

# The Future is Small

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# Acknowledging Where I Speak From

## Edmonton, Alberta, Canada

*I want to acknowledge the traditional land on which I reside, is in Treaty Six Territory. I would like to thank the diverse Indigenous Peoples whose ancestors' footsteps have marked this territory for centuries, such as Nêhiyaw / Cree, Dené, Anishinaabe / Saulteaux, Nakota Isga / Nakota Sioux, and Niitsitapi / Blackfoot peoples. I also acknowledge this as the Métis' (May-tee) homeland and the home of one of the largest communities of Inuit south of the 60th parallel. It is a welcoming place for all peoples who come from around the world to share Edmonton as a home. Together we call upon all of our collective, honoured traditions and spirits to work in building a great community for today and future generations.*




# Who Am I

- Teaching at the college | university level since 1973
- Psychologist by training but have taught in both statistics programs and in business schools. Worked as a counselling psychologist for many years - author of *Counselling and Helping* – a standard counselling text.
- Now act as Chief Innovation Officer for Contact North | Contact Nord – they pay me to look around the world at emerging developments
- Also working on strategic foresight as a teacher at the University of Toronto (OISE) and University of Alberta and Athabasca University (MBA)
- Worked for 15 years at the Open University (UK) and for 14 years at Athabasca University
- Written 40 books, 200 academic papers and book chapters and continue to create
- Serial entrepreneur – currently involved in five companies



# This Presentation

- Look at the context for skills development
- Explore responses to this context
- Look at micro-learning and micro-credential landscape
  - 6 Types of Micro-Credentials
- Some Comments



# Canada's Demographics

- Growing population – mainly due to immigration and growth of the Indigenous population. Overall, birth rates are below replacement.
- Canada has an ageing population and 9% fewer young people now than in 2018. Canada's birth rate is the lowest since 2006.. There are more seniors than those awaiting entry into the school system.
- 21% of the workforce are aged between 55 and 65 – nearing retirement.
- Dependency ratio (those in work:those not in work) varies from 3:1 to 1.5:1 to 1:1 in some rural remote communities. Overall, we can expect the dependency ratio to become "mission critical" for the Canadian economy.
- Immigration key to all our futures: Canada approves a target of 432,000 for 2022 and 1.3 million over the next 3 years. Significant challenges in foreign credential recognition will simply get more demanding as an issue.



# Demand for Skilled Labour is High & So Is The Skill Gap

- 75% of Canadian employers say they cannot find workers with the skills they need for the available jobs.
- Big shortages in key areas:
  - Operations and logistics
  - Manufacturing and production
  - Sales and marketing
  - Front office and customer service
  - Information technology and cybersecurity
  - Administration and Office Support
  - Human Resource Management
- Canada has allocated \$1 billion a year (over the next three years) to expand enrolment in areas with skills shortages” and each province is also acting to respond to the challenge
- A great number of Canadians are looking to upskills, reskill or develop new capabilities.

# Canada Firms

- Spending on training varies by firm size:
  - Small: Average \$200 (if any)
  - Medium: Average \$400 - \$500
  - Large Firms: \$1,000 (skewed by investment in top-team leadership development)

Source: Conference Board of Canada

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	Small (1-99)	Medium (100-499)	Large (500+)
# of Companies	1,200,571	22,905	2,987
# of Employees	21,113,851	3,082,334	7,428,133



# Energy Transition

- Alberta Oil and gas sector gained “base jobs” between 2001 and 2021 – up from 71,000 to 85,361 (20%).
- But when compared to “boom” years (2008 for example), down from 107,741 to 85,361 (-21%) or 2014 (-34%).
- Production and revenues in 2022 are the highest they have ever been – fewer people, more oil and gas.
- Key drivers:
  - Oil price and global demand for oil sands and oil and gas impacts sector activity
  - Leveraging technology to produce more product with less labour (e.g., horizontal drilling, multilateral wells) – COSIA companies have invested \$1.6 billion
  - Climate change and the switch to green energy and CleanTech (Nuclear, Hydrogen, Bio, CO2 capture).
- Oil and gas is transitioning fast to green energy – solar, hydrogen and eventually fusion.



# The Future of Work

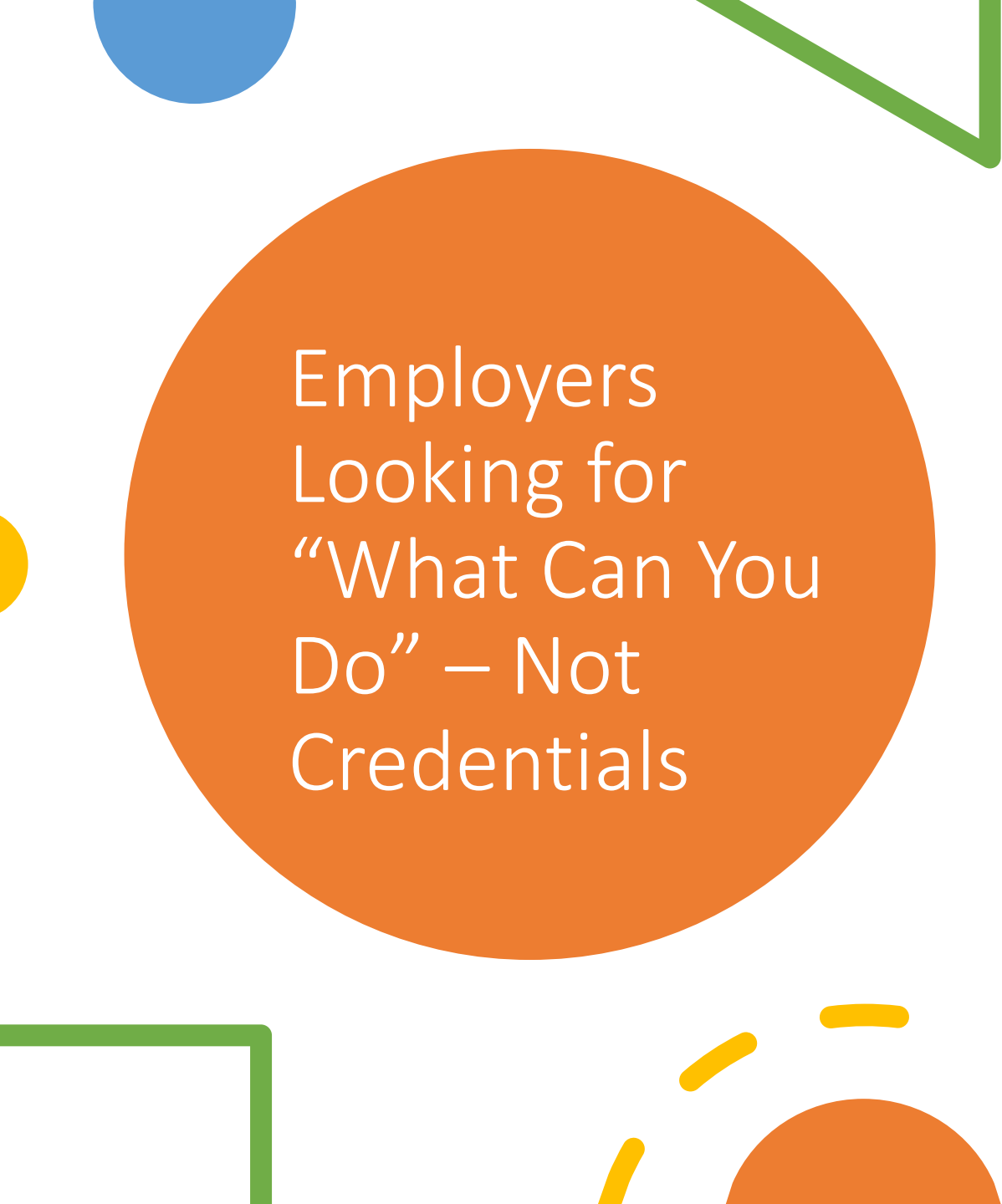
- Technology is changing the nature of work and will impact 30-40% of all jobs.
- No sector is “sacred” – impact will be just as strong for professions (law, accounting, medicine, nursing, teaching) as for trades.
- We are all having to learn to “dance with robots”.





# Gig Work Growth

- App. 8% of work in Canada is performed by gig workers.
- 40% of millennials work part-time in the gig economy, even though some are in full-time work.
- The gig economy has grown significantly in the last five years, most especially during the pandemic – now accounts for a significant % of GDP growth
- Gig workers range from Uber and Doordash to workers in IT, consultants and contractors in construction. Flexible working and work:life balance are key drivers.



## Employers Looking for “What Can You Do” – Not Credentials

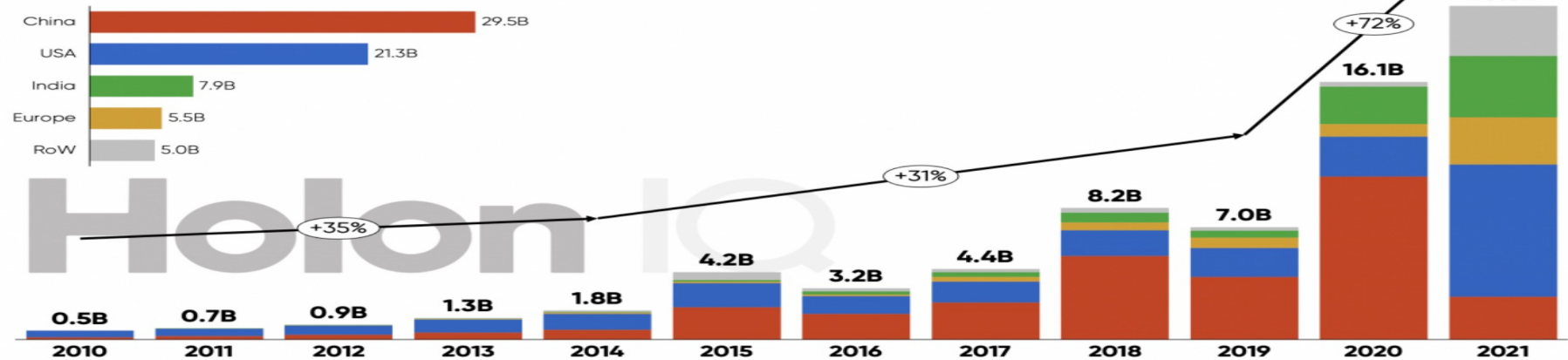
- Employers with skill shortages need workers with skills and capabilities which are work-ready
- Less interested in certificates, diplomas and degrees – especially large IT companies (Apple, Google, AWS, Sobeys-Ocado, Meta) – **skill portfolios** are now being used for recruitment – qualifications are a filter to get in the door
- Work Integrated Learning (WIL) and employer evaluations are becoming key to hiring in certain sectors – **RIIPEN like support infrastructure growing in deployment.**

# Growth of Investment in EdTech \$\$

HOLONIQ, GLOBAL IMPACT INTELLIGENCE

**\$20.8B of EdTech Venture Funding for 2021, 3x pre-pandemic levels. Massive US and EU surge covering an \$8B China EdTech VC collapse.**

Global Education Venture Capital Funding, 2010–2021 in USD Billions




Source: HolonIQ, 3 January 2022. All numbers rounded and may not sum exactly due to rounding. All years calculated at historic FX.

www.holoniq.com

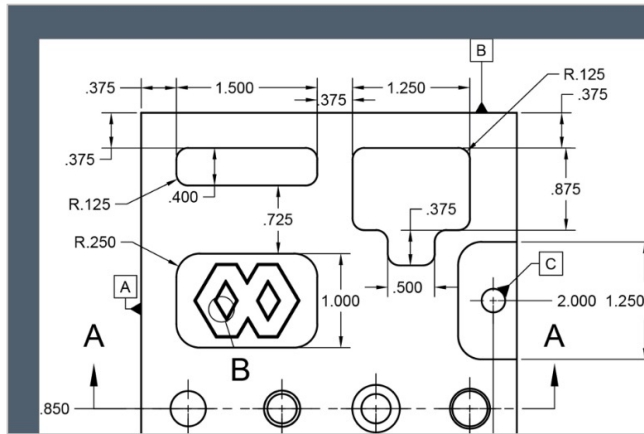


# Microlearning and Credentials as a Response



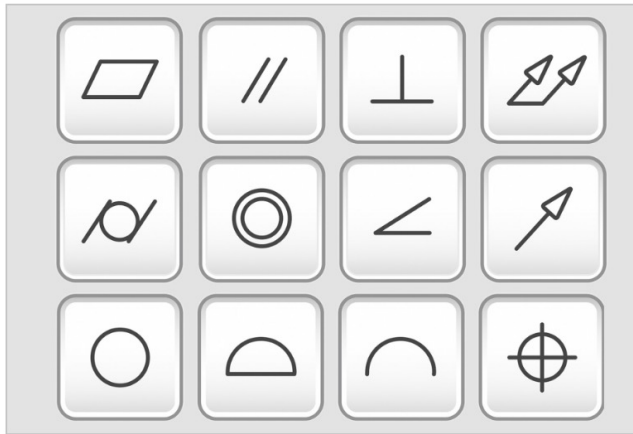
## Microlearning Growing – Fast Growing

- Microlearning is very short, self-managing learning opportunities – 10–20-minute learning moments using video, augmented reality, virtual reality or infographics to master a skill – e.g. YouTube videos.
- Look at the microlearning developed by the Work Based Learning Consortium (Ontario) – Quicklearn Micro Learning Modules focused on “hard” skills for those in work.
- Now connecting micro-learning to skills-based competency-assessment and using adaptive learning engines to automate learning selection.



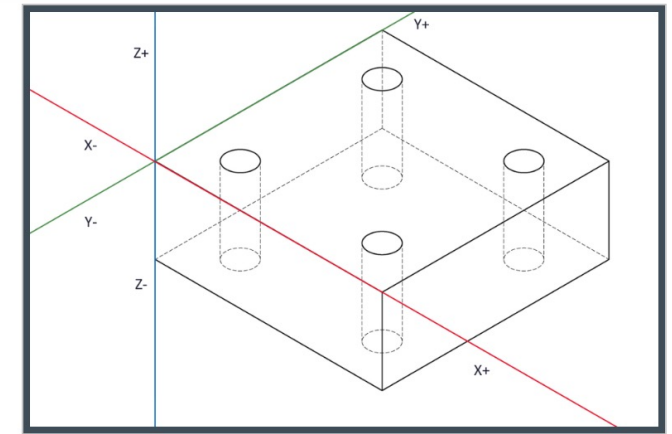
## Understanding Blueprints

Blueprints define all the features of a part. In this module, you will learn how to read blueprints accurately to do your job accurately on a CNC machine.



## Basics of GD&T

Geometric Dimensioning + Tolerancing is a system for defining and communicating manufacturing / engineering tolerances. In this module, you will learn about: Tolerance, GD&T Symbols, and how to read them on blueprints.



## Understanding CNC Co-ordinates

CNC co-ordinates are a set of dimensions measured from a zero ordinate in a drawing or sketch. In this module, you will learn how to understand them in CNC design.



# Micro- Credentials... the new “wild west”

- **Big investment in micro-credentials across Canada**
  - \$59.5 million in 2020 and \$15 million in 2021 by the Government of Ontario
  - Alberta invested \$5.6 million in 2021
  - Across Canada, total public sector investment exceeds \$75 million
  - Significant investment by Google, IBM, Amazon and other corporations
  - Over 3,856 microcredentials now available in Ontario and app 1,552 are OSAP eligible
  - Alberta has a complex catalogue of microcredentials, but they are tough to find – no centralized search facility and still evolving...
  - Many potential customers can't tell the difference between a micro-credential and a microwave ~ it is a hard sell.
  - Some substantial issues... ([see next slide](#))





# A review of a sample of 1,000 microcredentials from across Canada

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Less than 10% available on demand.

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Many were semester long in length, not short – months rather than days or hours.

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Few showed any connection to employers' competency frameworks or models in any direct / indirect way.

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Not clear how competencies would be assessed – indeed, assessment process descriptions often not available.

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Some are “unbundled” 3 credit courses that are then transferable back into credit (modular + stackable).



## MOOC Providers Now Aggressively Pursuing Credential Market

- In 2021 675,000 Canadians enrolled in a MOOC from one of Coursera, FutureLearn or edX.
- MOOC providers have over 1,675 micro-credentials and 80+ MOOC based degrees.
- Biggest demand areas are:
  - Technology related subjects (20%)
  - Business (21%)
  - Health and Medicine (7%)
  - Social Sciences (11), Science (9%) and Education (7.4%)
- As new investments in MOOC organizations pour in (all are cash rich), they see microcredentials and microlearning as revenue growth engines.
- FutureLearn's CEO

# \$9.9B Micro and Alternative Credential Expenditure

2019 Global Micro and Alternative Credential Market Estimate in USD

Illustrative examples only

## Bootcamps (Offline + Online)



B2B and HE  
growing  
very fast

**\$0.9B**

D2C Bootcamps,  
B2B Bootcamps and now  
University Partnership Bootcamps

## Online Non-Degree 'Certificates' and Post Secondary Micro-Credentials.



University & Non-University  
designed & delivered  
'certificates' & micro-credentials

**\$2.3B**

← Excluding Offline  
Executive and  
Continuing Education

## Professional Certifications



Accounts, Cyber, Engineers, Finance,  
Lawyers, Nurses, Physicians, Software  
Developers, Tech/Project Management.

**\$2.9B**

## Online Courses & Badges



MOOCs, Marketplaces, Coding and  
Creator Courses, Skills Assessments and  
Test Prep for Professional Certifications

**Holon IQ**

**\$3.8B+**



# Stop Thinking Credentials


**Think Productivity, Competitiveness, Innovation and Skills**

**Think: IMPACT LEARNING**



## Key Sectors Need Colleges and Universities

- To be a fast-moving, nimble partner who is fast to market with skill-based learning they need to build sector capacity
- Support economic transition within and between sectors by supplying skill-ready individuals with not just the hard skills they need but also with the Skills for Success
- Be ready to perpetually upskill all in their workforce
- Support the recognition and accreditation of work-based learning




## Employers Need Colleges and Universities to..

- Focus on skills, capabilities and fast impact learning
- Employers see credentials in one space and skills for success in another
- Don't focus on credentials, focus on "what can you do" and "what do you need to learn to keep and grow in your job?"
- More employers are moving away from hiring solely on the basis of credentials and placing greater emphasis on "what can you do?" – the skills portfolio




# Learners Need Colleges and Universities To

- Delivery flexible, portable and easily available learning that is credible, effective and focused
  - Find ways of connecting learning through learning pathways (putting bits and pieces together into a coherent whole)
  - Assess where they really are and what skills they need to get to the next place on their learning journey – rigour in competency-based assessment
  - Recognize the varied forms learning can take – video, peer2peer, self-directed, online, blended and F2F
- 



# Governments Need Colleges and Universities to

- Demonstrate cost-effective skill-based learning that meets industry needs
  - Produce quality outcomes and real economic impacts
  - Demonstrate innovative approaches to microlearning, microlearning and skills recognition
  - Collaborate across the sector and with others around the world – it all does not have to be invented here
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# The Future of Micro-Credentials

**6 Types of Micro-credentials**

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## A dense collage of colorful sticky notes (yellow, pink, blue, green, purple, orange) with various handwritten messages, drawings, and reminders. The notes are scattered and overlapping, creating a vibrant and busy visual. Some notes include simple drawings like a heart, a cloud, a lightbulb, a smiley face, and a calendar. The text on the notes is in various colors and fonts, mostly in all caps or mixed case. Some notes are clearly legible, while others are partially obscured or written in a more casual, scribbled style. The overall impression is one of a creative and organized workspace.

- ## Example: REVIT at Humber



# Competency Assessed Gap Based Learning

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Job profiles stated in competency terms with each competency having a performance rubric

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Assessment of competencies available on demand

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For each competency in the job profile, exemplar performance is provided (video, audio) coupled with micro-learning opportunities

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Individuals within firms are assessed and gap based learning pathways created

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Employees are re-assessed 6-10 week intervals or on demand

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Successful assessment for all competencies lead to qualifications

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**Example: Dematic (Global Engineering)**



# Social Micro-credential

The screenshot shows a web browser window with the following elements:

- Browser Tabs:** "Inbox (2) - murgatroydstephens@gmail.com" and "Rick Hansen Foundation Access...".
- Address Bar:** "powered.athabasca.ca/product?catalog=Accessibility".
- Page Header:** "PowerED™ | Athabasca University". Navigation links include "My Courses", "Search", "Cart", and "Menu".
- Main Image:** A man in a blue jacket and glasses using a door handle with a pressure gauge. Overlaid text reads: "Rick Hansen Foundation Accessibility Certification™ Training".
- Breadcrumbs:** "Home / Courses / Accessibility".
- File Download Bar:** Shows three files: "microcredentials....pdf", "microcredentials....pdf", and "Future.pptx". A "Show All" button is on the right.

# “The Tease” Micro- Credential

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Modularized 3-credit college | university course ~ .5 credit, 1 credit..

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Learners study modules, can stack them

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Stacked modules = 3 credit for a specific college | university program and can transfer this into a degree

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**Example: Athabasca MBA will accept a Certificate in Manufacturing Management offered as non-credit into the MBA as equivalent of a 3-credit elective.**

**MOOCs from edX accepted into Master's at Queens**

# Industry Skill Driven Micro- Credential

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Industry and the College partner in the design, development and deployment of a specific skills-based micro-credential

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Industry signs off on assessment

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Micro-credentials for that industry linked to skills-in-demand

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Combination of boot-camps and online delivery

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**Example: FutureLearn in partnership with CISCO ~  
Introduction to Networks (10 weeks, 60 hours)**

# FACULTY DRIVEN MICRO- CREDENTIAL

- Faculty are asked to offer online badge-based courses based on their expertise
- Not linked to industry, competencies or skills in demand (necessarily)

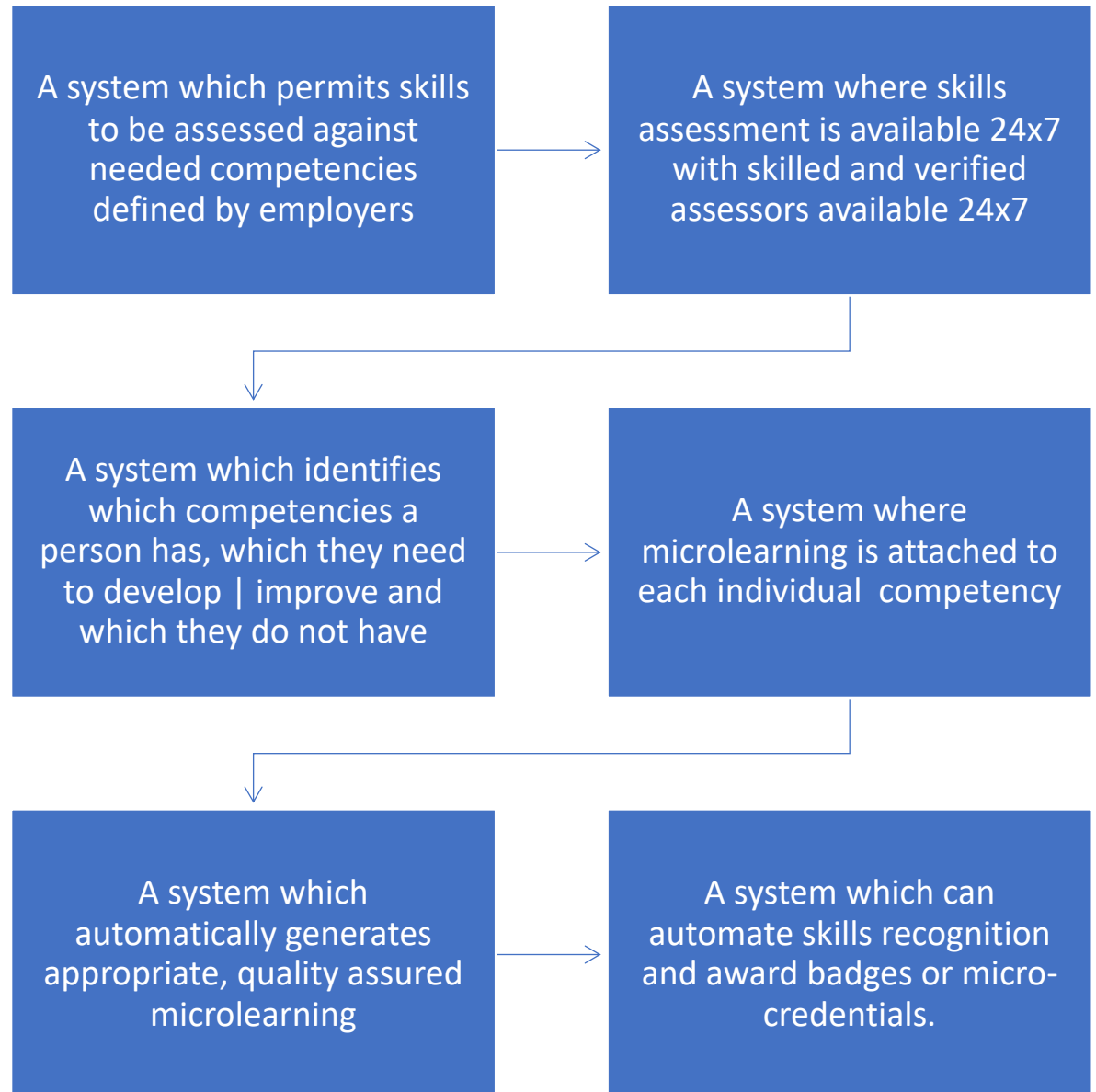
## EXAMPLES

- **Fairy Tales – Meanings, Messages and Morals (9 hours) – badge – The University of Newcastle (Australia) – can be transferred to a degree.**
- **Samuel Johnson's Rasselas ~ An Introduction (24 hours) – badge.**

# Competency Based Skills Assessment as the Driver



# Imagine On Demand Skills- Based Learning



# Three Observations

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1. The Market  
Generally Has  
No Idea What  
We are Talking  
About...



## 2. Co-Opetition Beats Competition

### 3. Not Sure Who is Making Money Here

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# Conclusions

- There is a growing demand for skills and for skills “right now” – forget waiting for a start date.
- Many in work are looking to reskill and upskill without leaving work and want to do so flexibly, quickly and on-demand.
- Short and fast (boot camps) are preferred to long and slow (semesters)
- Price and time-to-complete are factors in a “yes” decision.
- This is a global market – the war for talent is a global war – and the “big players” are better positioned than the “local players” to respond to certain kinds of needs – eg., IT related skills.
- Quality – signified by industry approval – is key.
- Local players need to be niche players – it’s a challenging time.
- “Collaboration is the DNA of the knowledge economy” (Don Simpson, Chief Explorer, Innovation Expedition).

*“The future isn’t what it used to be..”*

*Yogi Berra*