

Accreditation Council of Trinidad and Tobago (ACTT) Conference  
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# AI & Micro-credentialing in Higher Education

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# PRESENTATION AGENDA

**1** AI in Higher Ed:  
Opportunities

**2** Why micro-  
credentials?

**3** Current status  
of micro-  
credentials

**4** How to do  
micro-  
credentials  
right?

**5** Role of  
Stakeholders

**6** A Proactive  
Vision

# What we know



# What we do





# Active Learning works



*Class lectures are 50 mins long – attention span is 15 mins.*



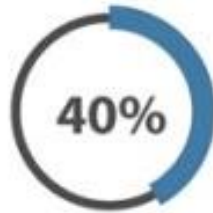
What we do



# Statistics of the COLLEGE DROP-OUT



of students **dropped out** of college



will not get a degree



of students at **public institutions** drop out



of students graduate within **six years**



leaving college are **Freshman**

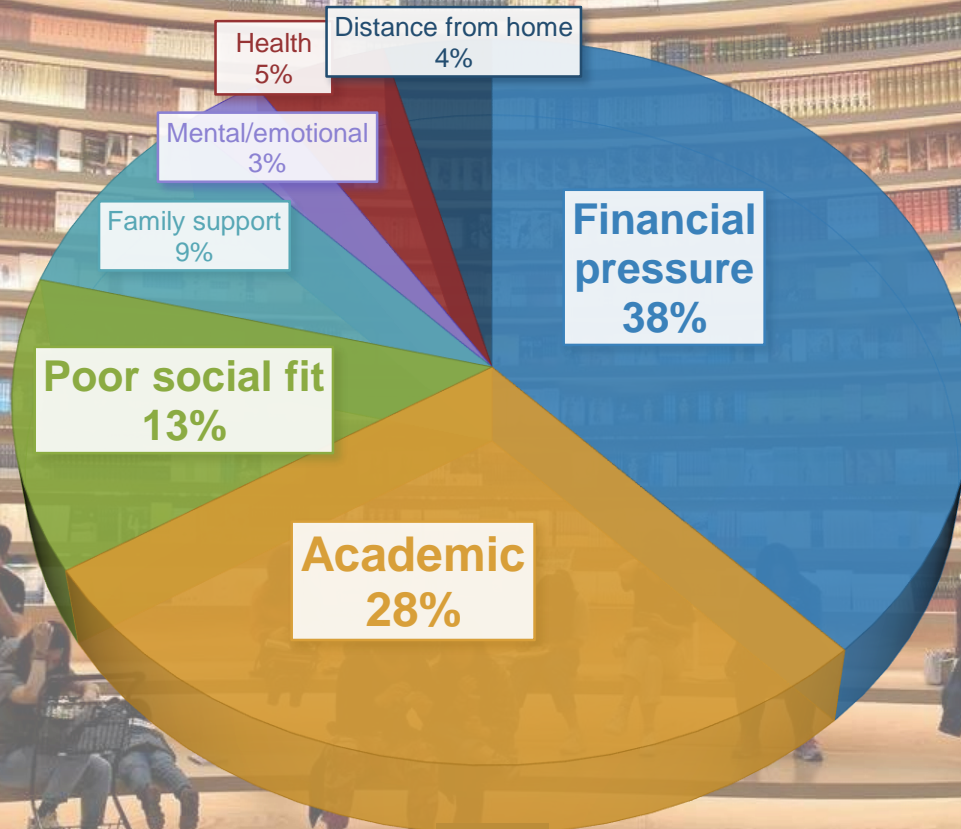


of students going to a **non-profit** drop out



earn a **bachelor's degree**

## TOP REASONS FOR DROPPING OUT OF COLLEGE



What we do



# 1. AI in Higher Ed - Opportunities

*In a Microsoft – Times Higher Education survey, University leaders replied that "AI will be able to assess students, provide feedback and generate and test scientific hypotheses at least as well as humans can".*

Artificial intelligence (AI) brings the promise of important benefits for education:

- ❖ learning that is personalized to the preferences of each student,
- ❖ helping her/him to adapt the pace and control iterations to improve the mastery of the topic.

# 1. AI in Higher Ed – Opportunities

*When big data analytics and AI are used correctly, personalized learning experiences can be created, it may help to resolve challenges such as: high dropout rates, and the ineffectiveness of a traditional "one-size-fits-all" approach to education.*

How AI and Data Could Personalize Higher Education  
by Lasse Rouhiainen, HBR, October 14, 2019

AI-based learning systems may

- give professors useful information about their students' learning styles, abilities, and progress, and
- provide suggestions for how to customize their teaching methods to students' individual needs.

## Personal data will be a key ingredient

Application of AI to personalized learning sounds like an ideal solution.

However, the technology still has a long way for to go before it can fully meet its potential.

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The primary ingredient of personalized learning is a large amount of student data. If student data could be collected and processed in an ethical, secure and transparent way, it would allow AI to be used to effectively improve just about every area of study.

# 1. AI in Higher Ed - Opportunities



El **chatbot** de la  
Universidad de Murcia

**05 JULIO**  
JUEVES/10.00h.

Papel de la Inteligencia Artificial en la  
transformación digital de las universidades.

#lolatuinteligenciaamiga



News Home Campus Map

Jill Watson's  
Terrific Twos

Georgia Tech's Phenomenal AI Teaching  
Assistant Is Growing Up and Making Friends



## Chatbots can provide personalized guidance

The University of Murcia in Spain began testing an AI-enabled chatbot to answer students' questions about the campus and academic programs. It was able to answer more than 38,708 questions (91% correctly). It provides immediate answers to students outside of office hours, and also increased student motivation. All without changing the structure of the staff.

Georgia Tech introduced a virtual teaching assistant named Jill Watson in an online course about AI. It was first used in a spring 2016 to answer questions in a class chatroom, and students weren't aware they were interacting with AI until the last day of class. The professor was surprised at the chatbot's effectiveness in boosting student engagement. Since the initial rollout, the virtual TAs have continued in the course.



# 1. AI in Higher Ed - Opportunities



Der Chat-Bot für Module und Kurse an der TU Berlin.

## AI Adds Efficiency to the Admissions Process

Georgia State University's personalized student communication, "Pounce" is a virtual assistant for admissions - to help students by sending timely reminders and information about enrollment tasks, collecting key survey data, and instantly answering student FAQ's. Staff needed to attend to 1% of the 50,000 student text messages. GSU saw a 24% decrease in summer melt and a 3.9% increase in enrollment.

## AI Supports Better Scheduling, Teaching

The Technical University of Berlin's chatbot "Alex" answers a range of questions about class timings, course professors and exam schedules in natural-sounding sentences, and even asked follow-up questions to really understand what the students concern. Alex significantly reduced the number of steps required to find relevant details.

# 1. AI in Higher Ed – Opportunities

A blockchain is a secure digital ledger of transactions that creates a tamper-proof chain. Gartner has identified four ways to apply blockchain in the higher education sector:

1. **Enhanced record-keeping.** Blockchain's security and visibility aspects are promising for student records. - verifying the accreditation of colleges, protect IP, and reducing fraudulent transcripts.
2. **Increase efficiency in business processes:** A verifiable lifetime transcript would reduce CV fraud and streamline student transfers, credential verification, moving between states and countries
3. **Fee payment:** using Cryptocurrencies.
4. **Transformed business models.** Colleges must change the way students receive education and assets during their academic careers. Credit transfers across a host of academic and training institutions could be made more seamless, safe and effective.

## Blockchain on higher education - examples

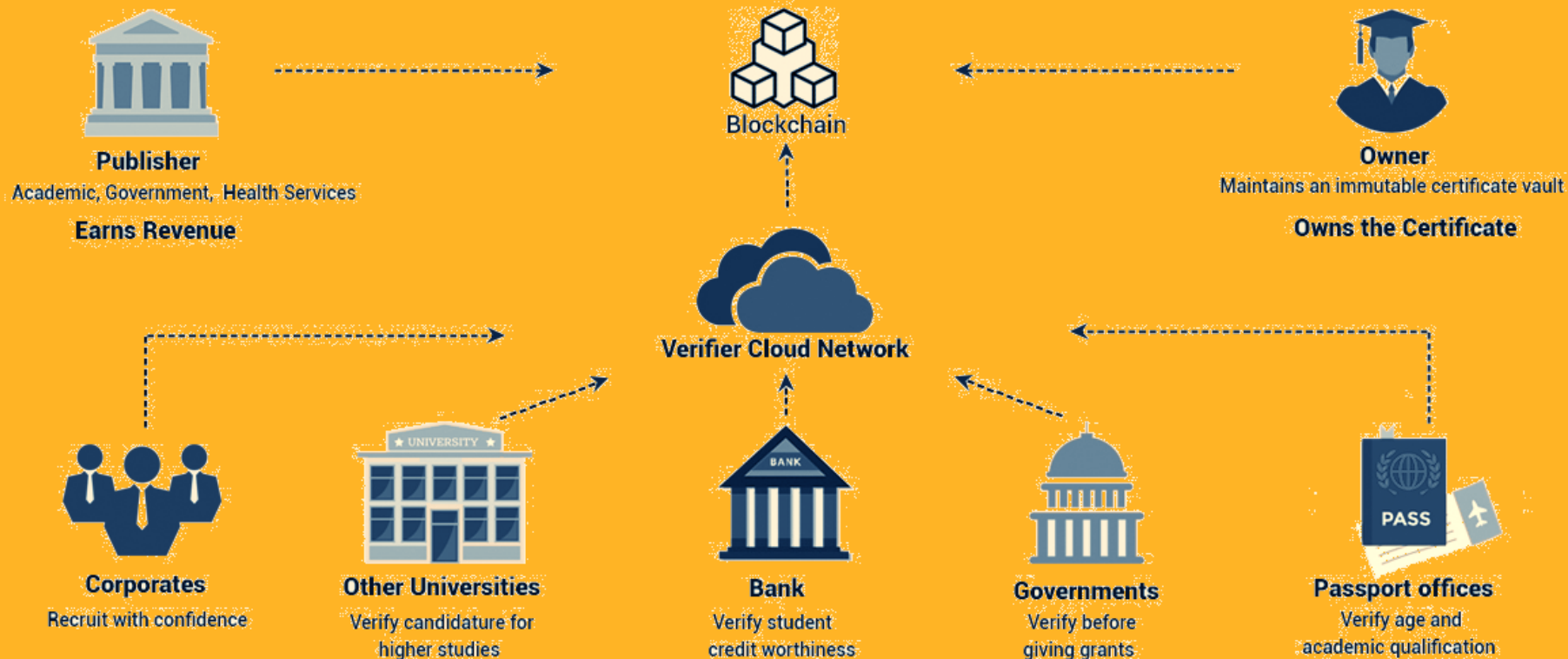
Nine universities of the world have formed the Digital Credentials collaboration in order to create a trusted, distributed, and shared infrastructure standard for issuing, storing, displaying, and verifying academic credentials. MIT, Delft University - Netherlands; Harvard; University of Potsdam in Germany; Tecnologico de Monterrey in Mexico; Technical University of Munich; UC Berkeley; UC- Irvine; & University of Toronto.

Arizona State University is strengthening its ties with community colleges in its reverse transfer process, an alternative transfer evaluation based in blockchain.

Central New Mexico Community College is the first community college to offer digital diplomas from 2017. It also accepts cryptocurrency payments.

Woolf University, founded by a group of academics from Oxford & Cambridge, uses a unique blockchain-based education model. It claims to be a fully-accredited, borderless, and blockchain-powered university.

# 1. AI in Higher Ed -Opportunities







**AI and Micro-Credentials in Higher Ed**  
**Common denominator: student success inside and outside of college**

“

*About 40% of existing university degrees will soon be obsolete and traditional undergraduate or postgraduate degrees could disappear within a decade.*

- EY



## 2. Why micro-credentials?

Fast evolving technologies in Industry 4.0 are

- ❖ making many traditional jobs redundant,
- ❖ challenging traditional HE models,
- ❖ stimulating shifts in careers and pathways,
- ❖ demanding new skills at a much faster pace.

A longer duration degree is not required and may be counter-productive. Micro-credentials and SLPs are one way forward to meet the emerging manpower needs of Industry 4.0





### **What are micro-credentials?**

Short Learning Program (SLP) is a group of courses with a common theme which are part of a larger credential.

Micro-credential is one example of a SLP.

Micro-credential is a sub-unit of a credential that could accumulate into a larger credential or be part of a portfolio. (Verified certificates, Digital Badges, MicroMasters, Nanodegrees).

## 2. Why micro-credentials?

### Concepts of micro-credentials

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#### Skills

Micro-credentials can be awarded for soft and hard skills.

#### Key differences

with traditional degrees are: employable skills, flexibility, building on smaller achievements, affordability, flexibility & ease of access.

#### Earning a micro-credential

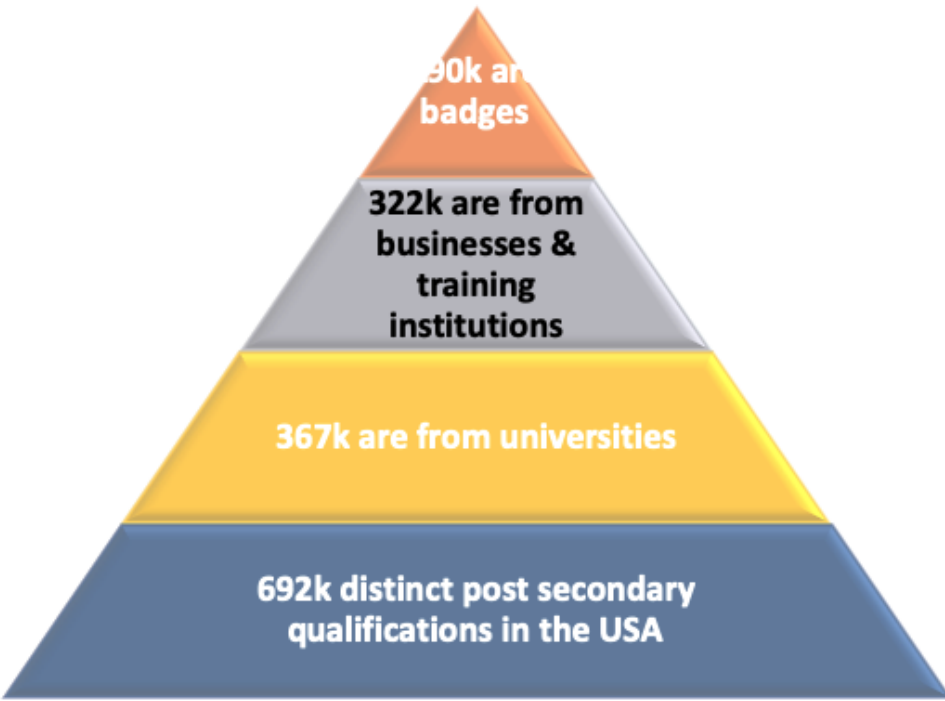
can involve completing activities, assessments & projects and may take a few weeks to a year. The Learner will receive a digital certificate

**The Assessment pathway** might include:: Assignments, Lectures and seminars, presenting portfolio, Tests or practical exercises, Conferences, Demonstrate skills in work setting

#### Benefits of micro-credentials

1. Personalisation for Learners
2. Personalisation for Employers
3. Structured approach to learning on the job
4. Recognise soft and hard skills
5. Flexibility
6. Flexible lifelong learning
7. Multidisciplinary roles for staff
8. Employee engagement
9. Scalability in staff training
10. Training in emerging areas
11. Specialised skillsets
12. Delivery on demand
13. Bridging the skills gap
14. Effective tracking of training
15. Measure staff capabilities
16. Competitiveness of companies

### 3. Microcredentials – status



- ❖ 27% of all distinct post-secondary credentials offered in the US are badges. MOOCs offer <1% of these.
- ❖ Badges are the rage: Over 190k digital badges are available - these are designed to endorse verifiable skills or knowledge in a specific subject by a range of vendors – including Badgr, Credly, Acclaim.
- ❖ Thousands of organizations worldwide are using badges - to be attached to digital resumes with metadata to describe the skills mastered.
- ❖ But Universities need to catch up with Trainers and Businesses in this regard.



## 4. How to do this right?

While employers are demanding for mastery of essential skills, there is also a lack of clarity about what they can expect of an employee who has completed such a credential.

For micro-credentials to be meaningful to employers, much more needs to be done to standardize.



## Quality framework for micro-credentials:

Rutgers University's RUTGERS EDUCATION AND EMPLOYMENT RESEARCH CENTER has developed a conceptual framework to guide measurement of quality of non-degree credentials including micro-credentials.

#### 4. How to do this right?

### CREDENTIAL DESIGN

- Content relevance
- Instructional process
- Assessment process
- Stackability and portability
- Transparency
- Accessibility and affordability



### CONCEPTUAL MODEL OF MICROCREDENTIAL QUALITY

### OUTCOMES

INDIVIDUAL: employment,  
educational, social

SOCIETAL: employer, society



### COMPETENCIES

Demonstrated competencies  
including general knowledge,  
specialized skills, personal  
skills and social skills



### MARKET PROCESSES

- Awareness of credential
- Endorsements & validations
- Organizational policies / practices
- Demonstrated competencies
- State regulations
- Employer hiring policies / practices
- Educational recognition of learning.

## 4. How to do this right?

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Ensure that content aligns with workplace needs and educational pathways in two ways:

- ❖ by the alignment of the micro-credential competencies and
  - ❖ by the number of job opportunities available to individuals with this credential in the job market.
- ❖ Industry is continually engaged in the design.
  - ❖ Labor market data indicates a need.
  - ❖ Educational actors ensure alignment with educational pathways.
  - ❖ Affordability, Access, Completion rates
  - ❖ Instruction is tailored to the needs of all students to develop industry-specific skills.
  - ❖ Instructors are up-to-date in their knowledge of occupational competencies.

# Role of Stakeholders: Industry



**Course enrollments** in IBM-badged online courses increased 125%



Certifications achieved a **57% pass rate increase**



**64% direct increase** in product trial downloads.

## IBM's Badge Program Generates Measurable Results



**195 countries** are represented in the skills registry



**Increased brand exposure:** IBM garnered 200M+ social media impressions, worth \$39,000/month in digital marketing value



**Employability:** 92% of badge earners say the badge verifies job skills



**Course completions** of IBM-badged online courses increased by 694%



**Increased engagement:** 87% of IBM badge earners feel more engaged with IBM and are motivated to learn more

Employers Need To Take A Proactive Approach To Learning At Work

**Adobe's** learning fund reimburses the cost of courses up to \$10k / year for degrees and certifications, or \$1k for SLPs.

**IBM:** Cloud & cognitive big data require new skills & "liquid skills" to keep pace with rapidly-evolving technology development. IBM had to rethink how they would meet the market demand for talent. IBM created a digital badging program to foster employee skill progression.



## Universities on the move

**Many universities are partnering with micro-credential providers to provide alternative qualifications.**

In Canada, government-funded nonprofit eCampusOntario is currently working with universities and colleges to develop micro-credentials in collaboration with industry partners.

Six universities from UK, USA, Australia and Ireland partner with Future Learn to launch seven microcredentials : The Open University, - UK, Dublin City University, Deakin University, The UC - Irvine, Monash, and Queensland University of Technology.

Six top US universities – shown below -have come together to launch the University Learning Store, enabling job seekers and working professionals to earn industry-validated micro-credentials



Developed and awarded by:



**OECD Governments are seeking ways to assure the quality of microcredentials, recognise, and fund these.**

**The European MOOC Consortium launched the Common Microcredential Framework (CMF) in 2019. Based on this, Germany also proposed some criteria to assess the quality of micro-credentials.**

**An Expert Panel in Australia suggested criteria for micro-credentials in 2019 and recommended credits rather than including them in the Quality Framework.**

New Zealand is taking a lead in addressing alternative credentials in their policies.

The New Zealand Qualifications Authority (NZQA), established specific criteria for training schemes and microcredentials in 2018. It reviews and approves these credentials offered by NZ HEIs, and non HEIs from NZ and outside if those satisfy their quality standards, and issues statements presenting the credit value and level of such learning activities against the NZQF.

New Zealand also introduced a public funding system for micro-credentials in 2019. All NZ HEIs are eligible for the microcredential funding to help deliver micro-credential programs



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD  
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

**Guidelines for applying for approval of a training scheme or a micro-credential**

## 5.1. NZQA micro-credential quality standards

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Good evidence that the training scheme or micro-credential enables learners to achieve the intended outcomes and purpose

Good evidence that the training scheme or micro-credential is made up of components structured in a coherent way to achieve the outcomes and addresses the relevant needs of learners (if applicable)

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Good evidence that the education organisation has the capability and resources to provide the training scheme or micro-credential

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Good evidence that the education organisation can manage the impacts of any specific training scheme or micro-credential requirements

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No significant gaps or weaknesses in the training scheme or micro-credential

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No significant gaps or weaknesses in the self-assessment report, and/or the underlying capability and resources of the organisation

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Demonstrable evidence that the learning outcomes and activities match the purpose of the micro-credential

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Evidence the micro-credential addresses the identified unmet skill needs and is required or supported by relevant industries, employers or communities

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Evidence that the micro-credential is in addition to current learning, and typically does not duplicate current quality-assured learning approved by NZQA

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### Learner's responsibility

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**Rather than committing to the expensive and time-consuming process of earning a degree, learners can pinpoint the exact skills they would like to focus on and earn. They may have already completed their education and are looking to fill the skills gap, or are simply looking to up-skill.**

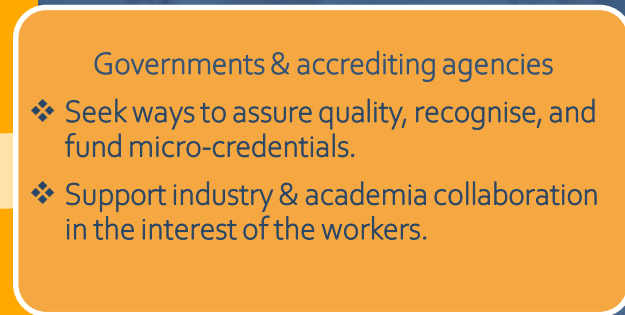
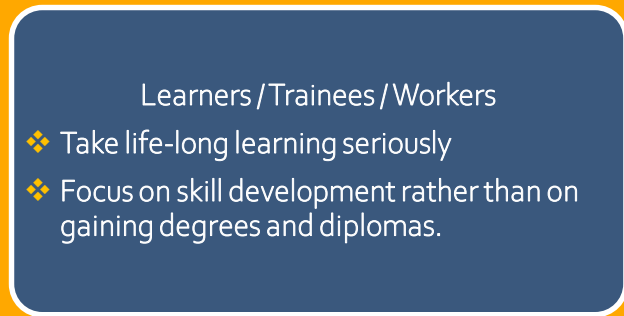
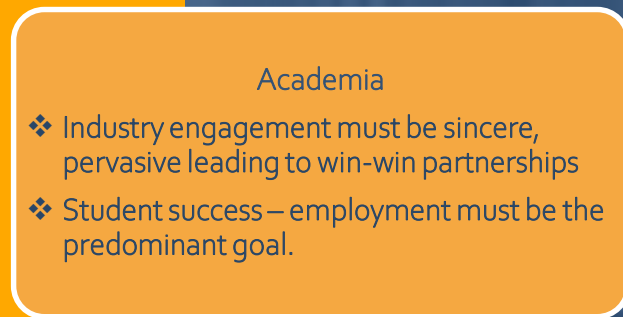
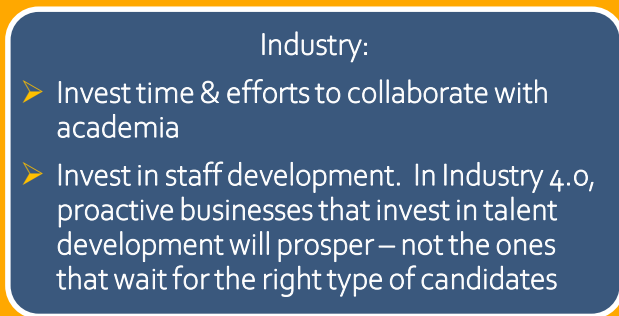
What may have been the most up-to-date learning or credential two years ago could now be out of date. Learners / workers need to stay relevant in order to remain competitive in the current job market.

Businesses are increasingly recognizing skill sets as they would degrees. This approach is beneficial to employers as it allows them to hire for specific skills and design their teams strategically and precisely. It opens up opportunities for the VET educated workers and university students to fill the skills gaps in their learning.

Learners seeking out microcredentials are looking for convenient, affordable and timely delivery of courses that will set them apart from the crowd.



## 5. Role of Stakeholders



# A Proactive Vision



## Industry 4.0 Disruptions are here and now

Several million jobs will be lost – many of the jobs lost in the pandemic may not come back. But new jobs – hitherto non-existent – are being added. Society and governments cannot wish these away



## Proactive, visionary policy makers

Youth unemployment and increasing class-divide must be addressed smartly and proactively. Otherwise serious societal disruptions may be the price to pay.



## The Way Forward

AI can be embraced or resisted by Higher Ed. If AI is diligently incorporated into human development, those societies will get ahead in the decade ahead.