



SOUTHEAST Comprehensive Center
at American Institutes for Research ■

Micro-credentialing in an Educational Human Capital System Framework

September 2019

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Background Information on the Comprehensive Centers and the State Education Agency Micro-credential Work Group

In 2012, the U.S. Department of Education awarded discretionary grants that support comprehensive centers to provide capacity-building services to state educational agencies (SEAs), regional educational agencies (REAs), local educational agencies (LEAs), and schools that improve educational outcomes for all students, close achievement gaps, and improve the quality of instruction.

The SEA Micro-credential Work Group was originally supported by the Southern Regional Education Board's Educator Effectiveness Communities of Practice Work Group. The purpose of that work group was to bring states together and discuss pathways for professional development, including micro-credentials. In July 2018, the South Central Comprehensive Center reached out to the Appalachia and Southeast Comprehensive Centers to collaboratively support the SEA Micro-credential Work Group. The work group has met quarterly during the 2018-19 school year. This framework was developed by the Appalachia and South Central Comprehensive Centers with input from the staff of the Southeast Comprehensive Center, the Central Comprehensive Center, and SEA representatives listed below.

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Overview of Micro-credentialing in an Educational Human Capital System

Micro-credentials are a relatively recent development that have grown in popularity in multiple industries, such as medicine, technology trades, and higher education, including professional learning for K-12 educators.

Micro-credentials represent mastery of a limited set of skills or competencies rather than broader, more encompassing networks of skills represented in current credentialing systems like college degrees or teacher licensure. Unlike conventional credentials, usually summarized by a certificate or transcript with no connection to explicit evidence of the earner's competencies, micro-credentials are directly linked to digital artifacts that explain the nature and criteria of the credential as well as evidence contributed by the earner (Ross, 2016). Central to the micro-credentialing system is the display of a digital representation, often referred to as a badge, that allows the earner and those with whom the representation is shared (e.g., employers, other educators) to explore the badge requirements and evidence of learning.

In education, states, districts, and institutions of higher education have incorporated micro-credentials into the following components of a human capital system:

- Pre-service preparation or alternative preparation program
- Different ways to licensures or endorsements, including endorsements, certifications, or licensure renewal
- Induction or educator support programs
- Professional development and personalized learning
- Professional growth based on the results of evaluations
- Professional advancement and career pathways
- Compensation systems

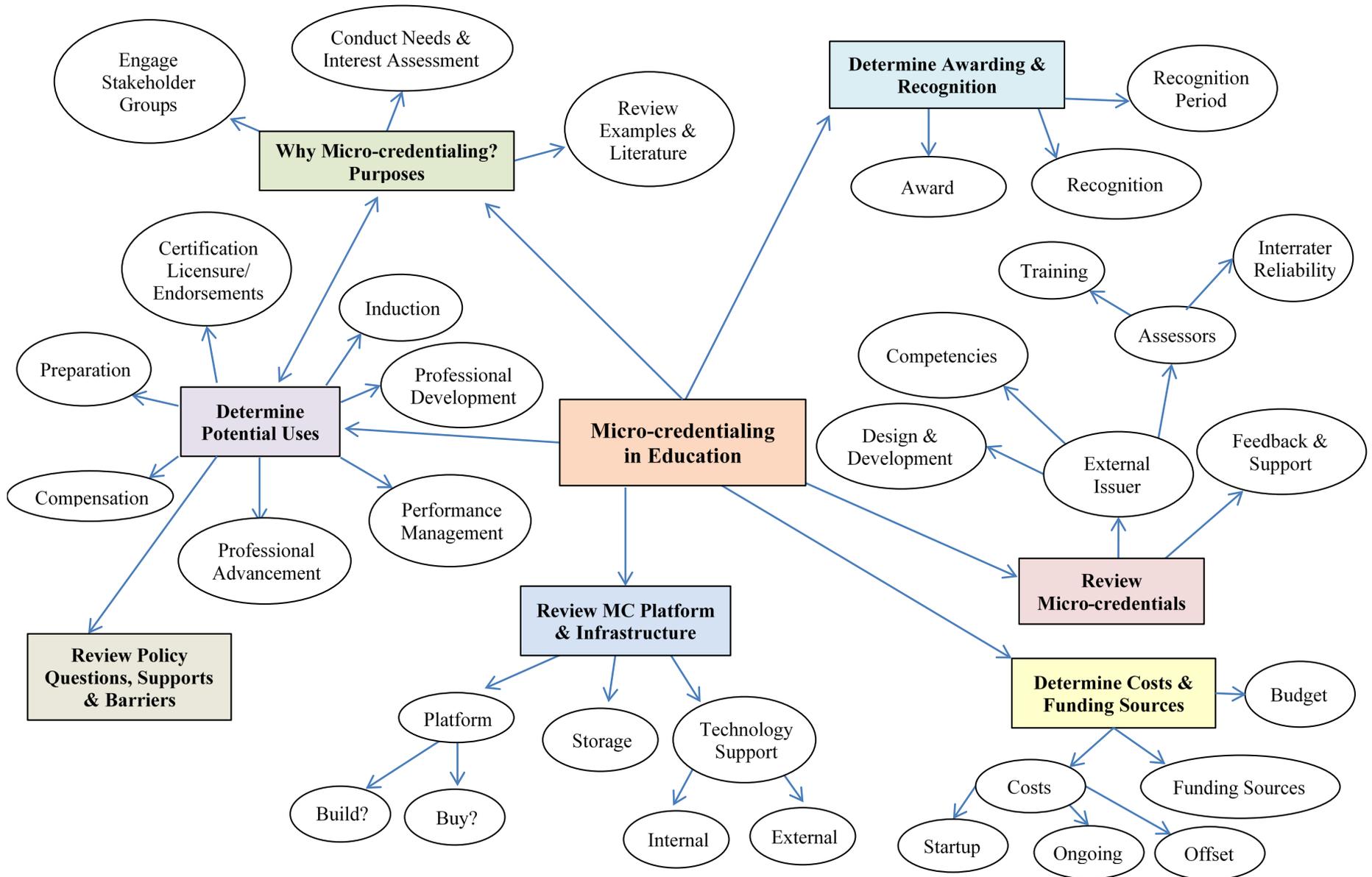
Purposes of Framework

The purposes of this framework are to assist SEAs and LEAs in building their capacity to effectively explore, plan, and implement micro-credentials (MCs) in their educational human capital systems. It is based on a review of literature and learnings from states and districts that have implemented micro-credentials. The framework also incorporates two of the four stages (exploration and installation) and key processes identified within implementation science. Implementation is defined as a specified set of activities designed to put into practice an activity or program of known dimensions—in this case, micro-credentials.

The intent is that states and districts will make informed decisions about when and how to effectively explore and install micro-credentials within their human capital systems.

The diagram on the next page provides an overview of the components within the framework.

Micro-credentialing in an Educational Human Capital System Framework



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Organization of Document

The framework first includes an overview of micro-credentialing in education that includes background information, the purposes of the framework, and potential goals/outcomes of micro-credentialing/badging programs.

The second section focuses on the initial exploration of micro-credentials by briefly describing potential preliminary activities, including forming a stakeholder group, conducting a needs and interest assessment, and reviewing the literature and state and district examples of effective uses of micro-credentials in human capital systems. This section proposes preliminary considerations in answering the following questions:

- Why micro-credentials?
- What do you want to achieve?
- What purposes do you want micro-credentials to serve?

This section identifies options to explore in reference to the components in a human capital system in education, such as, for example, integrating micro-credentials into compensation systems. The section concludes with next steps and questions for the stakeholder group to consider.

The third section addresses the exploration of micro-credentials in human capital systems and its major components: preparation, certification, induction, professional development, performance management, career pathways, and compensation. It includes preliminary policy questions to ask for each option, such as for integrating micro-credentials into different aspects of the personnel system. This section also includes how to identify and address potential policy supports and barriers.

The fourth section focuses on exploring the capacity to plan and implement micro-credentials. It includes questions to consider in the following topics: Micro-credential platform, storage, and infrastructure; the design, quality, submission, and evaluation of micro-credentials; the awarding and recognition of micro-credentials; and the costs and funding sources/resources.

The fifth section addresses the preliminary activities and considerations for the installation of micro-credentials. The primary activities include: establishing a leadership implementation team, developing a communications plan, developing the infrastructure and data systems needed, developing an orientation/training and coaching plan, and developing a written implementation plan.

The framework also includes a glossary of terms, a review of micro-credential platform vendors, and an annotated bibliography of references forming the basis for the framework.

Potential Goals/Outcomes of Micro-credentialing/Badging Programs

Ross (2016) identified the following goals and/or outcomes of micro-credentialing badging programs based on a review of literature:

1. Support policies and practices that encourage greater personalized learning (Priest, 2016).
2. Provide evidence of learning or competencies to individuals and organizations (Gibson et al., 2015; Priest, 2016); provide greater transparency about specific accomplishments than more conventional credentialing options.
3. Map the progress of learners on a learning pathway (Grant, 2016; Peer 2 Peer University, 2012) Motivate learners to continue through further learning (Gibson et al., 2015).
 - a. Micro-credentials can be granted with a fixed lifespan, to ensure their currency (Peer 2 Peer University, 2012).
 - b. Micro-credentialing can map out flexible options for learning, including pathways that “cut across traditional courses and educational settings” (Priest, 2016, p. 6).
4. Support the credibility of learners beyond a single learning community (e.g., a university or school district); help learners engage in broader communities of professionals with similar competencies (Gibson et al., 2015; Grant, 2016; Peer 2 Peer University, 2012).
5. Provide incentives or motivate learners (Gibson et al., 2015; Grant, 2016; Peer 2 Peer University, 2012), but not everyone is motivated by badges in the same way (Boticki, Seow, Looi, & Baksa, 2014 in Grant, 2016), and different kinds of badges motivate people in different ways (O’Byrne, Schenke, Willis, & Hickey, 2015; Priest, 2016).

Initial Exploration of Micro-credentials

Why Micro-credentials (MCs)?

What do you want to achieve? What purposes do you want MCs to serve?

The goals of the initial exploration stage are to identify the state and/or local needs for micro-credentials, review the literature and examples of micro-credentials currently used in educational human capital systems, and determine next steps.

Options to Explore:

Potential Preliminary Activities

Form stakeholder group for needs sensing and review of micro-credentials

- Which stakeholders need to be part of the discussions, information gathering and sharing, and decision-making?
 - Include representative educators who may be affected by the implementation of micro-credentials.
- Clarify the stakeholder group's purpose, responsibilities, and projected timelines for involvement.

Conduct needs and interest assessment

- What is the need, problem, or issue that the stakeholder group wants to impact potentially with MCs?
- What is the current situation in terms of the need? What data are available?
- What are stakeholder opinions about the problem, its causes, and potential solutions?
- What do stakeholders consider valuable concerning the problem (an indicator of what will have the greater traction)?
- Who do stakeholders believe have the ability to impact this problem?

Review the literature and examples of effective uses of MCs

- What are MCs? How do they work? How are they being used across the country?
- Are there any successful examples within the state that are currently using MCs?
- What are the core features, functions, and benefits of MCs?
- How would MCs meet a need or make a process easier or more effective?
- Could MCs replace current systems? Save money? Or provide transparency? Are there any incentives for piloting or implementing MCs?

Initial Exploration of Micro-credentials

Literature and Examples of MCs Being Used in a Human Capital System

The table below includes citations to literature resources and examples of current use of micro-credentials in different components of a human capital system by SEAs, LEAs, and institutions of higher education. Please refer to the annotated reference list for additional information.

Literature	System Components						
	Preparation	Certification	Induction	Professional Development	Performance Management	Career Pathways	Compensation
	Enhance pre-service preparation/ alternative preparation with MCs	Promote different ways to licensures or endorsements through MCs	Incorporate MCs into induction programs and/or educator support programs	Add value to professional development and personalized learning by using MCs	Promote professional growth based on results of evaluations	Promote professional advancement & career pathways through MCs	Integrate MCs into compensation systems
<ul style="list-style-type: none"> ARCC. (2016). Findings and considerations from a review of literature on micro-credentialing Digital Promise and Center for Teaching Quality. (2019). Micro-credentials and education policy in the United States: Recognizing 	Examples of current use: <ul style="list-style-type: none"> Alaska Department of Education and Aspiring To Teach MC Program Arkansas Department of Education Prescribed Pathways Credential University of the Pacific PD 	Examples of current use: <ul style="list-style-type: none"> North Carolina Alternative License Renewal Minnesota & Lake County Service Cooperative for Career & Technical Education Licensure Louisiana Department 	Examples of current use: <ul style="list-style-type: none"> Arkansas Department of Education Novice Teacher Mentoring Program Michigan Elementary & Middle School Principals Association's Early Career Principal 	Examples of current use: <ul style="list-style-type: none"> Massachusetts Department of Elementary and Secondary Education Kentucky Valley Educational Cooperative (KVEC) Long Beach Unified School District 	Examples of current use: <ul style="list-style-type: none"> Tennessee Department of Education and MCs aligned to Tennessee Educator Accelerator Model (TEAM) (teacher evaluation) 	Examples of current use: <ul style="list-style-type: none"> Arkansas Department of Education Career Continuum Illinois State Board of Education Iowa Members Impacting Students by Improving Curriculum (MISIC) 	Examples of current use: <ul style="list-style-type: none"> Kettle Moraine School District (WI) Juab School District (UT) Dysart United Community School District (Maricopa County (AZ)) Community Unit School

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<p>learning and leadership for our nation's teachers.</p> <ul style="list-style-type: none"> Center for Collaborative Education & Quality Performance Assessment. (2018). A movement towards personalized professional learning. An exploration of six educator micro-credential programs AIR. (2017). Micro-credentials for teachers: What three early adopter states 	<p>Learning Network</p> <ul style="list-style-type: none"> State University of New York Relay School of Education (with BloomBoard) 	of Education alternative certification route for teachers and content leaders	<p>Induction Program</p> <ul style="list-style-type: none"> Spring Branch Independent School District (TX) 			<ul style="list-style-type: none"> South Carolina Collective Leadership Initiative Micro-credential Pilot New York City Department of Education Emerging Teacher Leader Program Juab School District (UT) 	District 200 (Wheaton, IL)

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<i>have learned so far</i>							

Next Steps for the Stakeholder Group

Based on conducting needs and interest assessment and reviewing the literature and effective uses of MCs identified previously, the stakeholder group would determine:

- To what extent would MCs address priority needs?
- What would be the advantages and disadvantages of planning and implementing MCs within the human capital management system?
- What preliminary policy questions need to be asked?
- What capacities does the organization have to plan, install, and implement MCs?
- What are the incentives for implementing MCs?

Exploring Micro-credentials in Human Capital Systems

Preliminary Policy Questions to Ask

Stakeholders should review relevant and current policies to determine how micro-credentials may be used. The table below provides examples of policy questions to consider when exploring the potential implementation of micro-credentials in different components of a human capital system. Please refer to the annotated bibliography, resources on policies related to micro-credentials for examples of policies.

System Components						
Preparation	Certification	Induction	Professional Development	Performance Management	Career Pathways	Compensation
Enhance pre-service preparation/ alternative preparation with MCs	Promote different ways to licensures or endorsements through MCs	Incorporate MCs into induction programs and/or educator support programs	Add value to professional development and personalized learning by using MCs	Promote professional growth based on results of evaluations	Promote professional advancement & career pathways through MCs	Integrate MCs into compensation systems
<ul style="list-style-type: none"> • How might MCs offer a way for newly prepared educators to assemble an electronic portfolio of evidence? 	<ul style="list-style-type: none"> • How might MCs be aligned to or augment teacher standards and assessments? • How might MCs offer a way for new recruits to assemble an electronic portfolio of evidence that contributes to the assessments, like the Teaching Performance Assessment (TPA)? • What renewal licensure policies 	<ul style="list-style-type: none"> • What programs or activities would be more effective with MCs? 	<ul style="list-style-type: none"> • How might SEAs and LEAs use MCs to target instructional practices? • Which instructional skills best lend themselves to competencies and MCs? • How could MCs align with professional standards and assessments? • What professional learning is most 	<ul style="list-style-type: none"> • Which teaching skills and professional practices would be identified for MCs? • How would administrators or teachers target teaching skills for MCs? 	<ul style="list-style-type: none"> • How might SEAs and LEAs use MCs to illustrate leadership potential and capacity? • How could MCs be used to help administrators cultivate teachers as leaders? 	<ul style="list-style-type: none"> • Should varying types of financial recognition be available according to the type of micro-credential (e.g. one-time stipend, salary bump or recurring salary increase)? • Is there a limit to the number of MCs for which an educator can be compensated per year? Or across the life of a career?

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System Components

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	may need to be examined (e.g., types of continuing education requirements for renewal or recertification)?		appropriate for MCs? <ul style="list-style-type: none"> • What recognition could be provided for MCs? (e.g., continuing education units [CEUs], professional development [PD] points) 			In what ways might MCs help SEAs and LEAs rethink compensation and merit pay?

Exploring Micro-credentials in Human Capital Systems

Identifying and Addressing Potential Policy Supports & Barriers

Stakeholders should review any relevant policies that may support or present barriers to the implementation of micro-credentials. The table below provides examples of policy questions to explore that may support the implementation of micro-credentials or present barriers to their implementation.

System Components							
Other	Preparation	Certification	Induction	Professional Development	Performance Management	Career Pathways	Compensation
General Questions	Enhance pre-service preparation/ alternative preparation with MCs	Promote different ways to licensures or endorsements through MCs	Incorporate MCs into induction programs and/or educator support programs	Add value to professional development and personalized learning by using MCs	Promote professional growth based on results of evaluations	Promote professional advancement & career pathways through MCs	Integrate MCs into compensation systems
<ul style="list-style-type: none"> • How would MCs currently fit within our policies? • Are there any policies that would allow flexibility or waivers provided for MCs? • Are there any potential or foreseeable policies that pose barriers? • What roles should various 	<ul style="list-style-type: none"> • What pre-service or alternative preparation policies and procedures are relevant to the development and implementation of MCs? • Are there any policies that would allow flexibility or waivers provided to IHEs or other 	<ul style="list-style-type: none"> • What licensure or endorsement policies relevant to MCs? • How could MCs support the advancement of the teacher licensure process to address specific needs? 	<ul style="list-style-type: none"> • Are there any current policies and procedures for induction programs that may be relevant to the implementation of micro-credentials? • Would any policies support MCs? • Are there any policies that would pose barriers to MCs? 	<ul style="list-style-type: none"> • What PD policies are relevant to MCs? (e.g., seat time requirements, content, types of activities, continuing education units or professional development points) • What are the current and potential 	<ul style="list-style-type: none"> • Are there any educator evaluation policies that are relevant to MCs? • How would evaluation results be used to identify which MCs are appropriate to offer or be mandated? • How would the earning of an MC be 	<ul style="list-style-type: none"> • How might MCs be used to promote career advancement for educators? • How might MCs be used to promote career pathways? 	<ul style="list-style-type: none"> • What compensation policies are most relevant to MCs? • Do these policies provide supports or present barriers?

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stakeholders (e.g., SEAs, LEAs, schools, Institutions of Higher Education (IHEs), professional organizations, teachers) play in developing, hosting, recognizing, and/or implementing MCs?	organizations for MCs?			barriers to using MCs?	integrated into the evaluation system?		

Exploring the Capacity to Plan and Implement Micro-credentials

Generic Questions to Consider

No matter how micro-credentials may be used in a human capital system, this section provides examples of questions to ask as you specifically contemplate whether your organization has the capacity to plan or implement micro-credentials. This section addresses questions for: (1) the platform, storage, and infrastructure for micro-credentials, (2) the design, quality, submission, and evaluation of micro-credentials, (3) the support of participating educators in the micro-credentialing process, (4) the awarding and recognition of micro-credentials, and (5) the costs, funding sources and resources associated with micro-credentials.

MC Platform, Storage, and Infrastructure

Providers of micro-credentials must ensure that the platform architecture—the way the digital badge or credential is programmed—is designed in such a way that credentials and digital artifacts are easily stored, retrieved, organized, and shared by individuals seeking the credentials and give access to organizations that want to review them.

- Which functions are critical, desirable, or not needed?
- How open should the system be?
- How would interoperability be ensured? What other systems must interface with the MC platform (e.g., certification and recertification systems, human resources or employment)?
- What technical support would be available/necessary?
- How would the availability of participants' evidence/artifacts and badges be sustained over time?
- How long are data and records kept?
- Who is responsible for hosting which data? For example, if teachers create a digital artifact and host it on a district's server, what happens when the teachers change districts? Are the artifacts and the MCs transferrable?
- How much storage can a district or state manage?

Refer to the later section, *Review of Micro-Credentials Platform Vendors*, for additional questions and activities.

Exploring the Capacity to Plan and Implement Micro-credentials

No matter how micro-credentials are used in a human capital system, this section provides examples of questions to ask as you specifically contemplate planning and/or implementing micro-credentials.

Design, Quality, Submission, and Evaluation of MCs

Do we use a currently available MC from an issuer or develop our own MC?

Micro-credentials typically include competencies, key methods and their components, research and resources, submission criteria of artifacts and/or evidence, and scoring rubric.

If we want to use a currently available MC...

- Which issuers of MCs will be considered and/or recognized? (Issuers may be professional organizations, institutions of higher education, museums, nonprofit organizations, or for-profit organizations.)
- Who will review the issuers of MCs credentials? How will the issuers of MCs credentials and process be reviewed? (See below)
- What will be the bases for approved issuers of MCs?

Design and Development of MCs

- How does the issuer design and develop the MCs?
- Does the issuer follow an ADDIE (i.e., Analysis, Design, Development, Implementation, and Evaluation) process or an AGILE process (e.g., successive approximation model, which includes preparation, iterative design, and iterative development)?

Competencies Within the MCs

- Do the MC competencies represent the required or desired knowledge, skills, abilities, and/or behaviors?
- Are the MC competencies clearly defined or described and demonstrable?
- How valid are the competencies in the MC?
- Are the MC competencies aligned with the state/LEA requirements (e.g., professional standards, licensure, certification, or endorsements) for educators?
- How rigorous are the MC competencies and evidence to be submitted?

Submission Guidelines and Requirements

- Are the submission requirements clearly understandable? Easy to complete?
- Does the MC provide information on the number of hours involved in completing and submitting the evidence?
- What support is available to educators in submission of work examples/evidence/artifacts?

Exploring the Capacity to Plan and Implement Micro-credentials

This section provides examples of questions to ask as you specifically contemplate planning or implementing micro-credentials.

Work Examples/Evidence/Artifacts to be Submitted

- What kind of evidence must be submitted (e.g., lesson plan, student work sample, audio or video of class interactions, educator reflection, classroom observation results, other)?
- How much evidence is the right amount of evidence for the competency? What evidence is appropriate? How would an educator demonstrate the competency?
- What evidence would indicate a successful demonstration of the competency?
- How could SEAs, LEAs, and issuers be assured that the evidence submitted for MCs is accurately assessed?

Evaluation Criteria, Assessment of Evidence, and Feedback Provided

- What are the evaluation criteria?
- In what ways are the evidence for competencies assessed (e.g., rubric, scoring guide)? Are there descriptions of how each submitted evidence is scored? Is there an overall score provided?
- Who assesses the evidence submitted (e.g., issuer, peer reviewer, paid independent contractor)?
- Who finds, trains, assigns, and manages the reviewers/assessors? Who pays them?
- How can the SEA/LEA/or issuer be assured that the evidence submitted for an MC is accurately assessed?
- What are the timelines for the assessment of submitted evidence?
- How is inter-rater reliability addressed? Ensured?
- What kind of feedback is provided to the submitter?

Resubmissions of Work Examples/Evidence/Artifacts After Initial Review and Feedback

- How many times can evidence be resubmitted for an MC after initial review and feedback?
- How easy is it for an educator to resubmit evidence or submit new evidence?

Support for Participating Educators in the Micro-credential Process

This section identifies suggested questions to ask as your organization plans the installation and implementation of micro-credentials.

Selecting MCs

- Who will decide which topics, stacks, or specific MCs will be available for participant selection?
- What information about current strengths and challenges should an educator access to make a wise selection?
- How many options will be provided for participants?
- Will groups of participants work together in selecting an MC if they intend to work together to complete the MC?

Completing and Submitting MCs

- What kind of support will participating educators need in completing and submitting MCs?
 - Encouragement?
 - Extra learning resources?
 - Clarification of expectations? Examples of completed MCs?
 - Technical support such as access, downloading, uploading, videoing? Video tutorials?
- Who will provide that support? Issuer, participating SEA or LEA, platform? What is the current capacity of that provider?
- How much contact (frequency, proximity) will educators have to support provider?
- Where will the supporter get more information about what is needed to complete or submit the MC, if not the issuer?

Time Commitment

- What responsibilities/commitments will be replaced or removed to allow educators to work on MCs?
- When is the best time to begin working on a MC, based on SEA, LEA, or school expectations, requirements, and calendars?

Value of MCs

- How will participants recognize and/or measure the value of the process for themselves and their students?

Exploring the Capacity to Plan and Implement Micro-credentials

This section provides examples of questions to ask as your organization specifically contemplates planning or implementing micro-credentials. The questions focus on the awards and recognition associated with micro-credentials.

Awarding and Recognition of MCs

Awarding of MCs

- Who will award the MC and how? The issuer, the district, or SEA?
- What weight should be given to the credentials?

Recognition of MCs

- Which issuers of MCs will be recognized and approved? (Issuers may be professional organizations, institutions of higher education, museums, nonprofit organizations, or for-profit organizations.)
- How will MC's be recognized (e.g., CEUs or professional development points)?

Length of Recognition Period Associated with MCs

- How long would the recognition of an MC last?
- Are MCs permanent or should they be renewed?

Exploring the Capacity to Plan and Implement Micro-credentials

This section provides examples of questions to ask as your organization specifically contemplates planning or implementing micro-credentials. The questions focus on identifying the costs associated with the implementation of micro-credentials and potential funding sources and resources.

Costs and Funding Sources/Resources

Costs

What are the costs associated with MCs?

- Development of MCs
- Submission of evidence by educators
- Reviewers and assessment of submitted evidence
- Support for participating educators
- Issuance of MCs
- Maintenance of MCs and platform/infrastructure
- What are the total costs? What are the average costs per educator?
- How would the costs change depending on the number of educators?
- Which of the above costs would produce desired outcomes for the lowest costs? Save money?

Funding Sources/Resources

- What federal, state, and local funding might be available for the development and/or implementation of MCs?
- Are these sources/resources adequate to implement MCs and cover the projected costs?
- Would participating educators be responsible for any of the costs?

Potential Funding Source:

Elementary and Secondary Education Act, Title IIA, Preparing, Training, and Recruiting High Quality Teachers and Principals:

States and districts may use Title II, Part A funds to develop, or help school districts develop, performance systems that reward and acknowledge professional learning outcomes that are competency-based rather than time- or input-based. This work may include creating, or coaching in the use of, online portfolios or **micro-credentials**, in place of seat-time-based certificates, which may be used to provide incentives like differential pay for recruiting and retaining high-need subject teachers in low-income schools and districts. ESEA Sec. 2101(c)(4)(B)(vii)(I); 2101(c)(4)(B)(vii)(II); 2103(b)(3)(A).

Installation of Micro-credentials

After deciding to implement a new practice – such as micro-credentials - activities must be accomplished before an organization begins the implementation of the new practice. These activities reflect the installation stage of implementation. Activities during the installation stage create the infrastructure and make the instrumental changes necessary to fully support the implementation of a new practice, such as micro-credentials (National Implementation Research Network). The goal of the installation stage is to build your organization’s capacity and infrastructure support so the new practice is effectively implemented and sustained (Smith, et. al., 2014).

The installation stage involves five major activities: (1) establishing a leadership implementation team, (2) developing a communications plan for buy-in and feedback loops, (3) developing the infrastructure and system supports, including the data systems for initial implementation, (4) developing and implementing an orientation/training and coaching plan for participating educators, and (5) developing an implementation plan that identifies implementation sites and potential participants. Then your organization is ready to try out micro-credentials, work out the details, and learn and improve before expanding micro-credentials.

- 1) Establish a **leadership implementation team** that has the capacity, resources, and commitment to oversee the installation and implementation of micro-credentials.
- 2) Develop a **communication plan** that identifies key audiences, the messages for each audience, and the core features and components of micro-credentials. Identify key champions, and use multiple communication strategies and feedback loops to determine the effectiveness of your plan and the implementation of micro-credentials.
- 3) Develop the **infrastructure and data systems** to support the implementation of micro-credentials. Clarify roles and responsibilities; determine partners and/or contracted vendors; staffing oversight and procedures, etc. Align fiscal resources to cover start-up and other costs associated with micro-credentials. Determine the data needed to monitor and evaluate the key aspects of the implementation of micro-credentials.
- 4) Develop an **orientation/training and coaching plan** that identifies when and how educators will be recruited and selected, and when and how participating educators will receive training and support during the implementation of micro-credentials.
- 5) Develop a written **implementation plan** that identifies which organizations and educators will be recruited to implement micro-credentials. Include within the overall implementation plan: the communication plan; the infrastructure changes/adaptations and timelines; the orientation/training and coaching plan; and progress monitoring and evaluation plan.

Glossary of Terms

Backpack

A repository where earners can collect digital badges from a variety of issuers.

Badge

Digital or physical representation of a micro-credential, stack, or credential. The badge represents skill(s), learning, or experience.

Competency

Learnable, measurable and/or observable knowledge and skill sets.

Competency-Based Professional Learning

Activities that result in the participants demonstrating evidence of achievement of specified outcomes not measured by attendance or seat time.

Continuing Education Unit (CEU)

Credit for hours spent or evidenced generated from participating in professional learning.

Credential

The acknowledged completion of a thoughtfully designed series or multiple sets of recognized competencies that an educator earned by demonstrating mastery of the defined skills or competencies. (see Micro-credential)

Earners

The educator or professional submitting evidence for the micro-credential.

Issuer

A group or organization that has created the micro-credential and validates the educator's competence in the defined skill or set of skills. Issuers can provide a catalog of offerings, manage earners' interactions, and issue badges.

Micro-credential

Recognition achieved through demonstrating mastery of a defined skill or competency, including industry-recognized competencies.

Open Badging Initiative (OBI)

A Mozilla-created program that created standards for micro-credentials/badges. The OBI states that micro-credentials must be: (1) portable, (2) stackable, (3) verifiable, and (4) open. OBI created a free, open software designed to help individuals earn and organizations design OBI compliant badges.

Online Micro-credential Platform

Online system that allows earners/educators and issuers to interact. Earners can find requirements for MCs, submit evidence, and eventually be issued badges for successful completion.

Portability

The ability to earn badges from anywhere, and then be able to share them anywhere—on social networking profiles, job sites, email signatures, and on personal websites.

Recognizer

The person or organization (often the SEA or LEA) that recognizes and accepts the micro-credential, stack, or credential as a representation of the educator's skill or competence (formally, through CEUs or licensure procedures, or informally through hiring practices and recognition).

Reviewer

An expert, or an educator who has previously demonstrated mastery of skill(s) required for the micro-credential and evaluates evidence using a scoring guide or rubric to determine if the competency has been demonstrated.

Stack

One organized set of credentials that an educator earns by demonstrating mastery of the described skills or competencies. Also referred to as a cluster, collection, assemblage, or amassment.

Review of Micro-credentials Platform Vendors

Organizations seeking to offer micro-credentials should ask the potential vendor for a full, synchronous web-based tour of the platform. Your organization may also be able to obtain a free trial access or sign up for a demonstration site for a limited amount of time.

Have the vendor create a hypothetical path that takes a typical user through the process a series of activities to a final evaluation.

The following are some questions to use to review/evaluate micro-credential platforms.

How does the platform manage data about micro-credentials?

- What operating systems and devices (e.g., tablets, mobile) does it support? Does it work with current technology systems?
- Does it need to interface with other existing data systems (e.g., learning management system or human resources systems)?
- What technologies and media are supported?
- How easy is it to add, edit, or delete content? To use?
 - Present text and images
 - Host asynchronous communications
 - Host synchronous communications
- How does the system track user progress through the micro-credential process?
- How long are the data and records kept?

How does the platform manage participant/user information?

Check with your state and organization's laws and policies on data privacy.

- Can you assign different roles to users (e.g., participant, assessor/reviewer, administrator, facilitator)?
- How many participants can be supported?
- How is user participation tracked and reported?
 - Types of reports for different users (e.g., administrator, facilitator)
 - Can reports be customized?
- How easy is it to import and export data?
- How easy is it to modify data? For administrators? For participants?
- Does the vendor comply with the Student Online Personal Information Protection Act (SOPIPA)?
 - Vendor will not use any collected data to target ads
 - Will not create advertising profiles on participants

- Will not sell participant information
- Will not disclose information, unless required by law or as part of the maintenance and development of your service
- Uses sound information-security practices, which often include encrypting data;
- Will delete data when requested
- Will use only de-identified and aggregated data as they develop and improve the platform and service

What training and support is provided?

- How much and what kind of training is provided?
- Does the vendor offer robust support documentation?
- What kind of access to technical support will be offered?
- Does the vendor have a robust and easily accessible support center users can call on when needed?
- Does the vendor provide a dedicated customer success manager?

Pricing

- What is the pricing structure?
 - How many users does it support?
 - How much storage data is included?
 - How much data transfer is included?
- Are there any additional fees?
 - Implementation/set-up fees
 - Licensing fees
 - Onboarding fees
 - Design customization costs
 - Upgrade fees
 - Excessive use fees
 - And other hidden fees like maintenance fees

Annotated Bibliography of References Forming the Basis for the Framework:

Review of Literature on Micro-credentials

Ross, J. (2016). *Findings and considerations from a review of literature on micro-credentialing*. Prepared for the Tennessee Department of Education. Fairfax, VA: Appalachia Regional Comprehensive Center. (2016). Retrieved from https://www.arccta.org/sites/default/files/general_uploads/Micro-credentialingOverview_Final_KC_IR%20123016.pdf

This review of literature prepared by ARCC for Tennessee Department of Education (TDOE) provides an overview of micro-credentialing. The report opens with a brief summary of what the literature has to say about the goals that micro-credentialing can address, and lessons learned from two current programs. It continues with an analysis of five major findings from the literature review and highlights the implications of these findings for the TDOE to consider in designing a micro-credentialing system. (Appendix A offers a comprehensive list of these implications.)

Berry, B., & Byrd, P.A. (2019, June). *Micro-credentials and education policy in the United States: Recognizing learning and leadership for our nation's teachers*. Digital Promises and Center for Teaching Quality. Retrieved from <http://digitalpromise.org/wp-content/uploads/2019/06/mcs-educationpolicy.pdf>

This paper explores how micro-credentials can fit into current teaching policies, based on a review of documents and a survey administered to directors of teacher education and certification in SEAs through National Association of State Directors of Teacher Education and Certification (NASDTEC). Sections include: the emerging micro-credentialing system in states and districts; micro-credentialing and four teaching policy levers (initial licensure, recertification/professional development requirements, teacher evaluation and support systems, and advanced roles and career pathways); and the future of micro-credentialing policy.

States referenced: Alaska, Arkansas, Connecticut, Delaware, Florida, Louisiana, Rhode Island, South Carolina, Tennessee, Texas, Virginia, and Washington.

Districts referenced: Dysart Unified School District (Maricopa County, AZ); Jefferson County, (KY); Juab School District (UT); Pomona Unified School District (CA); and The Members Impacting Students by Improving Curriculum (MISIC) in Iowa.

Ross, J.D. (2011). *Online professional development: Design, deliver, succeed!* Thousand Oaks, CA: Corwin.

This guide provides a path to answering these fundamental questions: Why online professional development? How much does it cost? How do I get started? What does high-quality online learning look like? What technologies are right for me? How do I put it all together? Did it work? Included are an online professional development (OPD) decision matrix, a step-by-step planning and implementation framework, "buyer beware" guidelines, and real-life case studies from successful OPD providers. Whether you want

to purchase or create OPD, this time-saving resource will help you understand your financial options and confidently chart your course to success.

Resources with Examples of Implementation of Micro-credentials

DeMonte, J. (2017). *Micro-credentials for Teachers: What three early adopter states have learned so far*. Washington, DC: American Institutes for Research. Retrieved from <https://www.air.org/sites/default/files/downloads/report/Micro-Credentials-for-Teachers-September-2017.pdf>

This brief describes what three early adopter states—Arkansas, Delaware, and Tennessee—had learned in implementing micro-credentials. It presents an overview of the challenges associated with teacher professional development, the appeal of micro-credentials, how states are using micro-credentials, and what is next for micro-credentialing.

States referenced: Arkansas, Delaware, and Tennessee

Education Commission of the States (ECS). (2017). *Response to information request*. Retrieved from https://www.ecs.org/wp-content/uploads/State-Information-Request_Micro-Credentialing-in-Teacher-Professional-Development.pdf

ECS responded to a request asking for more information about micro-credentialing in teacher professional development. Specifically, the response addresses: (1) what the research says, (2) what states and districts are doing, and (3) key considerations for policy-makers.

States referenced: Illinois, North Carolina, and Tennessee.

Districts referenced: Baltimore County Public Schools (MD), Kettle Moraine School District (WI), and Surry County Schools (NC).

Kohl, K., Berry, B., & Eckert, J. (2018). *Micro-credentials and the transformation of professional learning in California schools*. Carrboro, NC: Center for Teaching Quality. Retrieved from https://www.teachingquality.org/wp-content/uploads/2018/04/Microcredentials_and_the_transformation_of_CA_schools.pdf

This article presents an overview of the emerging micro-credentialing movement. It highlights the professional development efforts of Long Beach Unified School District, including lessons learned from its pilot and moving forward. The article includes five conclusions about micro-credentials in professional learning.

States referenced: Arkansas, North Carolina, Rhode Island, South Carolina, and Tennessee.

Districts referenced: Long Beach Unified School District (CA)

Kuriacose, C., & Warn, A. (2018). *A movement towards personalized learning: An exploration of six educator micro-credential programs*. Boston, MA: Center for Collaborative Education and Quality Performance Assessment. Retrieved from <https://cce.org/paper/personalized-professional-learning-micro-credential-programs>

This paper is based on interviews with representatives of the following districts and states: Juab School District (UT), Kettle Moraine School District (WI), Lake County School District and Seminole County School District (FL), Baltimore County Public Schools (MD), and Arkansas State Department of Education. The resource includes: a comparative overview of the motivations, processes, and outcomes of the interviewees; recommendations; summative case memos.

States referenced: Arkansas Department of Education

Districts referenced: Juab School District (UT), Kettle Morain School District (WI), Lake County School District (FL), Seminole County School District (FL), Baltimore County School District (MD).

Teaching Matters. (2018). *Micro-credentials for educators*. NY State Principal Preparation Project PowerPoint slides. Retrieved from <http://www.nysed.gov/principal-project-advisory-team/principal-project-advisory-team>

This February 28, 2018, PowerPoint presentation briefly defines micro-credentials and provides an overview of a growing ecosystem, including the role of Teaching Matters in the ecosystem. It presents information on Teaching Matters' MC process with an example of a school leader MC, an overview of what Teaching Matters has learned; recommendations for improving the MC ecosystem; and considerations for the Principal Preparation Project.

Resources on Policies Related to Micro-credentials

Juab School District. (n.d.). *Micro-credentialing policy*. Retrieved from <https://www.utah.gov/pmn/files/322041.pdf>

Teachers in Juab School District, Utah, use micro-credentials as a system to support professional learning. This is an example of the district's policy.

Learning Forward and Digital Promise. (2017). *Micro-credentials for impact: Holding professional learning to high standards*. Retrieved from <https://learningforward.org/wp-content/uploads/2017/08/micro-credentials-for-impact.pdf>

This report details how each of the seven Learning Forward Standards for Professional Learning connect to micro-credentials. These Standards for Professional Learning offer a guiding framework for ensuring that micro-credentials support an outcome-focused, rigorous, and effective comprehensive professional learning system. In each section, there is a list specific recommendation for states, districts, and Charter Management Organizations (CMOs), and micro-credential issuers ensuring effectiveness of micro-credentials.

The Appalachia Regional Comprehensive Center, South Central Comprehensive Center, and Southeast Comprehensive Center are funded by the U.S. Department of Education (PL 2987). The content of this framework does not necessarily reflect the views or policies of the U.S. Department of Education, nor does the mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.

National Education Association. (n.d.). *Micro-credential Guidance*. Retrieved from <http://www.nea.org/home/microcredentials.html>

This resource includes a definition of micro-credentials, recommends establishing a joint committee to oversee the implementation of MCs, and suggests considerations for the committee.

North Carolina Department of Public Instruction. *Micro-credentialing and state policy: North Carolina Work Group*. Retrieved from <http://www.ncpublicschools.org/docs/micro-credentialing/overview/work-group.pdf>

This document includes an overview of micro-credentialing in North Carolina, workgroup goals and deliverables, and background information. On the website, there is a glossary and overview infographic.

The State University of New York (SUNY). (2019). *Micro-credentials at SUNY*. Retrieved from <https://system.suny.edu/academic-affairs/microcredentials/>

This website provides an overview of how SUNY defined micro-credentials, approached the development of policies for MCs, and developed frequently asked questions.

Tooley, M., & White, T. (2018). *Rethinking relicensure: Promoting professional learning through teacher licensure renewal process*. Washington, DC: New America. Retrieved from <https://www.newamerica.org/education-policy/policy-papers/rethinking-relicensure/>

New America examined the requirements and processes for teacher re-licensure in all 50 states and the District of Columbia, exploring how particular elements impede or encourage meaningful professional growth. The resulting report finds that the policies undergirding most states' licensure renewal system conflict with what is known about best practices in adult learning.

Resources on Implementation Science

National Implementation Research Network (NIRN). (2013). *Stages of implementation analysis: Where are we?* Chapel Hill: NIRN, University of North Carolina. Retrieved from <https://nirn.fpg.unc.edu/sites/nirn.fpg.unc.edu/files/resources/NIRN-StagesOfImplementationAnalysisWhereAreWe.pdf>

This tool provides information on planning for and/or assessing the use of stage-based activities to improve the success of implementation efforts for evidence-informed innovations, such as micro-credentials.

National Implementation Research Network (NIRN). Active Implementation Hub. Retrieved from <https://nirn.fpg.unc.edu/ai-hub>

The Active Implementation Hub is a free, online learning environment for use by any stakeholder involved in active implementation and scaling up of programs and innovations. The site goal is to increase the knowledge and improve the performance of persons

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engaged in actively implementing any program or practice. The site includes modules, lessons and short courses, and a resource library.

Smith, B., Hurth, J., Pletcher, L., Shaw, E., Whaley, K., Peters, M., and Dunlap, G. (2014). *A guide to the implementation process: Stages, steps and activities*. Chapel Hill, NC: Early Childhood Technical Assistance Center. Retrieved from <https://ectacenter.org/~pdfs/implementprocess/implementprocess-stagesandsteps.pdf>

The guide is based on a review of literature of implementation science and the collective experiences of federally funded national centers in conducting state-wide systems change initiatives. It details steps and activities for each stage in the implementation framework.