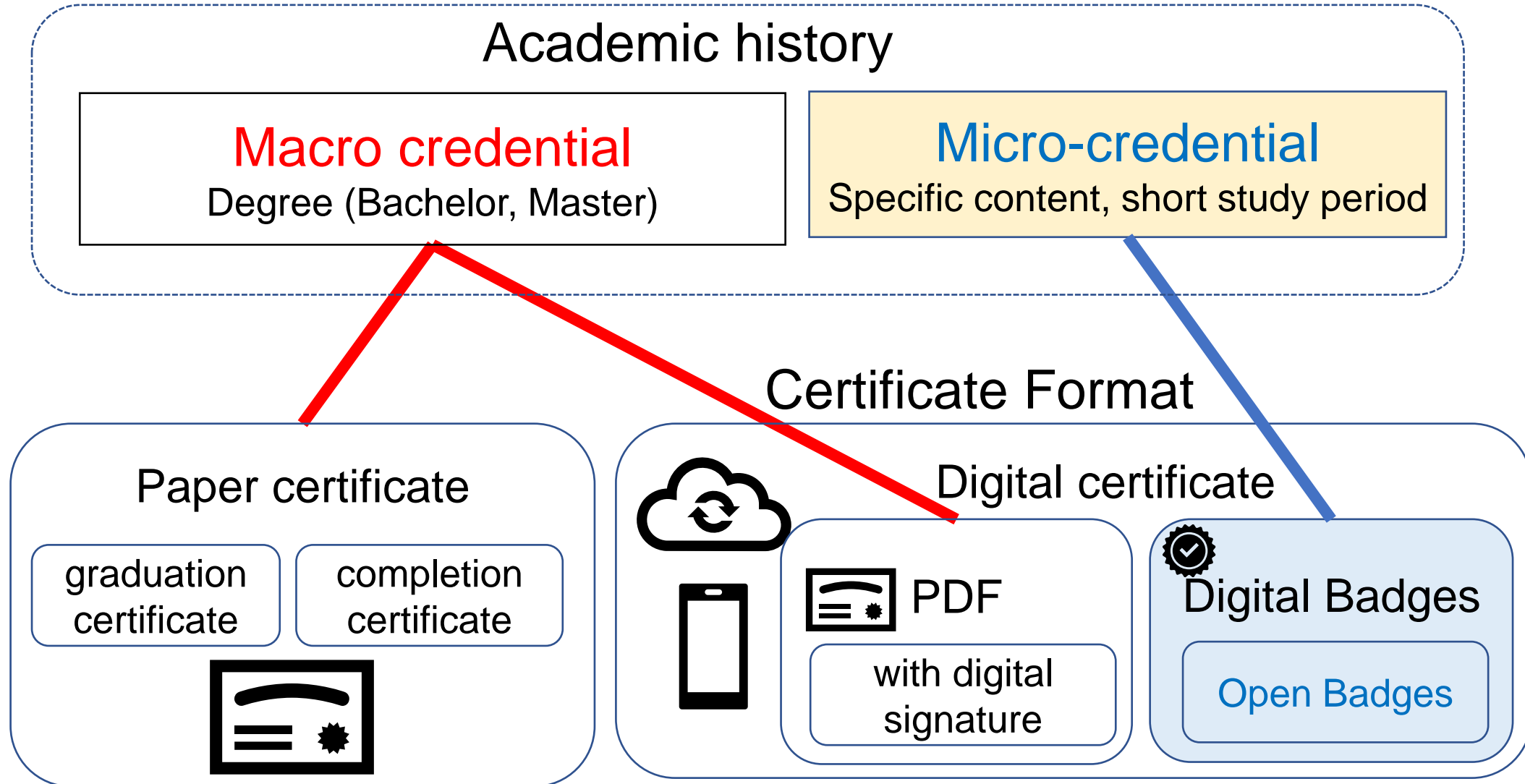
- Prerequisites, micro-credentials, credits, experience, etc. required prior to or upon completion

## 6. **Stackability:**

- If the micro-credential can be combined with other micro-credentials to form a larger micro-credential or become part of a macro-credential (master's, bachelor's, or other degree), describe the specific conditions.

# Relationship between Micro-credential and Digital Badges

# Relationship between Micro-credential and digital badges



# Micro-credentials are educational systems; Digital Badges are information technology

## Micro-credentials

### A new educational system

- Academic achievement in a specific area of study  
(for lifelong learning, reskilling)

### Framework development

- Public bodies decide on the education system and Micro-credential requirements.

### Contribution to **trust of quality**

- Define and assess learning outcomes
- Issued by trusted institutions

**Each has  
different  
contribution  
to the trust.**

*Example: JSEE  
certified a micro-  
credential with a digital  
badge.*



**Learning  
outcomes**

**Verified by  
Digital**

## Digital Badges

### Information technology

- Digital technology for verifying participation, studies, certifications, and licenses

### Development of technical specifications

- Developed by international IT associations

### Contribution to **trust of security**

- Trust through information security (e.g., tamper-proof)

# Badging Taxonomy of International Association of Continuing Education and Training

IACET Badging Taxonomy						
Style	Association		Learning		Competence with Validation	
Type	Participation Badge	Contribution / Recognition Badge	Grade-Based Badge	Level / Program Badge	Performance Badge	Certification / License Badge
Description	Badge earner participates in an event	Badge earner has made a non-trivial contribution	Badge earner has earned recognition for successfully completing a learning event.	Badge earner has earned formal credit for one or all event(s) in a series of learning gains	Badge earner has demonstrated skills in a high-stakes environment.	Badge earner has demonstrated competence in a substantial domain of knowledge.

# Example of Digital Badges of the Japanese Society for Engineering Education



Certificate of Participation



Micro-credential  
(Certification of Learning)



Certificate of Competence  
(Qualification)



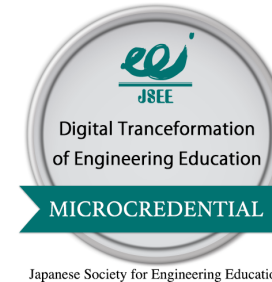
Certificate of Recognition

# Issuance of digital badges and micro-credentials at the Japanese Society for Engineering Education



Japanese Society for Engineering Education

- **Certificate of Participation:** A digital badge as a "Certificate of Participation" is given to participants of JSEE-sponsored seminars.
- **Micro-credential (Certification of Learning):** A digital badge as a "Micro-credential" will be given to learners who have attended JSEE-sponsored educational programs and passed the evaluation of their learning outcomes.
- **Certificate of Competence:** A digital badge of qualification for "Professional Engineering Educator" will be issued to those who have passed the Professional Engineering Educator Program examination.
- **Certificate of Recognition:** Award winners will be given a digital badge as a "Certificate of Recognition".



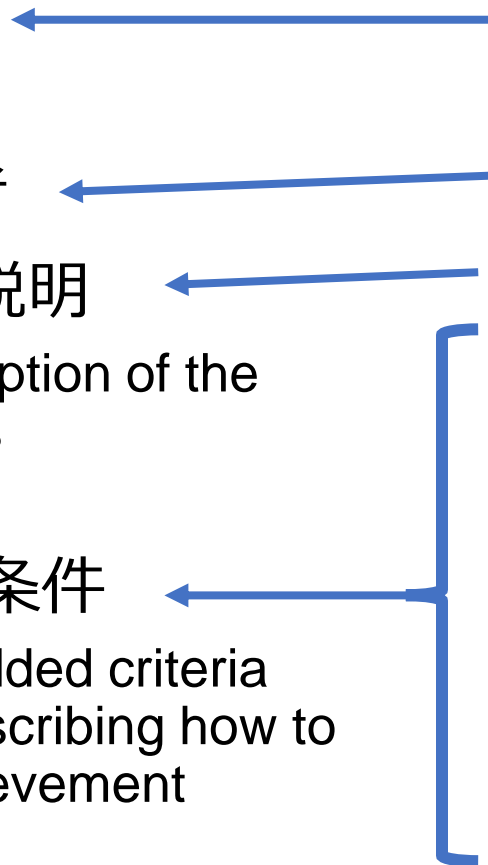
# Guideline for digitally badging of Micro-credentials (proposed)

## Open Badges

1. Name 名称
2. Issuer 発行者
3. Description 説明
  - A short description of the achievements
4. Criteria 取得条件
  - URI or embedded criteria document describing how to earn the achievement

## Micro-credentials

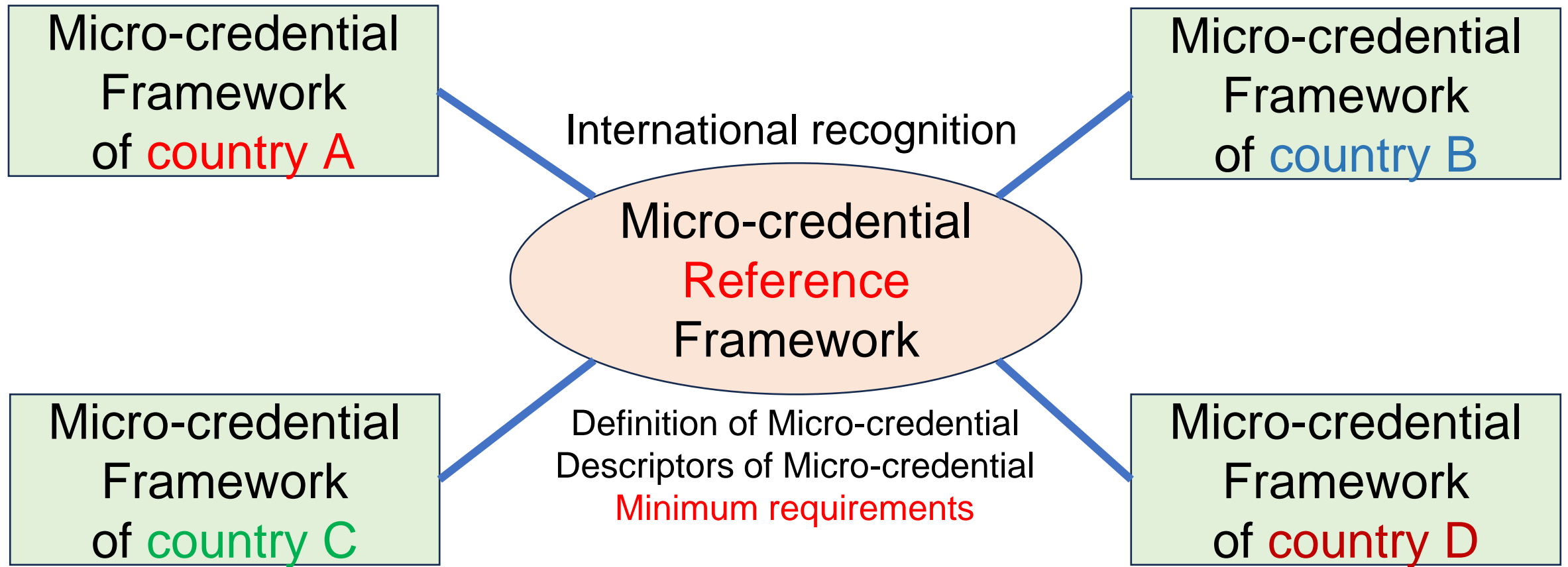
1. Title of the micro-credential  
マイクロクレデンシャル名称
2. Awarding body 授与機関
3. Content/ Description 内容
4. Learning outcomes 学修成果
5. Form of participation 授業の方法
6. Learner Effort 学習量 (総学習時間)
7. Type of assessment 評価の方法
8. Type of quality assurance 質保証
9. Credit/ Other Recognition  
単位/その他の認定





# International Collaboration on Micro-credentials

# Micro-credential **Reference** Framework for International Collaboration



# How to collaborate on a Reference Framework for Micro-credentials?



## 1. Definition of Micro-credentials

- UNESCO, Towards a common definition of micro-credentials

We can share a common definition.

## 2. Descriptors of Micro-credentials

- Mandatory Descriptors
- Optional Descriptors

We can share **reference** descriptors.



## 3. Quality Assurance of Micro-credentials

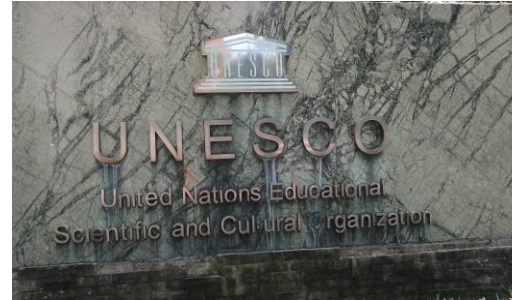
- Internal Quality Assurance
- External Quality Assurance (Accreditation)

We need share **minimum requirements for quality assurance.**

# International Collaboration in the Asia-Pacific region



Keynote and Roundtable at IEC2023 in Bangkok, Aug. 31 to Sep. 1, 2023



Meeting with UNESCO, Bangkok August 30, 2023



Keynote at NALI2023 in Malaysia, November 8, 2023



Keynote and Roundtable at Asia-Pacific MOOC conference in Tokyo November 1-2, 2023

# Two international Projects between MOOCs (tentative): Micro-credentials Standards Pilot Project and AI-Enhanced Translation Technology Project

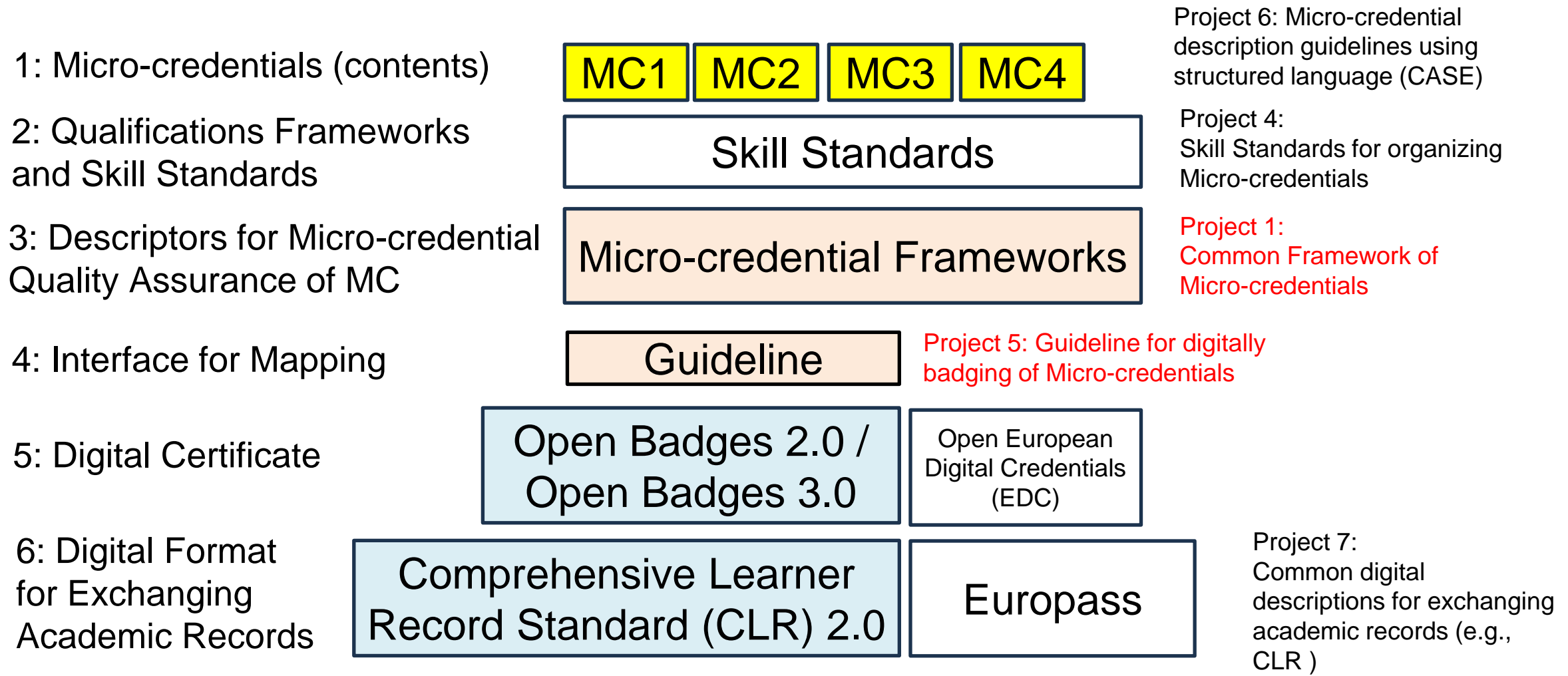
## Micro-credentials Standards Pilot Project

- Design and share a micro-credential framework and digital badge guideline
- Design micro-credential and write descriptors in local language and English based on the micro-credential framework.
- Write metadata in Open Badges and issues Micro-credentials by Open Badges 2.0 or 3.0 in each country.

## AI-Enhanced Translation Technology Project

- Select or develop contents from Thai and Japanese institutions.
- Translate contents with AI-Enhanced Translation Technology.
- Design procedure and investigate issues in exchange contents between Thai MOOC/TCU and JMOOC
  - **Content server**
  - **Learner support**
  - **Test and assessment**
  - **Issue credentials**

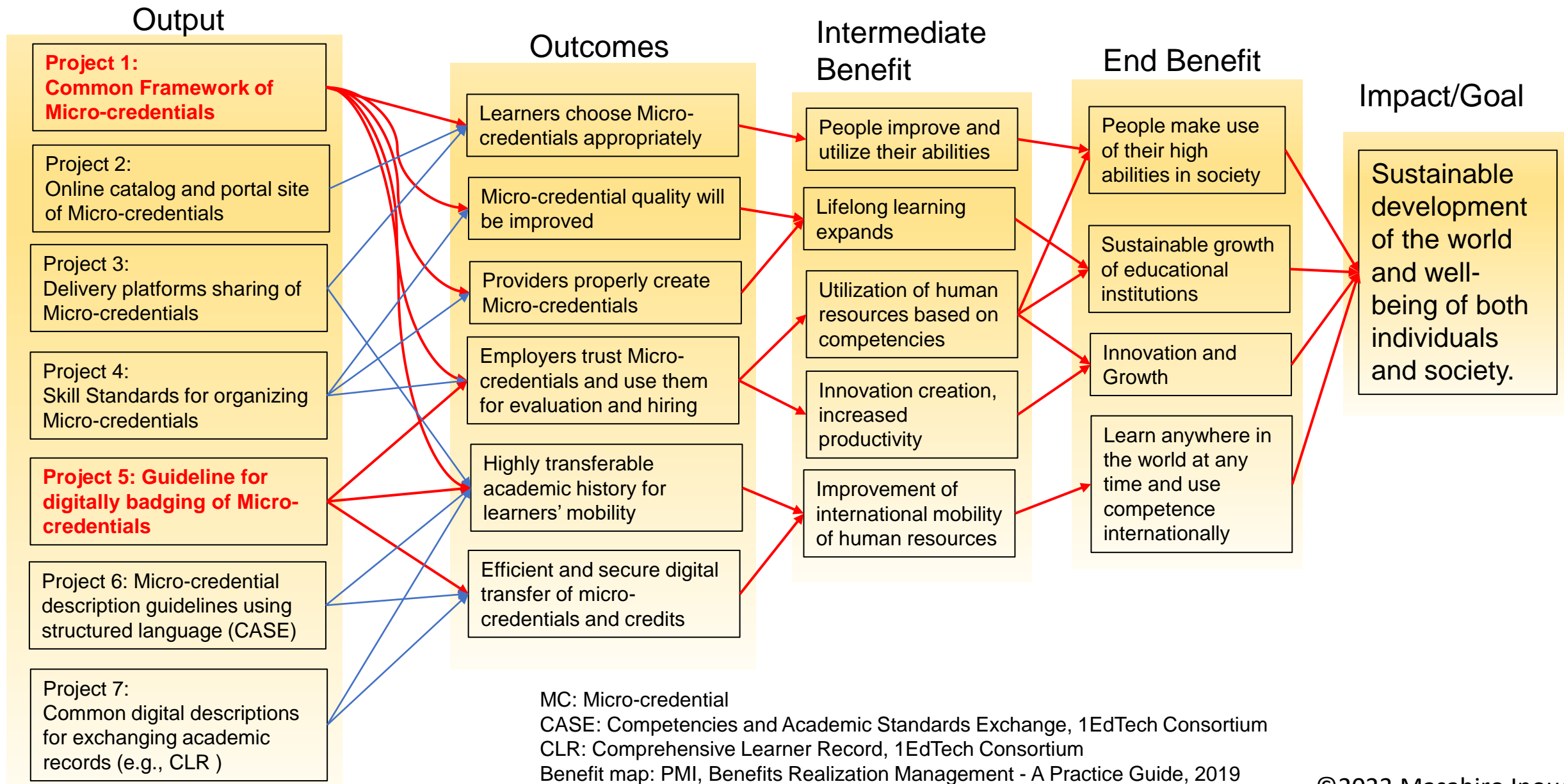
# System Architecture of Micro-credential (proposed)





# Micro-credential Benefit Map (preliminary)

Created: Aug. 20, 2023  
 Revised: Aug. 25, 2023  
 Masahiro Inoue



# Present and Future Works for Collaboration

- Develop and share Common Framework of Micro-credential
- Develop and share Guideline for digitally badging of Micro-credentials
- Share platforms for Micro-credential
  - Collaborate with MOOCs in Asia-Pacific region
- Develop and share quality Micro-credentials and courses with collaboration
- Build domestic and international portal sites or online catalogs
- Develop common digital description for exchanging academic records (e.g., Comprehensive Learner Record Standard)



# References

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3. UNESCO, Towards a common definition of micro-credentials, <https://unesdoc.unesco.org/ark:/48223/pf0000381668>
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