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Micro-Credentials & Digital Badges:

substitute for, or supplement to academic qualifications?

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MIDDLE EAST

Setting the Scene

Extensive transformation of the global economy driven by the Forth Industrial Revolution (Industry 4.0) is forcing education to reconsider traditional models in order to survive.

New dynamics and diversity of career pathways are triggered shortening of learning cycles and expanding opportunities to gain certified competencies. Short cycles, micro-credentials are some of the emerging models which treats to crush the ivory walls of traditional higher education.

How do universities feel about this change? Is academia ready to change? How would new, emerging models influence higher education we know today - by substituting or supplementing our current models?

This session provides an opportunity to debate the future of universities in this dynamically transforming digital world.

Agenda

1. Industry 4.0 – How will future jobs look like ?
2. Education 4.0 – What are the challenges academic degrees are facing in 21st century ?
3. Industry 4.0 and Education 4.0 – Do they communicate enough and who leads the change ?
4. Why Micro-Credentials & Digital Badges ?
5. Looking forward – Substituting or Supplementing existing HE models ?

Industry 4.0

How will future jobs look like ?

Industry 4.0 – Dawn of new technologies

Advent of "cyber-physical systems" involving entirely new capabilities for people and machines*

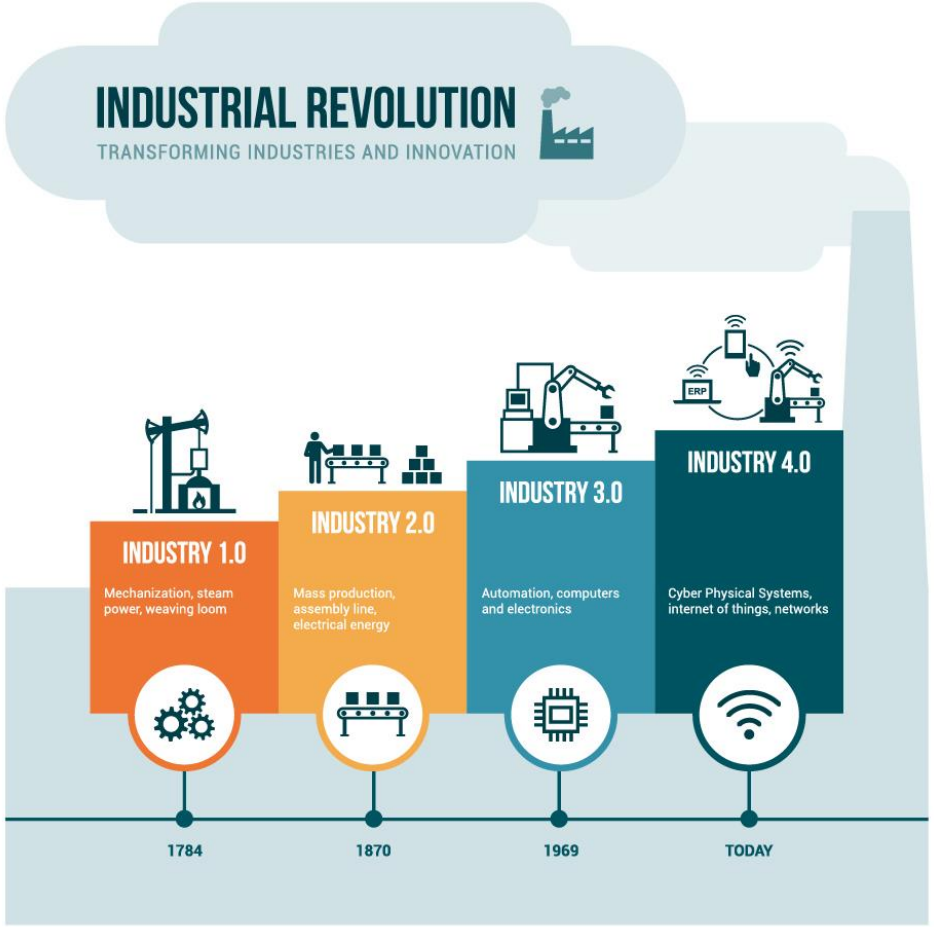
Disruptive technologies and trends are quickly changing the way we live and work

Artificial Intelligence, Internet of Things, Robotics, Virtual & Augmented Reality are already embedded in our daily routines, bringing simultaneous joy as well as fear of unknown

We need to carefully shape a future that works for all of us by putting people first and empowering them.

*) World Economic Forum. https://www.weforum.org/agenda/2016/01/what-is-the-fourth-industrial-revolution/

Industry 4.0 – Labor market transformation



The new labor market, evolving from the Fourth Industrial Revolution holds both challenges (diminishing jobs, inequality,…) and opportunities (tech-related costs drop, effectiveness, easiness of consuming,…)

Technological change induces shifts in occupational structures, transforming the demand for skills at a faster pace than ever before

According to some of the recent reports, 85% of the jobs that will exist in 2030 haven't even been invented yet*

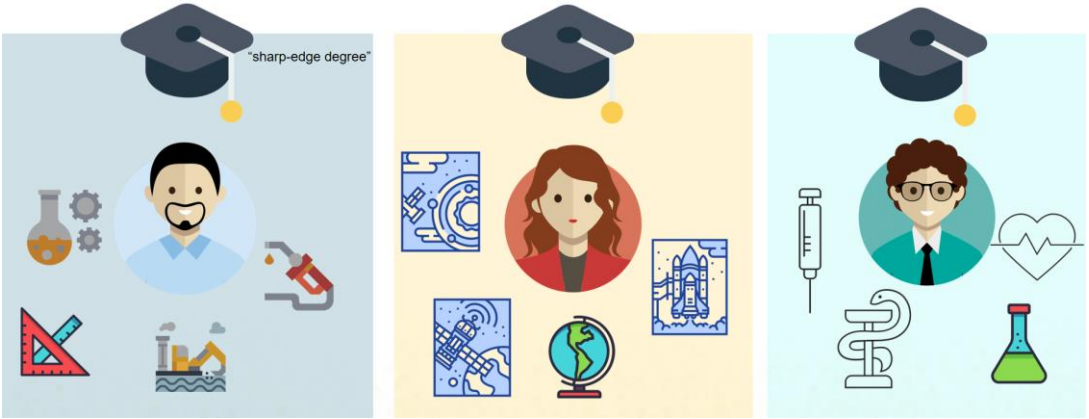
*) Institute of the Future (2017). Emerging Technologies' Impact on Society & Work In 2030. https://www.delltechnologies.com/content/dam/delltechnologies/assets/

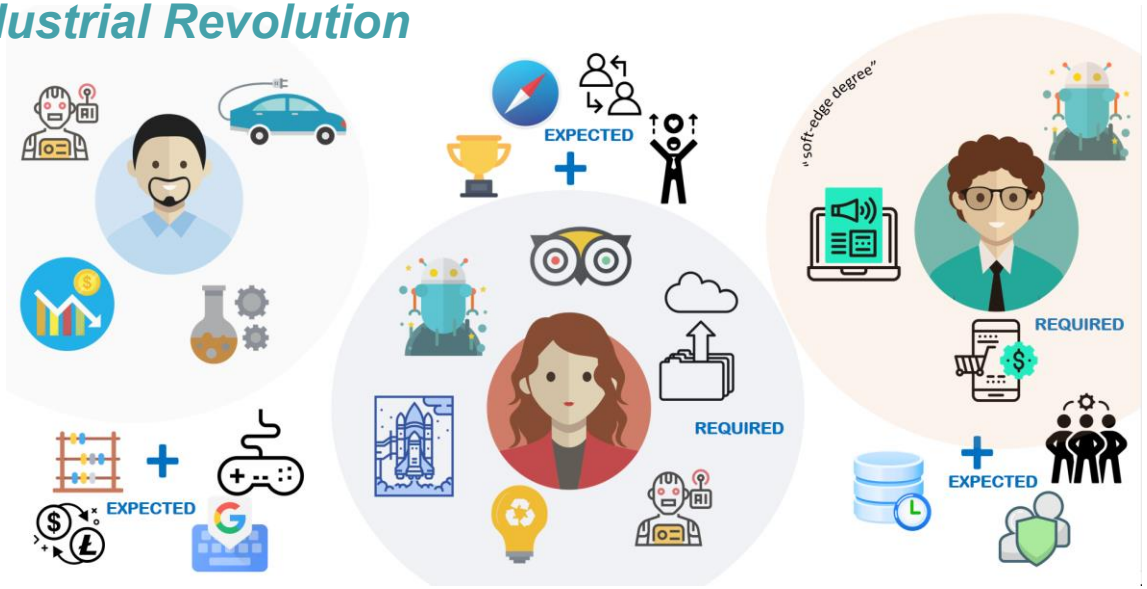
Education 4.0

What are the challenges academic degrees are facing in 21st century ?

Education 4.0 – Conceptual shift

Learning & Teaching transformation for the Forth Industrial Revolution





"sharp-edge"

Clear disciplinary distinction

Simply structured qualification framework

Longitudinal career progression

Degree-based

"soft-edge"

Multi-disciplinary

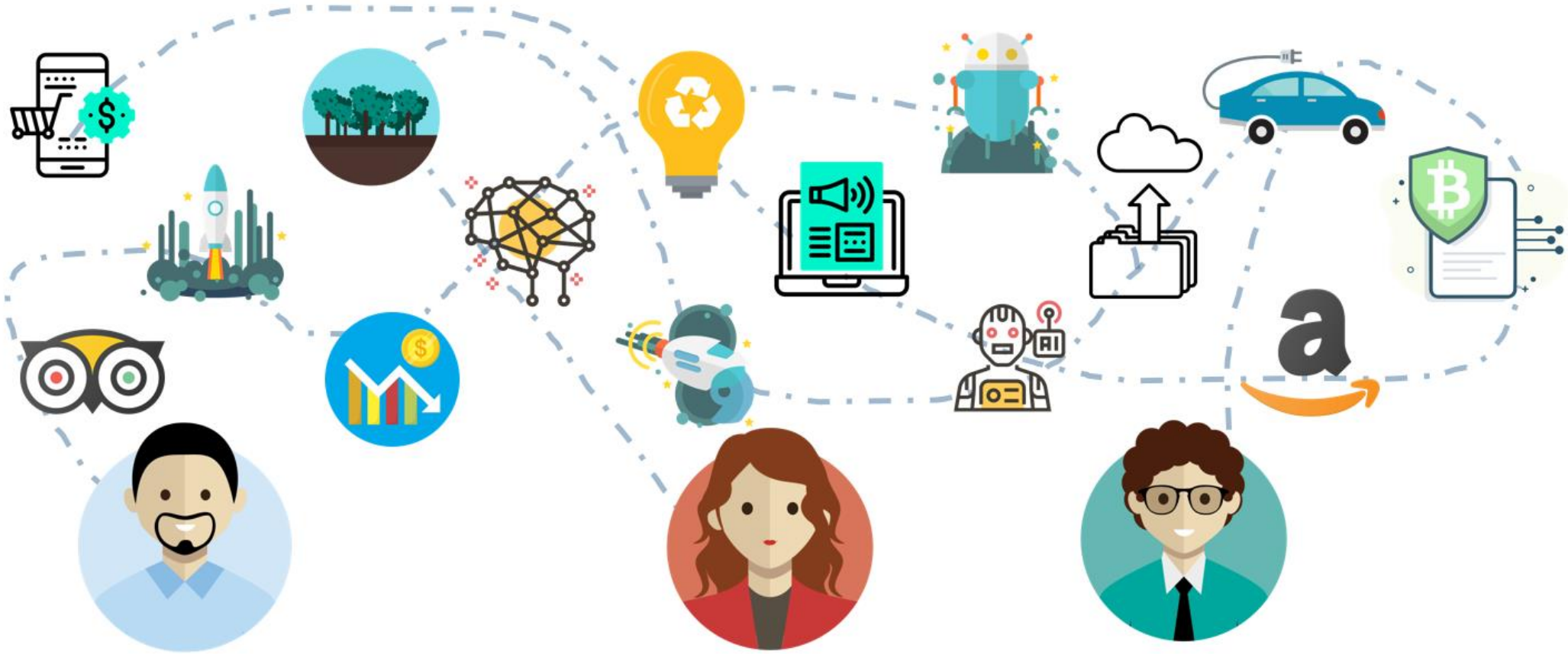
Restructuring of qualification framework

Latitudinal career progression

Competence-based

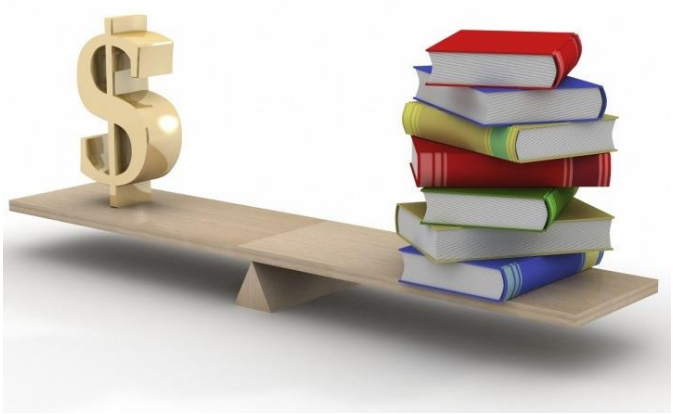
Education 4.0 – Career ambiguity

How future jobs will look-like ? How learning-towards-career pathways will adapt?

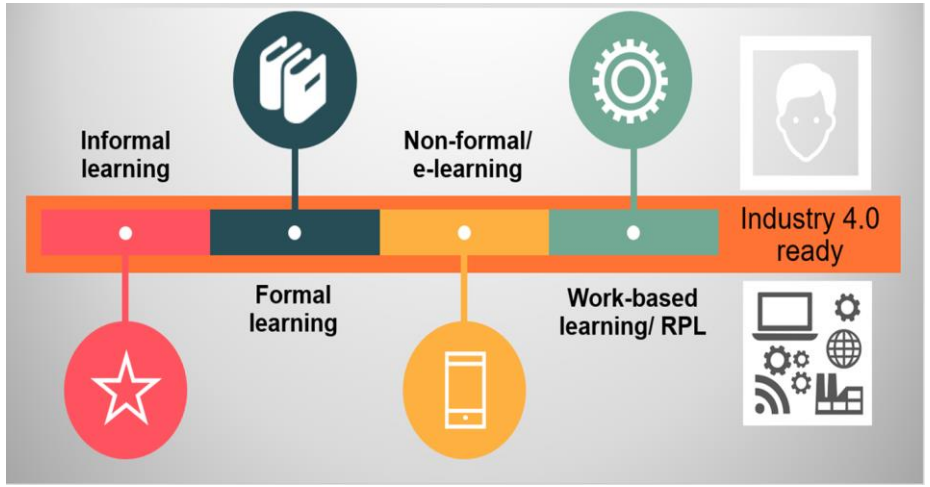


Education 4.0 – New focuses

- **Effectiveness (Value for Money)**



- **Inclusiveness**



- **Granulation (Modularization)**

Education 4.0 – What's going on?

- Industry 4.0 brings new and quick challenges to society at large – from world of work (disappearance of old jobs, rise of new jobs) to everyday life (utilization of digital resources)
- Traditional HE models have to change to address those new challenges – embedding new skills (for new jobs) and enhance delivery model (adopt to dynamic ecosystem change)
- Colleges and Universities will not remain the exclusive gate-keepers of education & certification anymore – new players are getting into game
- Demand for open and flexible models of education is growing and gaining recognition (by employers, learners and society at large) as valid and valuable
- New Learners - Millennials & Generation Z, as digital natives, seek alternative sources of knowledge and modes of learning, utilizing them for own growth
- Colleges and Universities have to re-invent the "student-centered" concept to include new reality ("person-centered" or "learner-centered"), by supporting life-long & life-wide learning

*) Ehlers, Ulf. -D., Kellermann, Sarah A. (2019). Future Skills - The Future of Learning and Higher education. Results of the International Future Skills Delphi Survey. Karlsruhe
**) Godsman, F. (2018). Change is Inevitable – It's Time to Disrupt the Higher Education System. In Davey, T., Meerman, A., Orazbayeva, B., Riedel, M., Galan-Muros, V., Plewa, C & Eckert, N. (ed.) The Future of Universities Thoughtbook. University Industry Innovation Network

Education 4.0 – Where it will take us?

Emerging focus on future skills / Multi-institutional collaborative models / Personalization of curriculum / Additional emphasis on higher life-long & life-wide learning*

Businesses will work much more on reskilling & upskilling of the current workforce to align their competence with the future of work, and unleash their full potential in order to secure competitive advantage; opportunity for universities to support the process**

The acquisition of knowledge will not be the main purpose any more – strong shift towards knowledge application

More cross-disciplinarity and collaborative work in order to empower learners to respond to major societal and work-related changes (e.g. aging population, job complexity etc.)***

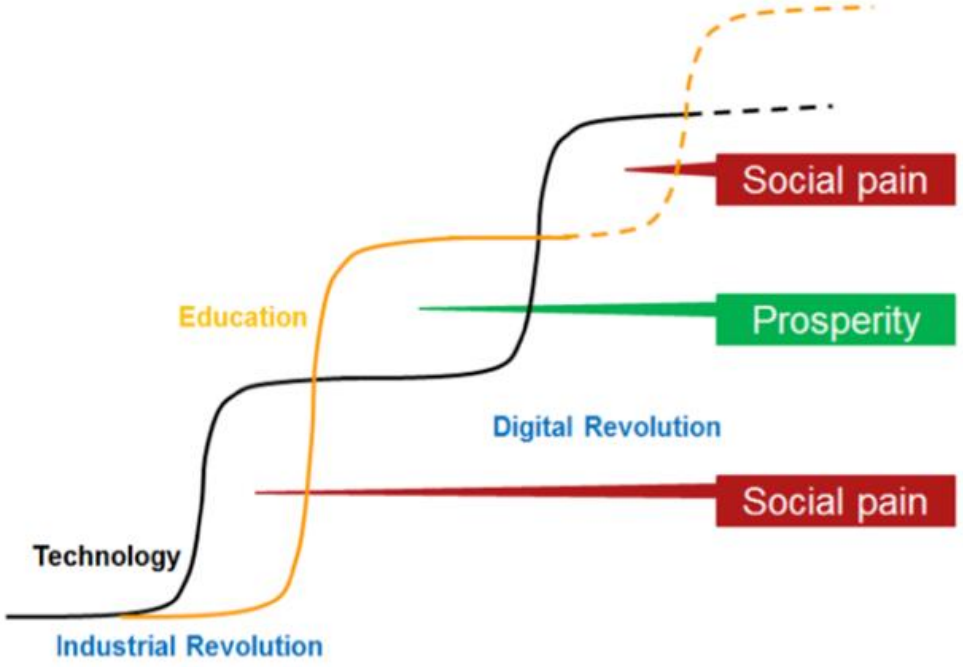
*) Ehlers, Ulf. -D., Kellermann, Sarah A. (2019). Future Skills - The Future of Learning and Higher education. Results of the International Future Skills Delphi Survey. Karlsruhe
**) WEF (2018). The Future of Jobs Report. Centre for the New Economy and Society, World Economic Forum
***) Godsman, F. (2018). Change is Inevitable – It's Time to Disrupt the Higher Education System. In Davey, T., Meerman, A., Orazbayeva, B., Riedel, M., Galan-Muros, V., Plewa, C & Eckert, N. (ed.) The Future of Universities Thoughtbook. University Industry Innovation Network

Industry 4.0 & Education 4.0

Do they communicate enough and who leads the change ?

Industry 4.0 & Education 4.0 – Who leads ?

“Industrial revolutions” have been always triggered by technical innovation, but Education was always actively involved in spinning and empowering technological, economic and societal transformation



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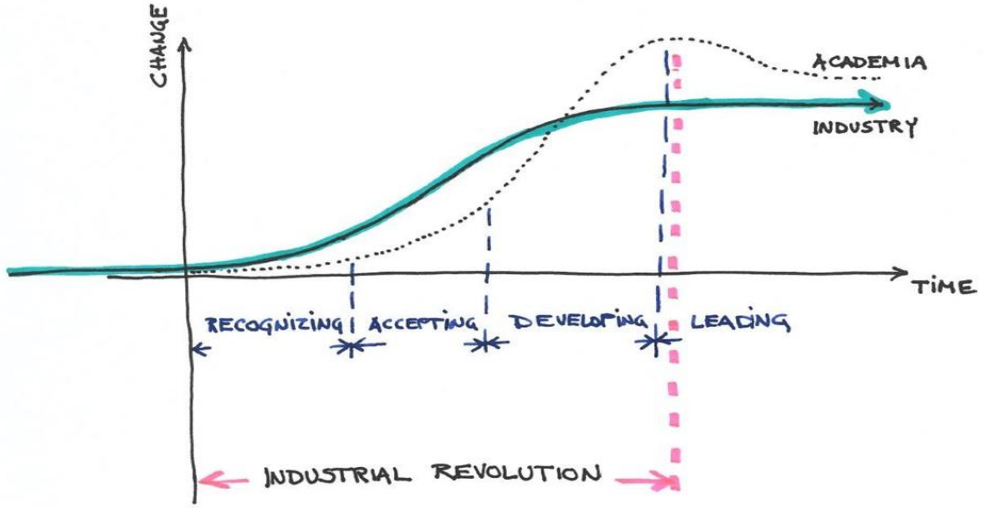

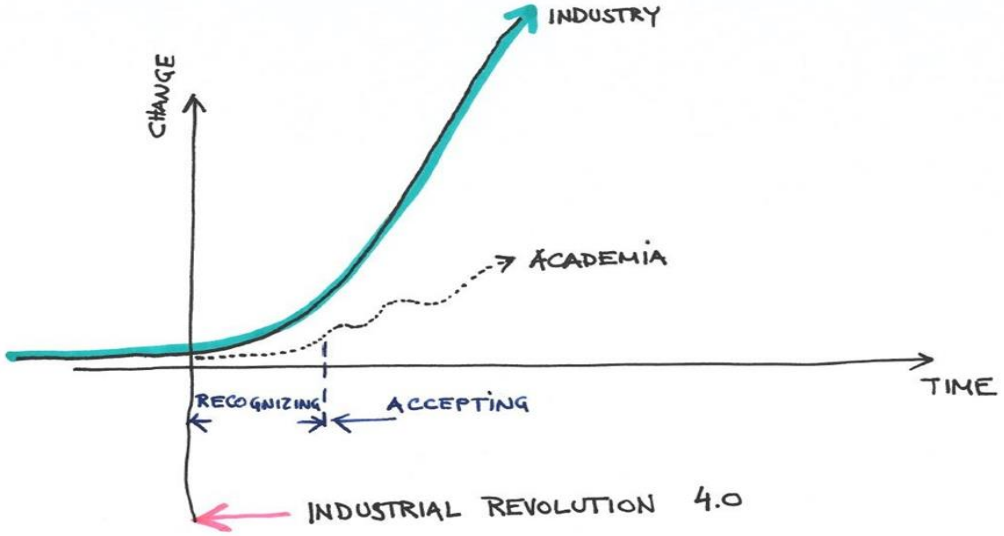

*) Fadel, C., Bialik, M & Trilling, B. (2015). Four-Dimensional Education – The competences learners need to succeed. Center for Curriculum Redesign

Industry 4.0 & Education 4.0 – Influencing

Shorter-term cycle:

- Driven by industry prompt demand (seeking competitive advantage), learners (seeking job security) and technology development
- Comprising various education experiences (theory, workshop, workplace, real-life etc.)
- Breaking real-life barriers (time spent working and carrying for family, money) and enabling flexible career progression and dynamic transition (life-long, life-wide)
- Stackable, may be accumulated towards degree/qualification/”macro-credential”
- Various categories of providers:
    - HE Institutions
    - Online Platforms
    - Companies
    - Professional Associations
    - Associations of Leisure
    - Social Media *

*) Van der Hijden, P. (2019). Digitization of Credentials: Quality of Shorter-Term Educational Experiences. CHEA/CIQG Publication Series

Industry 4.0 & Education 4.0 – Influencing

Competence-based education:

- Driven by industries'-specific skillset requirements
- Providing personalization of content, delivery method and pace
- Embedding digitally-driven learning (remote, online, e-learning) and certification
- Curriculum may include knowledge, skills and/or attitudes & values
- Emphasis on transferable (core, employability, generic) component
- Softening boundaries between Higher Education (HE) & Technical and Vocational Education and Training (TVET)
- Simplifying career top-ups (less attendance-related rigor)

Why Micro-Credentials & Digital Badges ?

What are Micro-Credentials?

A certification of assessed learning that is additional, alternate, complementary to or a formal component of a formal qualification*

- Easily adaptable to learners pace and place (including learning method)
- Reference to short courses on-site (classroom, workplace) or online (e.g. MOOCs) or combined
- Assessed learning may be formal / non-formal / informal (experiential) or combination
- De-stressing formal qualification system and simplifying Recognition of Prior Learning (RPL)
- Breaking HE monopoly by introducing employers as providers
- Delivery may be scheduled, self-paced or intense (e.g. boot camps)
- Completion may result by awarding formal credits, issuing digital badges, licenses or certificates etc.
- Mitigating current higher education risks and concerns regarding employment, capabilities of graduates, costs, completion rates and measuring education success

*) Oliver, B. (2019). Making micro-credentials work for learners, employers and providers. Deakin University

Types of Micro-Credentials

Credit-Bearing Micro-Credentials

- Include assessment aligned to a formal qualification level*
- Mirror and contribute to the academic standards required in the target qualification(s)*
- Stackable, and may be accumulated towards full degree or qualification
- New wave of MOOC-based degrees on global platforms is emerging and micro-credentials are utilized as admission and/or credit mechanism *
- Massive growth through MOOCs (101M students, 900+ Universities, 11.4K courses)**
- Enabling validation of prior learning and access to formal (academic and vocational) education to non-privileged groups (e.g. low socio-economic status, refugees etc.)***
- Stronger calls for industry integration (real world projects, academic credit for job experience, employer validation of curriculum, assistance in validation credential authenticity, more rigor in QA)****

*) Oliver, B. (2019). Making micro-credentials work for learners, employers and providers. Deakin University
**) Shah, D. (2018), 'By The Numbers: MOOCs in 2018', Class Central.
***) Villalba-Garcia, E. & Chakroun, B. (2019) RVA that counts: What data do we need to nurture recognition, validation and accreditation of prior learning? Global Inventory of Regional and National Qualifications Frameworks 2019, Volume I: Thematic chapters. UNESCO Institute for Lifelong Learning (UIL) et al. Italy: 45–59.
****) Gallagher, S. R. (2018) Educational Credentials Come of Age: A Survey on the Use and Value of Educational Credentials in Hiring, Boston

Types of Micro-Credentials

Non-Credit-Bearing Micro-Credentials

- Simpler to develop, easier to deliver
- Include assessment which may or may not be aligned to a formal qualification level*
- Not related with Qualification Frameworks
- Not cumulative, but may be transferable through Recognition of Prior Learning (RPL)
- May be delivered as value-add programs during degrees
- Not dependable on learners' age
- Utilized in professional development and Implemented by Professional bodies for licensure and certification purposes

*) Oliver, B. (2019). Making micro-credentials work for learners, employers and providers. Deakin University

What are Digital Badges?

Digital Badges are digitally validated indicators of accomplishment, skill, quality, or interest

- Two major Digital Badge types:
  - Accomplishment / Achievement badges (attended event, prize at competition, completed course)
  - **Competency / Skill badges (digitally signed micro-credentials – authentic assessment included)**
- May be earned in variety of learning environments (including HE)
- Granular, Stackable, Evidentiary, Personalized, Machine-readable*
- Portable, Useful, Transferable, Easily understood**
- The characteristics of the new ecosystem:
  - Demonstration of acquired skills and knowledge more important than where or how the learning occurred
  - Learners are the owners of their digital credentials and have control over dissemination (e-portfolios)**

*) Oliver, B.(2016). Better 21C Credentials. Evaluating the promise, perils and disruptive potential of digital credentials. Deakin University
**) ICDE Working Group (2019). The Present and Future of Alternative Digital Credentials (ADCs), International Council for Open and Distance Education Report

HE adopting Digital Badges

Mind-Shift

- Digitization of learning experience (Learning Management Systems, online learning)
- Linking evidence to competence certificate (e-portfolio / digital badge)
- Validation of badges earned elsewhere (RPL)
- Shifting ownership of e-portfolios from institution to learner (mobility, transferability, employability)
- Avoiding common mistakes (by doing the following):
    - Implement badging issuance platform (don't issue badges manually)
    - Issue badges based on authentic, assessed evidence
    - Issue meaningful badges only
    - Directly deposit earned badges on learners' accounts (with links)
    - Make badges open and accessible for all (take them out from LMS)
    - Include badges into the portfolio (e-portfolio, LinkedIn etc.)
    - Link badges with employability-related skills and competences*

*) Markovitz, T. (2018). The Seven Deadly Sins Of Digital Badging In Education, www.forbes.com

Micro-Credentials & Digital Badges

Influence	Challenges
Disrupting education industry by making products and services more accessible and affordable to a broader population*	
Utilizing digital ecosystem	Implementing lifelong learning accounts; catalyzing recognition of the prior learning
Utilizing Artificial Intelligence in education**	
AI-in-education policies; Education management and delivery; Empowering teaching and teachers; Learning and learning assessment; Developing values and skills for life and work in the AI era; Offering lifelong learning opportunities for all	Ensuring ethical, transparent and auditable use of data and algorithms; Monitoring, evaluating and researching impact
Re-designing credentialing ecosystems	
Use – learners / Provide – delivery / Award – curriculum & hosting / Quality Assure – evidence, authentication & trust / Evaluate – align with needs (occupations, QF) / Verify - accreditation / Convene – dissemination***	Additional shift to user-centricity; openness and transparency; data protection; ownership – qualifications as a public good

*) Oliver, B. (2019). Making micro-credentials work for learners, employers and providers. Deakin University
**) UNESCO (2019). Planning Education in the AI Era: Lead the leap, International Conference on Artificial Intelligence and Education. Final Report, Beijing
***) Keevy, J. & Chakroun, B. (2019). Beyond qualifications as we know them today: Digital credentials and interoperability. Global inventory of regional and national quali¬cations frameworks 2019, Volume I: Thematic Chapters, European Centre for the Development of Vocational Training, European Training Foundation, United Na-tions Educational, Scientific and Cultural Organisation, and UNESCO Institute for Lifelong Learning

Looking forward - brainstorm

Substituting or Supplementing existing HE models ?

Looking forward – Three Possible Future Scenarios*

QUALITY OF LIFE

PRESENT

Education globally connected - open access to all
Education personalized, decentralized and directly connected to the World of Work
The global "classroom" as a virtual 4D representation of the physical world
Digital educational platforms allow flexible, adaptive, transformative and transdisciplinary learning
Learning possible from anywhere and at any time
Robots using machine learning and AI educators
Knowledge and learning delivered 'just-in-time' and on demand, and not 'just-in-case"

40% of jobs automated but without sufficient creation of new types of jobs
A complete adoption of social robotics and AI as caretakers of work, government and financial systems
Humans shift from finding meaning in work to seeking passion and purpose-oriented lifestyles
Loss of technical knowledge due to over-reliance on AI and robotics as educators
Personalized and open education models customized to enhance natural talents and competencies
Literacy is defined solely as the capability to be technologically savvy
Move towards open learning platforms

Education controlled by government assigning areas of study based on students' aptitude and genetics
Education is subject to nationalistic approaches to technological adoption and extreme social engineering
Governments crack down on open internet access due to potential for subversive behavior
Virtual education learning platforms magnify the gap between the "haves" and "have nots"
People are judged on their social credit score scrutinizing individual values, behaviors, consumption etc.
Virtual environments are used as launch pads for physical, political and economic backlash
Individuals experience a world that is closed educationally

FUTURE

*) HCT 4.0 Institutional Strategy 2019-2021

Looking forward – **Substituting** ?

Scenario: Transformative / Market / Fortress

Impact on Current Higher Education Model: High / Medium / Low

Predictability : High / Medium / Low

Future role of Micro-Credentials and Digital Badges? Decrease / Stabile / Increase

Comments:

Looking forward – **Supplementing** ?

Scenario: Transformative / Market / Fortress

Impact on Current Higher Education Model: High / Medium / Low

Predictability : High / Medium / Low

Future role of Micro-Credentials and Digital Badges? Decrease / Stabile / Increase

Comments:

Takeaways ?

What	How
Micro-Credentials implementation	
Market (demand and supply)	
Regulation (QF & QA)	
Digital Badges implementation	
Mind-shift at HE	
Utilization for employment	
Other	

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