

# NEXT

# GENERATION

## BY DESIGN



## NGBD 2020 Symposium Series

### Comparative Taxonomy Management

12 May 2020

# NEXT GENERATION

BY DESIGN



Hi collabora:

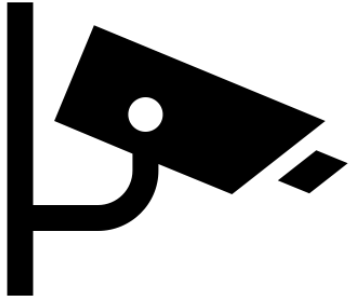


Dr. Antoni Perez-Navarro

Deputy Director of Research at eLearn Center (UOC)

# Remember!

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Sessions are  
being recorded

# Next Generation By Design

## VISION

- Global network
- Shift the Market to enable Plug and Play - Choice-Based
- Specific problems → market relevant solutions
- Targeted collaboration
- Knowledge transfer
- Development and Deployment



# 2 previous editions



1<sup>st</sup> Edition. 2018  
Palau Macaya



2<sup>nd</sup> Edition. 2019  
Palau Macaya

# 3rd Edition!

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# Host



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# Host

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BÜNDNIS FÜR BILDUNG



EduCloud Alliance



# NGBD Webinar Series Schedule

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Webinars	Title	Date
Webinar 1	Comparative Taxonomy Management	Tuesday, 12th May, 2020
Webinar 2	Next Generation Education Systems	Tuesday, 19th May, 2020
Webinar 3	Exploring New Frontiers	Tuesday, 26th May, 2020

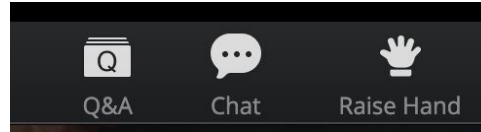
# Format of Each Session

Part		
Welcome	Host	~ 5 minutes
Presentations	Facilitator	Keynote ~ 20 minutes
		Panelist 1 ~ 10 minutes
		Panelist 2 ~ 10 minutes
		Panelist 3 ~ 10 minutes
Discussion	Facilitator	~ 15 minutes
Closing	Host	~ 5 minutes

# Comparative Taxonomy Management

Part		
Welcome	Host: Dr. Antoni Perez-Navarro	~ 5 minutes
Presentations	Facilitator: Dr. Dale Allen	Keynote: Dr. Borhene Chakroun (UNESCO) ~ 20 minutes
		Panelist 1: Matt Gee (Brighthive) ~ 10 minutes
		Panelist 2: Ingo List (Antares Project GmbH) ~ 10 minutes
		Panelist 3: Francesc Santanach (UOC) ~ 10 minutes
Discussion	Facilitator: Dr. Dale Allen	~ 15 minutes
Closing	Host: Dr. Antoni Perez-Navarro	~ 5 minutes

# Questions?

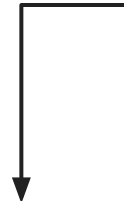


Raise hand

Ask in the Q&A



Facilitator will ask your question for you



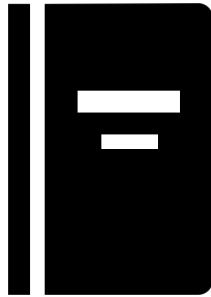
You ask your question

# And after the webinars?

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Recordings will  
be posted



Summary paper  
will be published

# Keynote: BORHENE CHAKROUN



- PhD in Education Sciences from Bourgogne University in France.
- 1990's:
  - Chief trainer and project manager
  - Consultant for the EU, World Bank and other international organisations.
- 2001: European Training Foundation (ETF)
  - Senior Human Capital Development specialist.
- Now: UNESCO-HQ
  - Director of Policies and Lifelong Learning Systems Division
  - Did:
    - Policy reviews and skills systems diagnosis in different contexts.
- Author and co-author of various articles and books about skills development and lifelong learning.
- Interest:
  - Global trends in reforming education and training systems
  - Global agenda for skills development in the context of the 2030 Sustainable Development Agenda.



United Nations  
Educational, Scientific and  
Cultural Organization

25 June 2019

Next Generation By Design

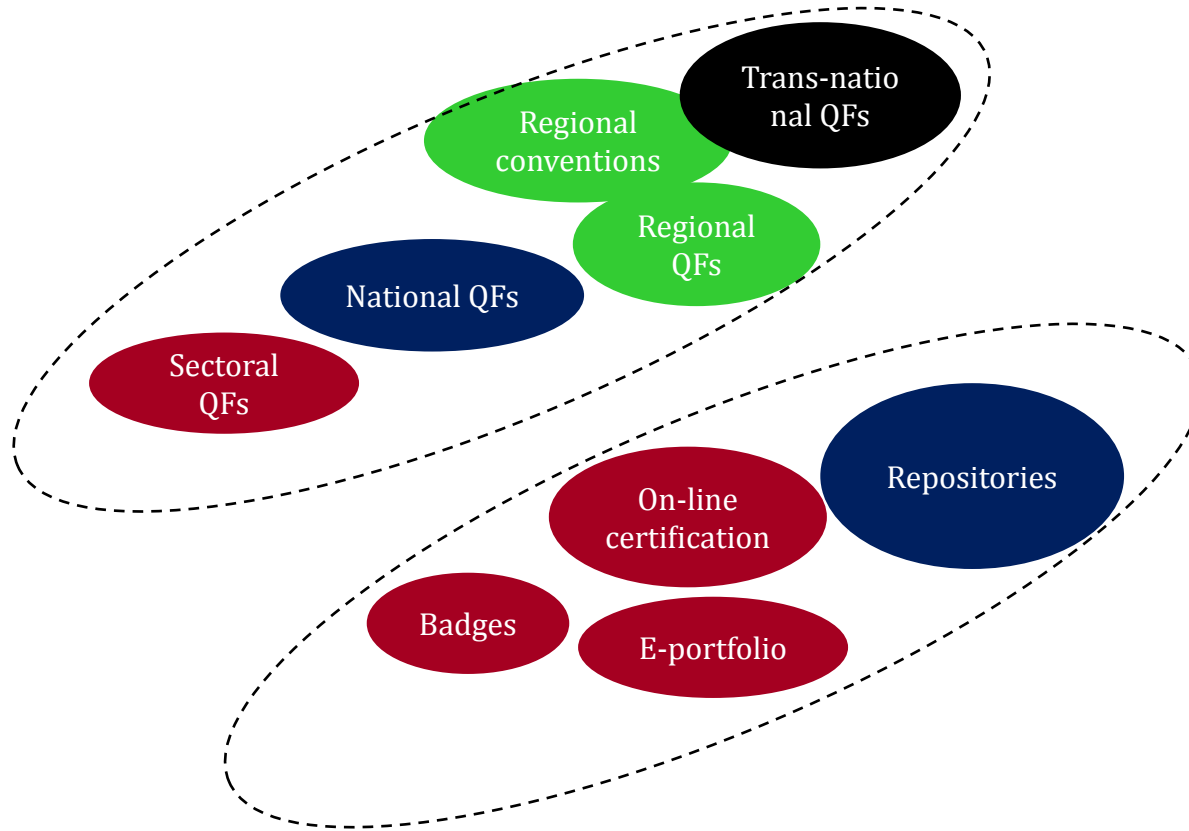
NGBD 2020 Symposium Series

# Futures of Taxonomies

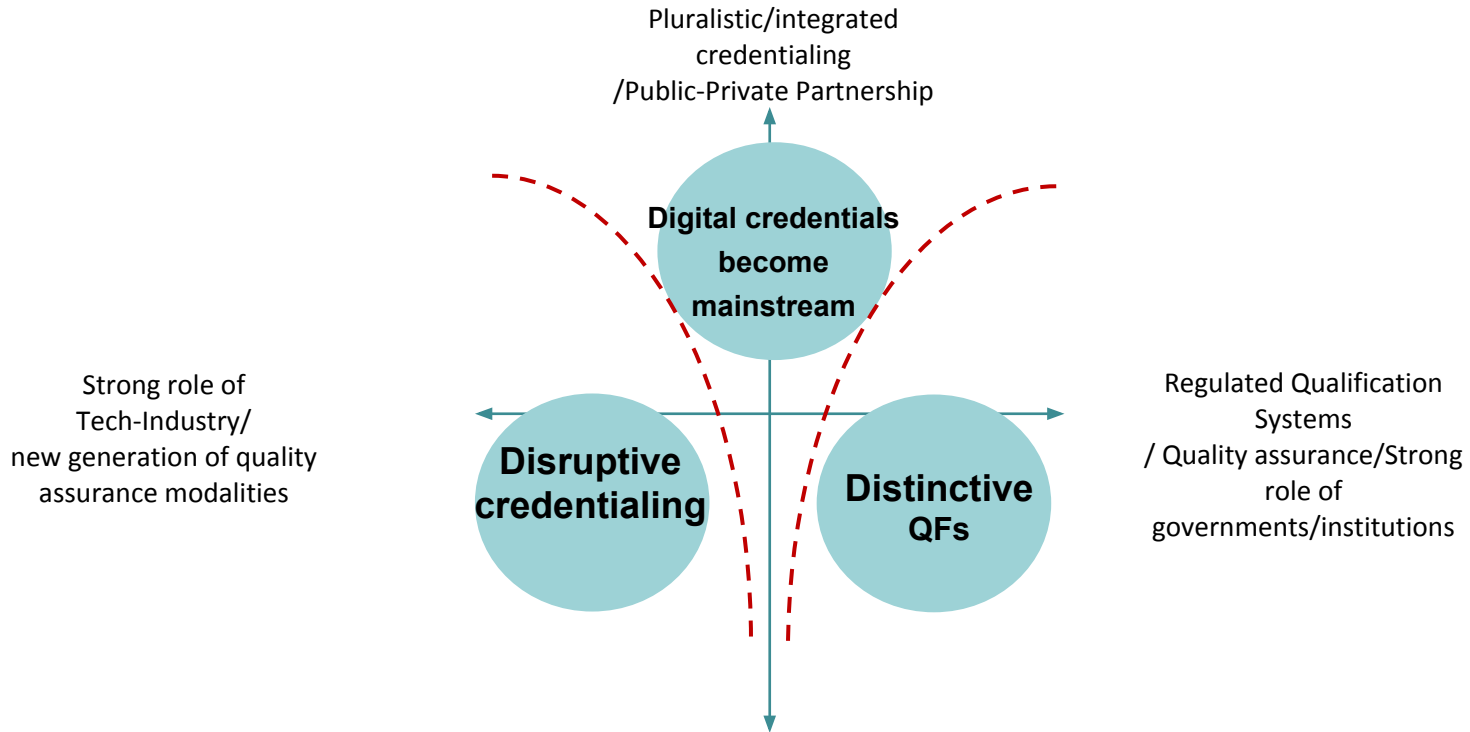
Borhene Chakroun

Director, Division for Policies and Lifelong Learning Systems

Education Sector, UNESCO

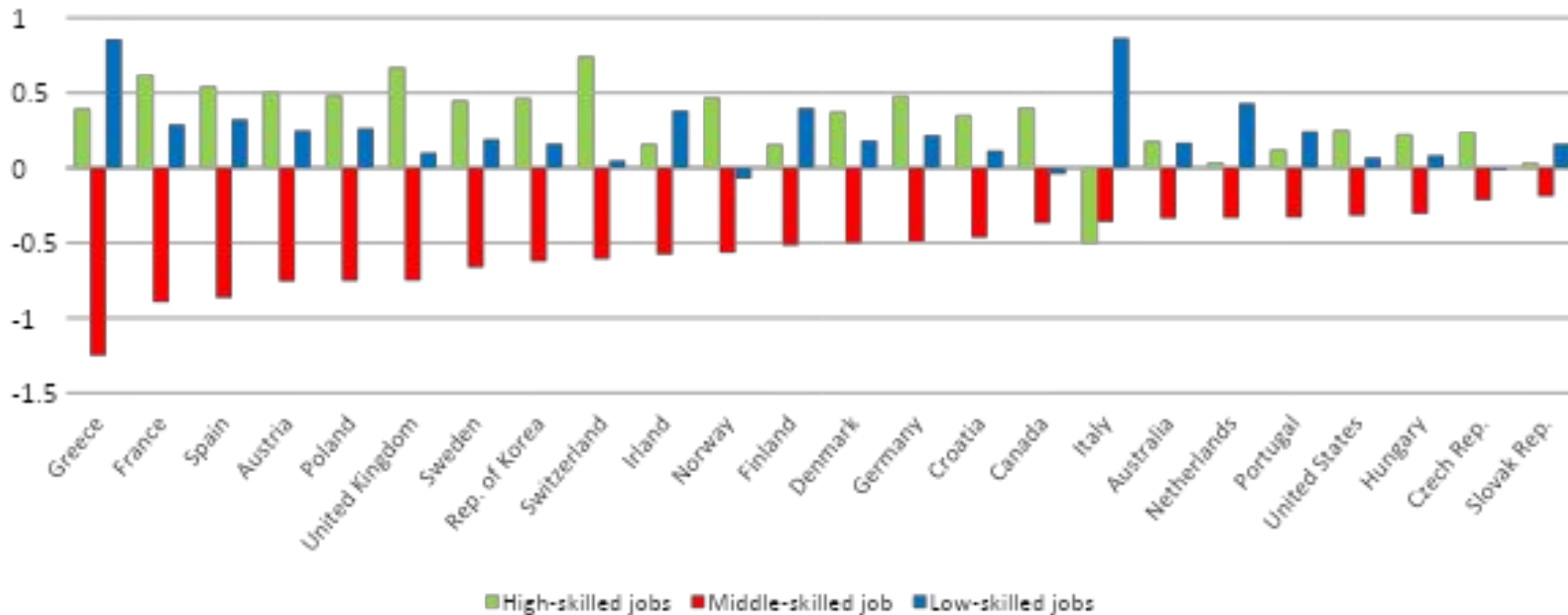




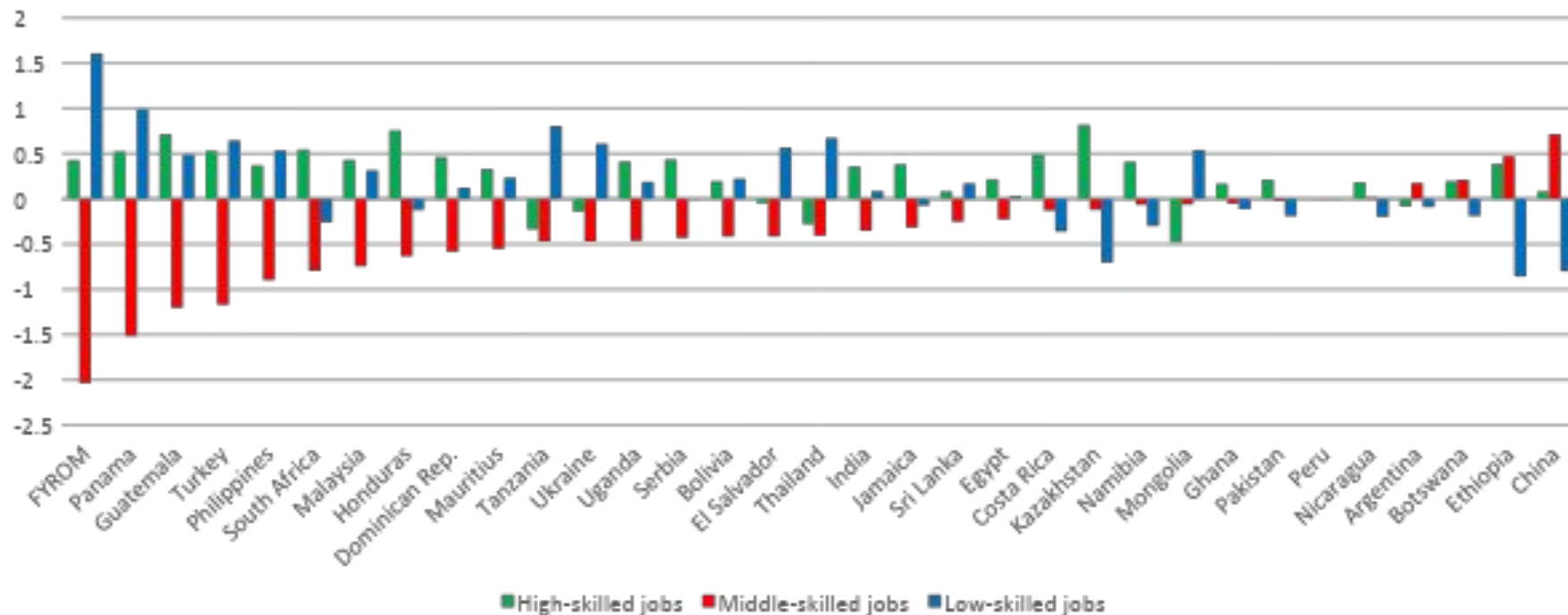


Source: Borhene Chakroun

Annual average change in employment share, 1995-2012 (% points)

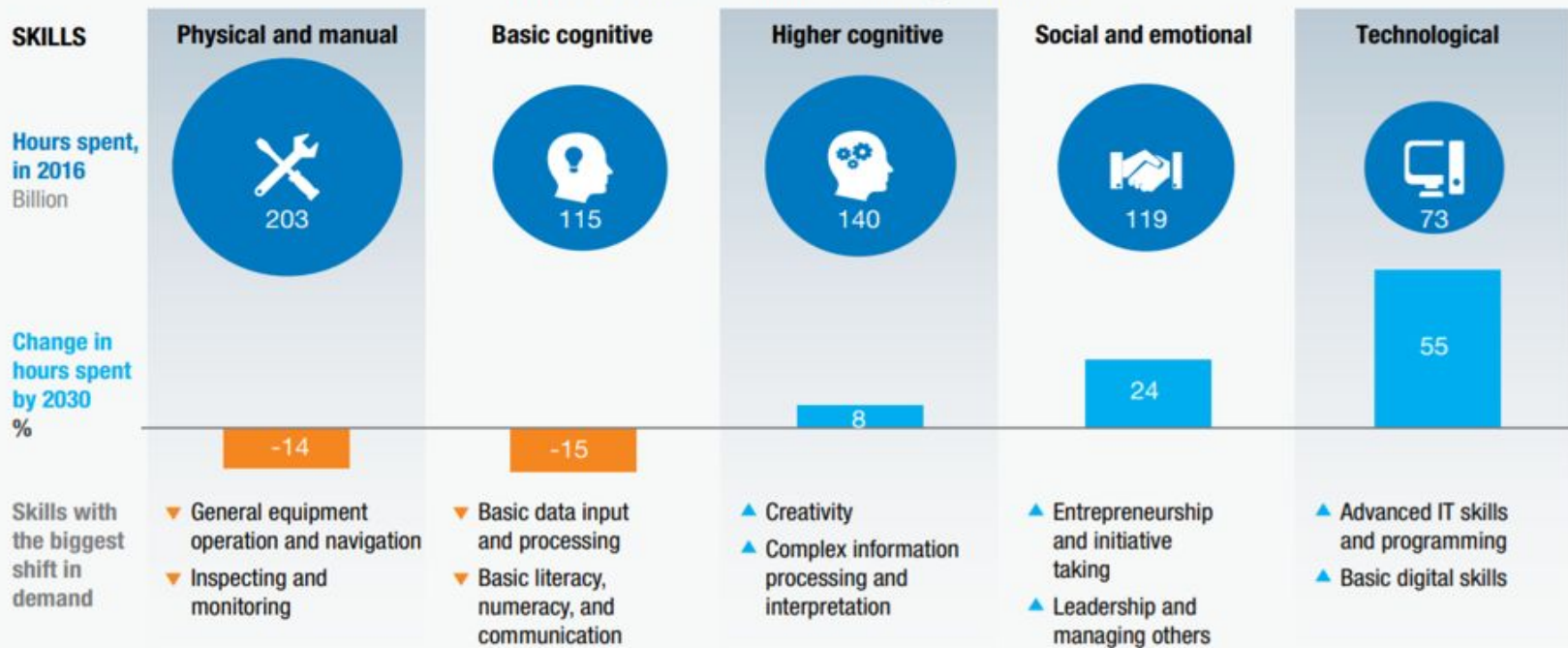


Annual average change in employment share, 1995-2012 (% points)

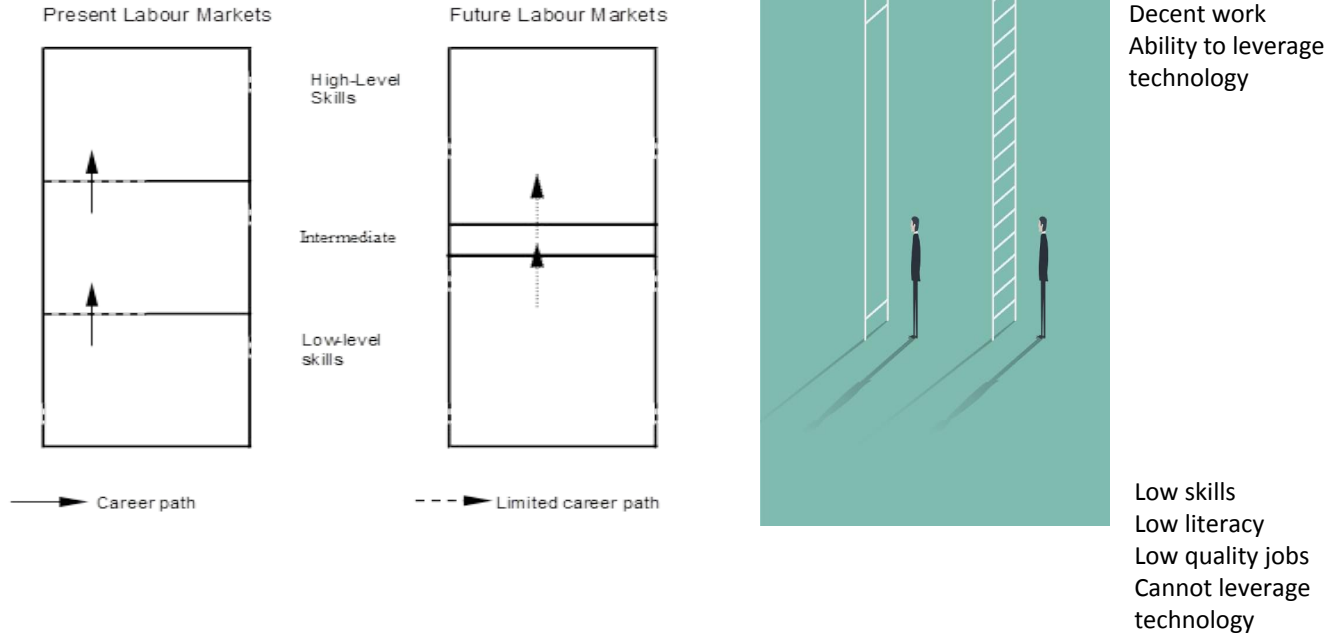


## Automation and AI will change the skills needed in the workforce

Total is for United States and 14 Western European countries



## Impacts of polarisation of labour market: Current trends suggest career advancement is harder for some than for others: Taking care of the bottom of the Pyramid



# Mapping the landscape

## International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4



International Standard Classification of Education

# ISCED 2011



United Nations  
Educational, Scientific and  
Cultural Organization

UNESCO  
INSTITUTE  
*for*  
STATISTICS

## ESCO



[BROWSE  
OCCUPATIONS](#)



[BROWSE  
KNOWLEDGE, SKILLS AND  
COMPETENCES](#)



[BROWSE  
QUALIFICATIONS](#)



CEDEFOP

Centre européen  
pour le développement  
de la formation professionnelle





- Focus on wider set of skills (job-specific; transversal skills; digital skills; Citizenship and sustainability skills)



- Organised by wide range of stakeholders including private sector, Edtech, etc.;



- Digital credentialing, credentials jungle, new generations of NQFs, Quality Assurance issues;



# The recognition of learning across boundaries is urgent and challenging

... AWARDING  
ORGANISATIONS

... HOLDERS OF  
CREDENTIALS



ACHIEVEMENTS



REQUIREMENTS

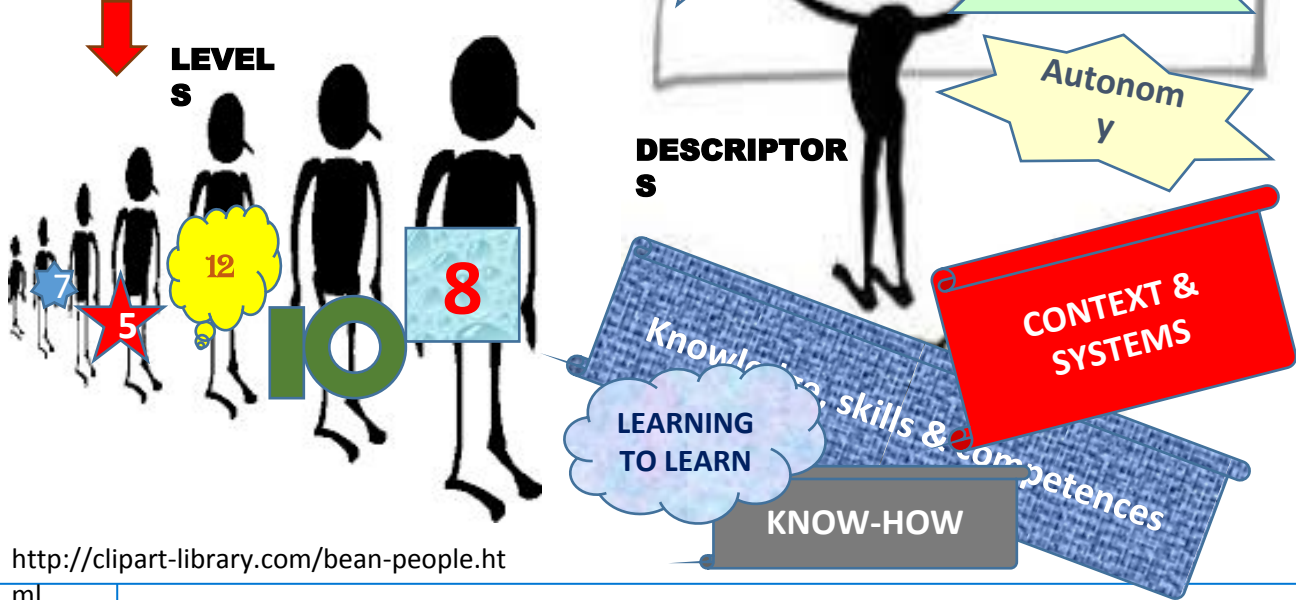


... EVALUATORS

... RECRUITERS

... GATEKEEPERS

Even to discuss international recognition, they have to deal with many different categories & levels of achievement.



...

## An international tool which

- establishes a common way of describing and comparing achievements with requirements
- is relatively detailed and can match to any descriptors or number of levels
- combines factual information, professional judgements & supporting evidence
- introduces consistent/uniform formats which do not require alterations to regional, national or local arrangements (enabling not regulatory)



<http://clipart-library.com/bean-people.html>

## Background paper

### CHAPTER 1.

#### WORLD REFERENCE LEVELS FOR LIFELONG LEARNING: A TOOL FOR COMPARISON AND RECOGNITION OF LEARNING OUTCOMES

John Hart, independent consultant, and  
Borhene Chakroun, UNESCO

<http://uil.unesco.org/lifelong-learning/recognition-validation-accreditation/global-inventory-regional-and-national>



Global inventory of  
regional and  
national  
qualifications  
frameworks 2019

Volume I:  
Thematic chapters



## Conceptual Analysis Of Hierarchical Outcomes-Based Structures (HOBS)

National Qualification Frameworks

Regional Qualification Frameworks

Sectoral Qualification Frameworks

**AND**

Competence Frameworks

Job Evaluation Systems

Job Specifications

Programme Entry Requirements

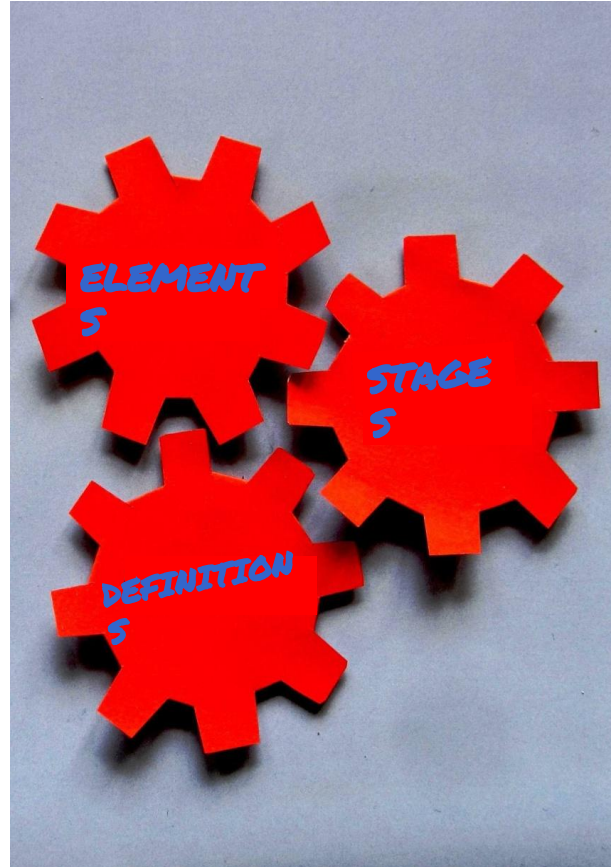
# The WRL Components

## “Elements of Capability”

*11 ways of describing achievement*

## “Indicators of Progression”

*Definitions of key terms (51 at present)*



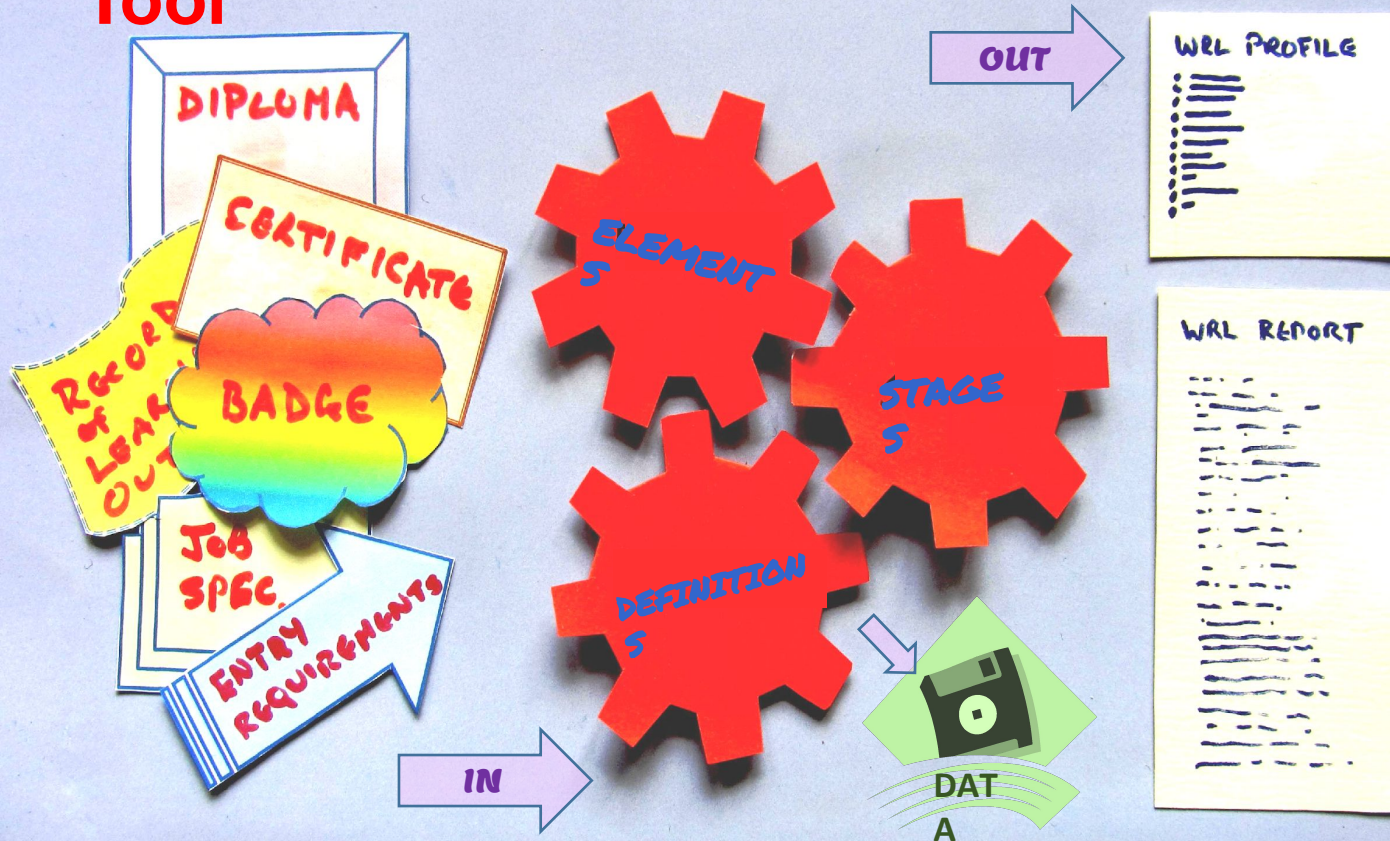
## “Stages of Progression”


*4x2 levels of achievement*





# Brought together in the WRL Digital Tool



A wide-angle landscape photograph featuring a long, straight asphalt road that recedes into the distance. The road is flanked by dry, brownish-yellow grassland. In the background, a range of rugged, jagged mountains with patches of snow and ice rises against a bright blue sky filled with soft, white clouds. The overall scene conveys a sense of vastness and a journey ahead.

**Where do we go from here?**

**Administrative Data**

**Survey Data**

**International Surveys  
Data**

**Skills assessment**

**Skills foresight**

**Skills forecasting**

**Tracer studies**

**Longitudinal studies**

**Opinions studies**



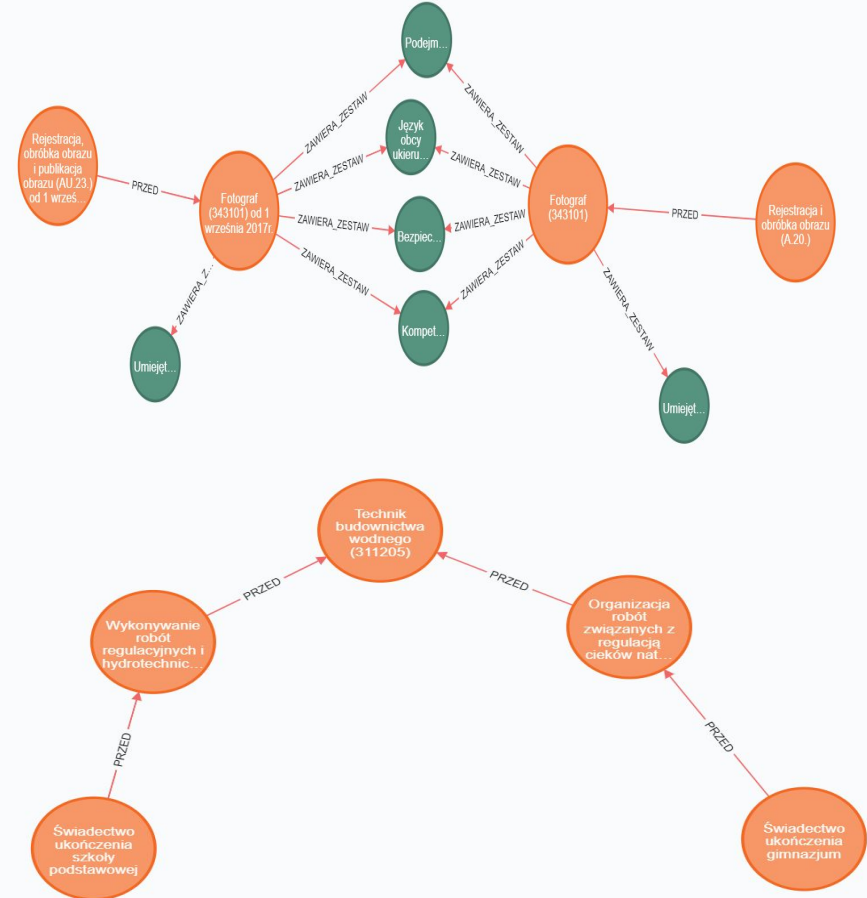
**CENTRAL REPOSITORIES**



**EXCHANGE NETWORKS**

- Single qualification representation
- 'Atomization' of learning outcomes
- Using 'skills objects' for comparisons
- Qualifications paths representation
- Visual comparison of qualifications
- Developing and calculating similarity indexes
- Qualifications similarity matrix

Source: Marcin Będkowski  
Wojciech Stęchły, 2019



- Individual pathways, supported by Artificial Intelligence;
- Digital Learners' records



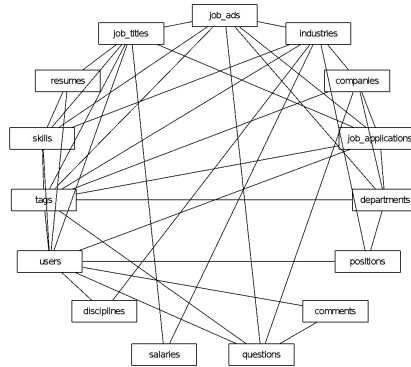
## Lifelong Learning Account System

The National Institute for Lifelong Education (NILE)

- Privacy and security, the ownership of learners' records, inclusivity;

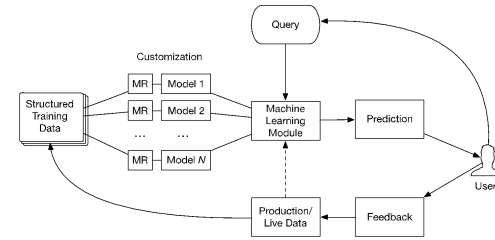


## Approach: Big data analytics and artificial intelligence (AI)



**Data Mining**  
Indexing data from multiple sources

**Statistical Analysis**  
Data cleaning and relational extraction



**Predictive Modelling**  
Customized model based on required context

Source:  
JobKred

## Option 1: Data integration

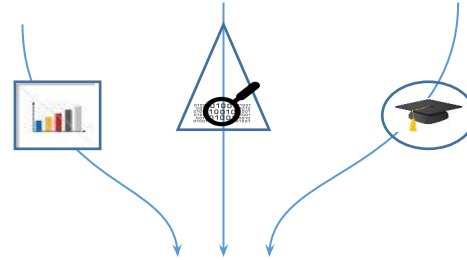
## Option 2: Using International Standards/Benchmarks

**Different Sources**

Occupation Standard    Curriculum    Qualification

No governance  
Voluntary processes  
Bottom-up approach

**Different data**



OR

Established governance lines, that link and coordinate countries and all the involved actors,

**Using Digital Technologies including translator to compare**

## Option 3: Emergence of new movement post COVID19

## 17 Sustainable Development Goals (SDGs)



**SDG 4 : Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**



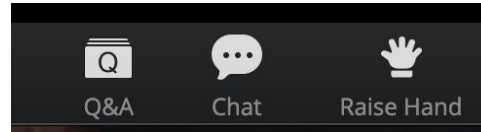
# Thank you

Borhene Chakroun

UNESCO

[b.chakroun@unesco.org](mailto:b.chakroun@unesco.org)

# Questions for the Keynote

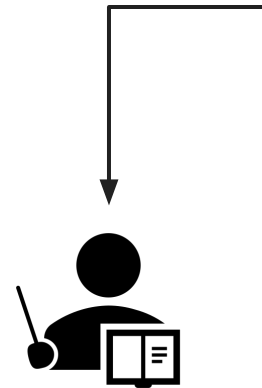


Raise hand

Ask in the Q&A



You ask your question



Facilitator will ask your question for you



Unlock your digital information. Unleash *their* potential.

Dale Allen, PhD  
President and Co-Founder  
[dallen@DXtera.org](mailto:dallen@DXtera.org)

# Panel of Innovators

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**Matt Gee**  
*Founder & CEO*  
Brighthive



**Ingo List**  
*Founder & CEO*  
Antares Project  
GmbH



**Francesc Santanach**  
**Delisau**  
UOC



**Matt Gee**  
*Founder & CEO*  
**Brighthive**

# Skill Taxonomies, Knowledge Graphs, and Accelerating the Transition to a Skills-based Marketplace for Talent in the US

Matt Gee  
BrightHive CEO

DXtera NGBD Virtual Symposium May 12, 2020



**brighthive**

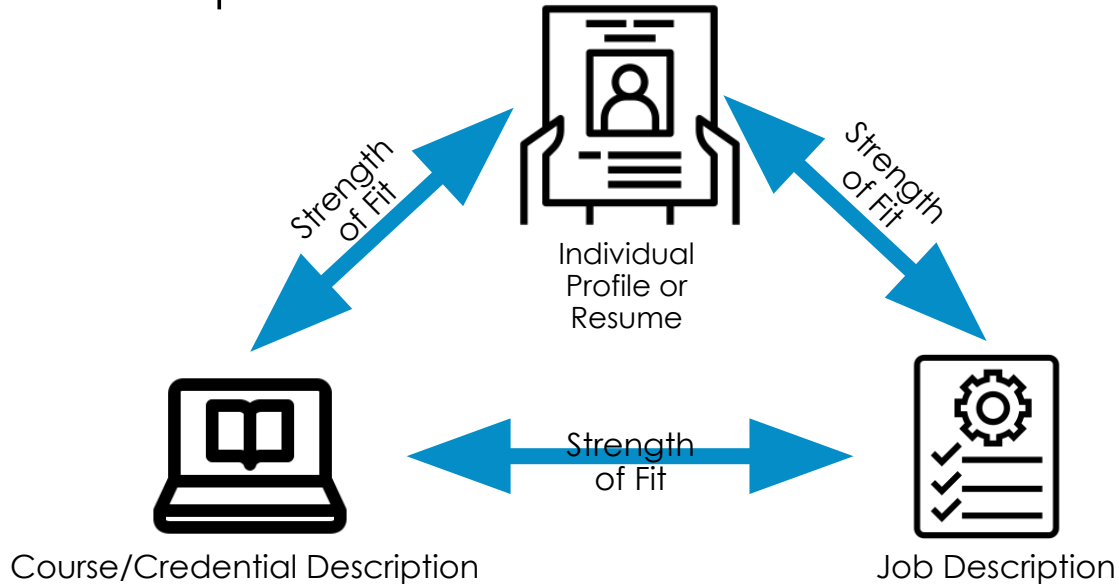
# SUMMARY

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- 1. The US is in the middle of a radical digital transformation of the talent marketplace to skills-based education and skills-based hiring**
- 2. Comparative taxonomy management is central to the this transition**
- 3. The Open Skills Stack Alliance is providing a new opportunity for collaboration among educational institutions, employers, government, and tech/data platforms**

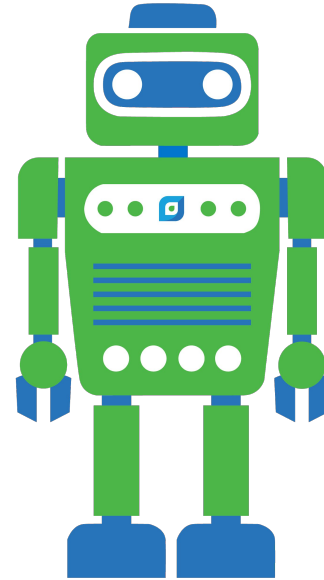
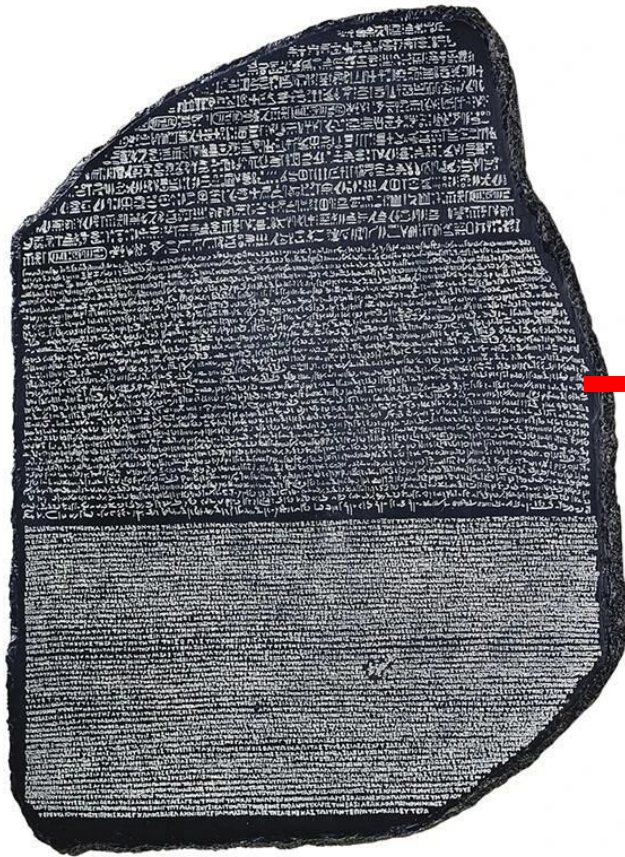
# The Fundamental Challenge of Skill & Competency Development and Translation

Assessing the strength of fit and structural relationship between two skills or competencies









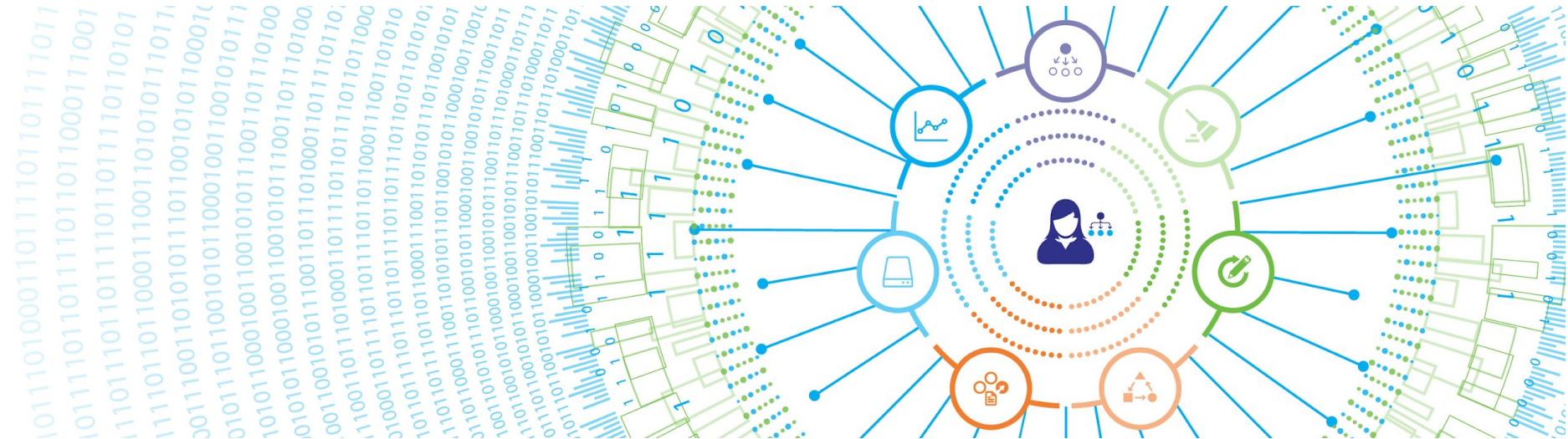
“python”

“scripting language”



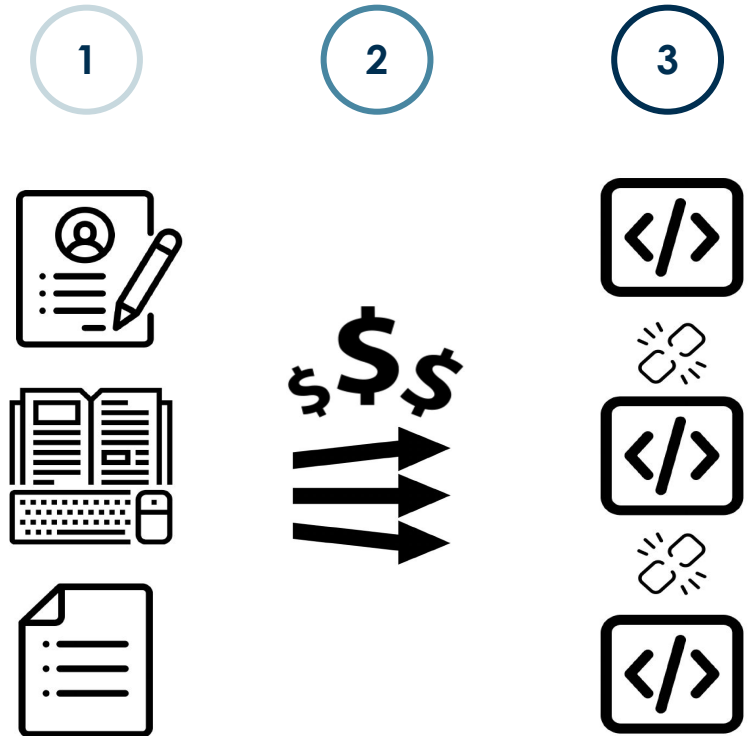
is\_a

# What will it take to create the open knowledge graph of skills?



# THE SKILLS DATA DISCONNECT

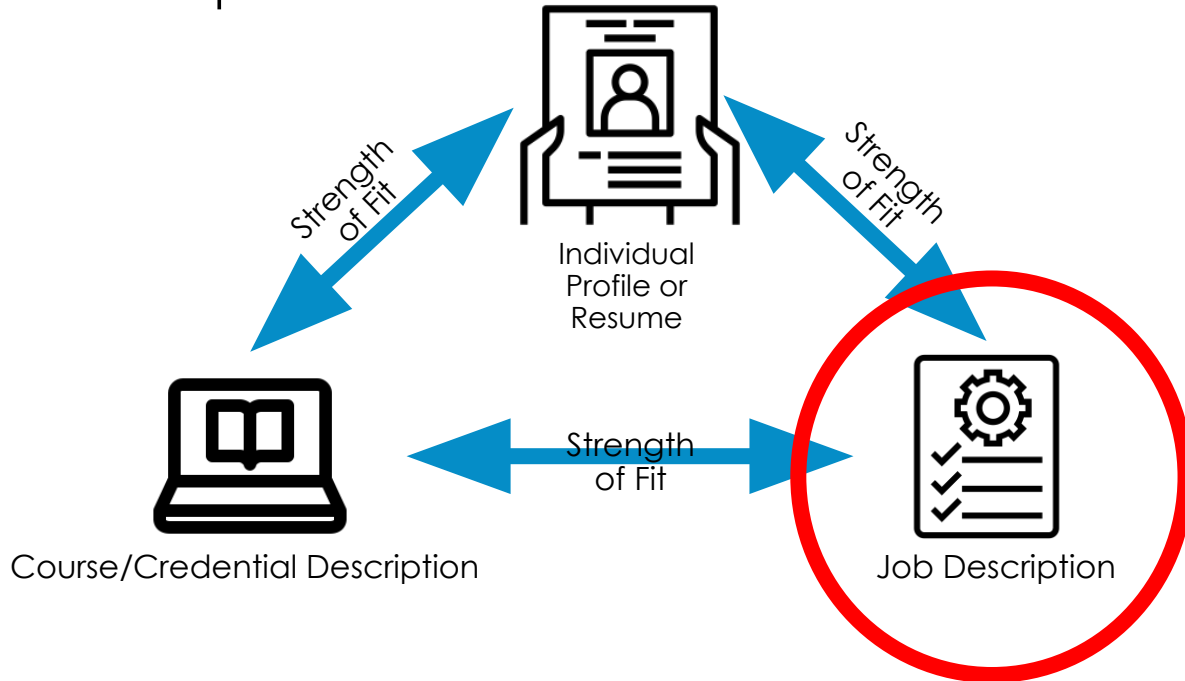
Share your organization's problem statement around skills data in the chat!



- 1 Almost all of the existing skills data are either **not accessible** or **not machine actionable**
- 2 **Too expensive** for most educational institutions and employers to manually make the switch to skills-based practices
- 3 Neither **EdTech** nor **HRTech** systems are designed around **skills** and aren't interoperable

# The Fundamental Challenge of Skill & Competency Development and Translation

Assessing the strength of fit and structural relationship between two skills or competencies





@USCCEducation

# Center for Education and Workforce

The place for business leaders to tackle the most pressing education and workforce challenges facing our country.



U.S. CHAMBER OF COMMERCE FOUNDATION



# TIPM

TALENT PIPELINE  
MANAGEMENT

A supply chain approach  
to closing the skills gap

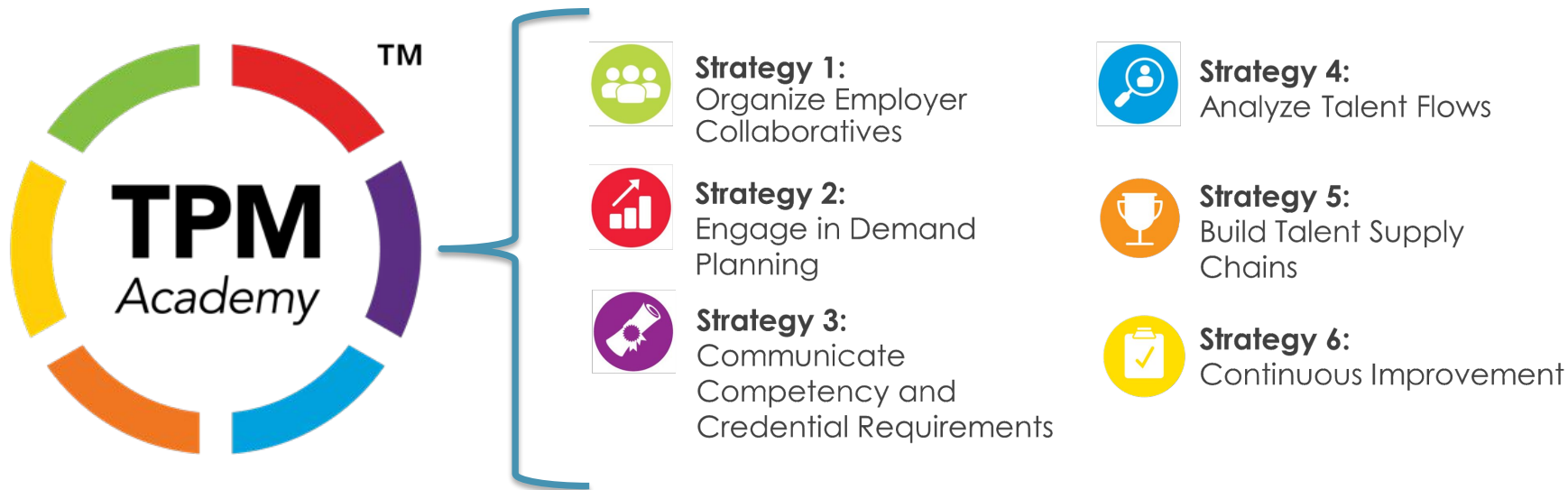


U.S. CHAMBER OF COMMERCE FOUNDATION  
Center for Education and Workforce

TIPM TALENT PIPELINE  
MANAGEMENT



JDx emerged from the TPM movement, a growing network of over 250 partner organizations in 28 states involving thousands of employers



# Fundamentals of Health Care Competency Model

## Tier 1 – Personal Effectiveness Competencies

### **1.1 Interpersonal Skills:** Displaying skills to work effectively with others from diverse backgrounds.

#### **1.1.1 Demonstrating sensitivity/empathy**

- 1.1.1.1 Show sincere interest in others and their concerns.
- 1.1.1.2 Demonstrate sensitivity to the needs and feelings of others.
- 1.1.1.3 Look for ways to help people and deliver assistance.

#### **1.1.2 Demonstrating insight into behavior**

- 1.1.2.1 Recognize and accurately interpret the communications of others as expressed through various formats (e.g., writing, speech, American Sign Language, computers, etc.).
- 1.1.2.2 Recognize when relationships with others are strained.
- 1.1.2.3 Show understanding of other's behaviors and motives by demonstrating appropriate responses.
- 1.1.2.4 Demonstrate flexibility for change based on the ideas and actions of others.

#### **1.1.3 Maintaining open relationships**

- 1.1.3.1 Maintain open lines of communication with others.
- 1.1.3.2 Encourage others to share problems and successes.
- 1.1.3.3 Establish a high degree of trust and credibility with others.

#### **1.1.4 Respecting diversity**

- 1.1.4.1 Interact respectfully and cooperatively with others who are of a different race, culture, or age, or have different abilities, gender, or sexual orientation.
- 1.1.4.2 Demonstrate sensitivity, flexibility, and open-mindedness when dealing with different values, beliefs, perspectives, customs, or opinions.
- 1.1.4.3 Value an environment that supports and accommodates a diversity of people and ideas.

### **1.2 Integrity:** Displaying strong moral principles and work ethic.

#### **1.2.1 Behaving ethically**

- 1.2.1.1 Abide by a strict code of ethics and behavior, even in the face of opposition.
- 1.2.1.2 Encourage others to behave ethically.
- 1.2.1.3 Understand that behaving ethically goes beyond what the law requires.

# JDX

## Job Data Exchange

The next generation of data  
on in-demand jobs, skills,  
competencies, and  
credentials



# The Problem

---



More dynamic,  
fast-paced labor  
market



Disconnect  
between employers,  
education partners,  
and job seekers



High costs of  
developing validated,  
competency-based  
job postings from  
scratch

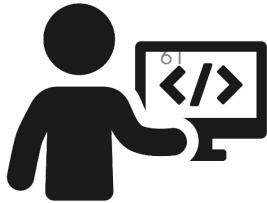


Increasing  
demands on HR  
professionals' time

## The Solution

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The JDX is a set of open data resources that support employers and their HR partners in signaling in-demand jobs and skills—and other hiring requirements—as structured, linked data on the open web.



Extend and  
improve the  
JobPosting Schema



Pilot test with  
employers and HR  
technology  
partners

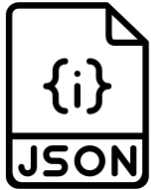


Send better, faster,  
clearer signals  
through the JDX

# What JDX Needs to Work

1

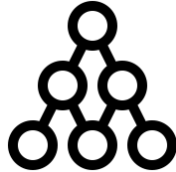
Structured,  
Linked Data for  
Jobs



JDX JobSchema+

2

Structured,  
Linked Data for  
Skills and  
Competencies



Open, machine-actionable  
skill and competency data

3

Translation and  
Validation Tools



Algorithms for skill and  
competency  
identification, translation,  
and recommendation

4

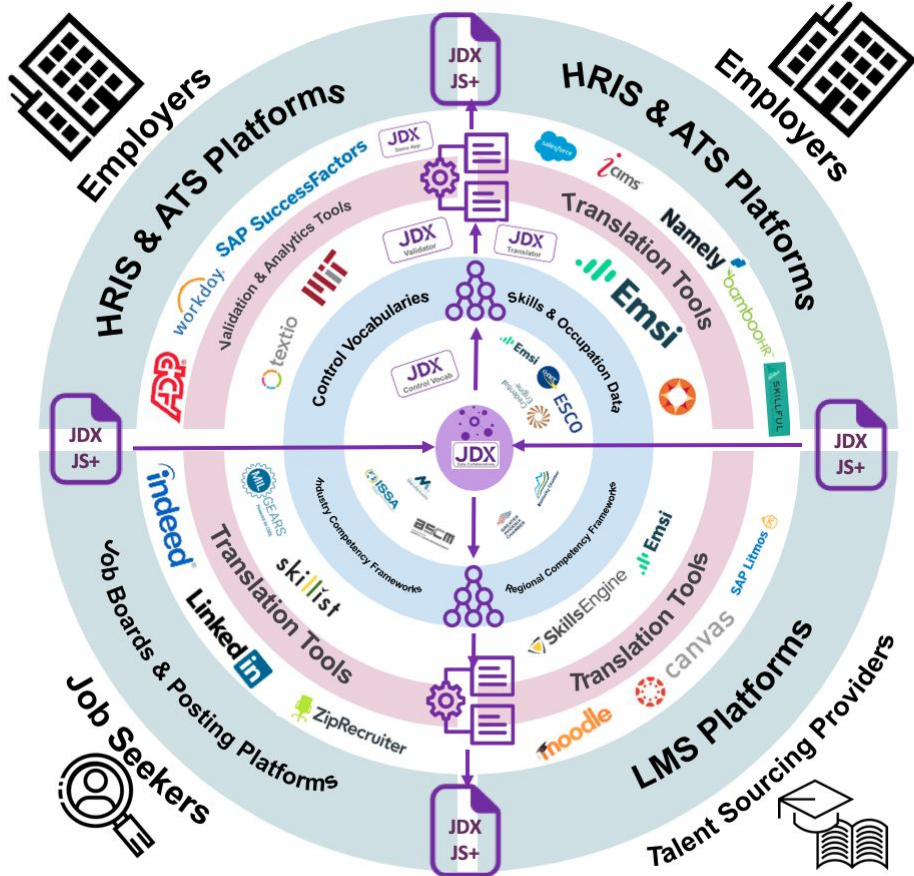
Network of JDX  
Applications  
and Users



Employers, educators and  
HRIS, ATS, LMS, CMS, LMI  
platforms



## Network of JDX Platforms and Applications



## Network of JDX Open Data Resources



## Network of JDX Translation, Recommendation and Validation Tools



## Network of JDX Data Collaboratives



Pooling and exchanging JDX jobs and competency data to provide feedback loops to competency frameworks and AI tools

**Note:** Organization logos are an example of the JDX future state and were not approved by each organization.

# T3 INNOVATION NETWORK

Building an open,  
public-private data and  
technology infrastructure  
for a more equitable talent  
marketplace



U.S. CHAMBER OF COMMERCE FOUNDATION  
Center for Education and Workforce

T3 INNOVATION  
NETWORK



# T3 Guiding Principles

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1. Focus on High-Impact Stakeholder Use Cases
2. Promote Web 3.0 Convergence
3. Foster Open Collaboration
4. Develop Open Technical Standards and Protocols
5. Utilize Open Competency Frameworks, Taxonomies, and Ontologies
6. Empower Individuals and Enable Self-Sovereign Identify and Data Management
7. Facilitate Open Data Access in Public-Private Data Infrastructure
8. Promote Ethical Practices and Equity Considerations




# T3 Projects

400+ organizations working together to build an open, distributed, public-private data and technology infrastructure for a more equitable talent marketplace

LINKED, INDIVIDUAL-LEVEL DATA



**PP9:** DATA COLLABORATIVES FOR INDIVIDUAL-LEVEL DATA



**PP10:** EMPOWERING THE AMERICAN STUDENT & WORKER

OPEN, SHARED, COMPETENCY INFRASTRUCTURE



**PP5:** COMPETENCY DATA EXCHANGE



**PP6:** COMPETENCY ANALYSIS AND TRANSLATION



**PP7:** LEARNING OUTCOMES EXCHANGE



**PP8:** PUBLIC-PRIVATE USE OF OPEN COMPETENCY DATA

COMPREHENSIVE LEARNER/WORKER RECORDS



**PP2:** EMPLOYMENT & EARNINGS RECORD STANDARDS



**PP3:** LEARNER RECORD STANDARDS

OPEN DATA STANDARDS



**PP1:** DATA STANDARDS HARMONIZATION

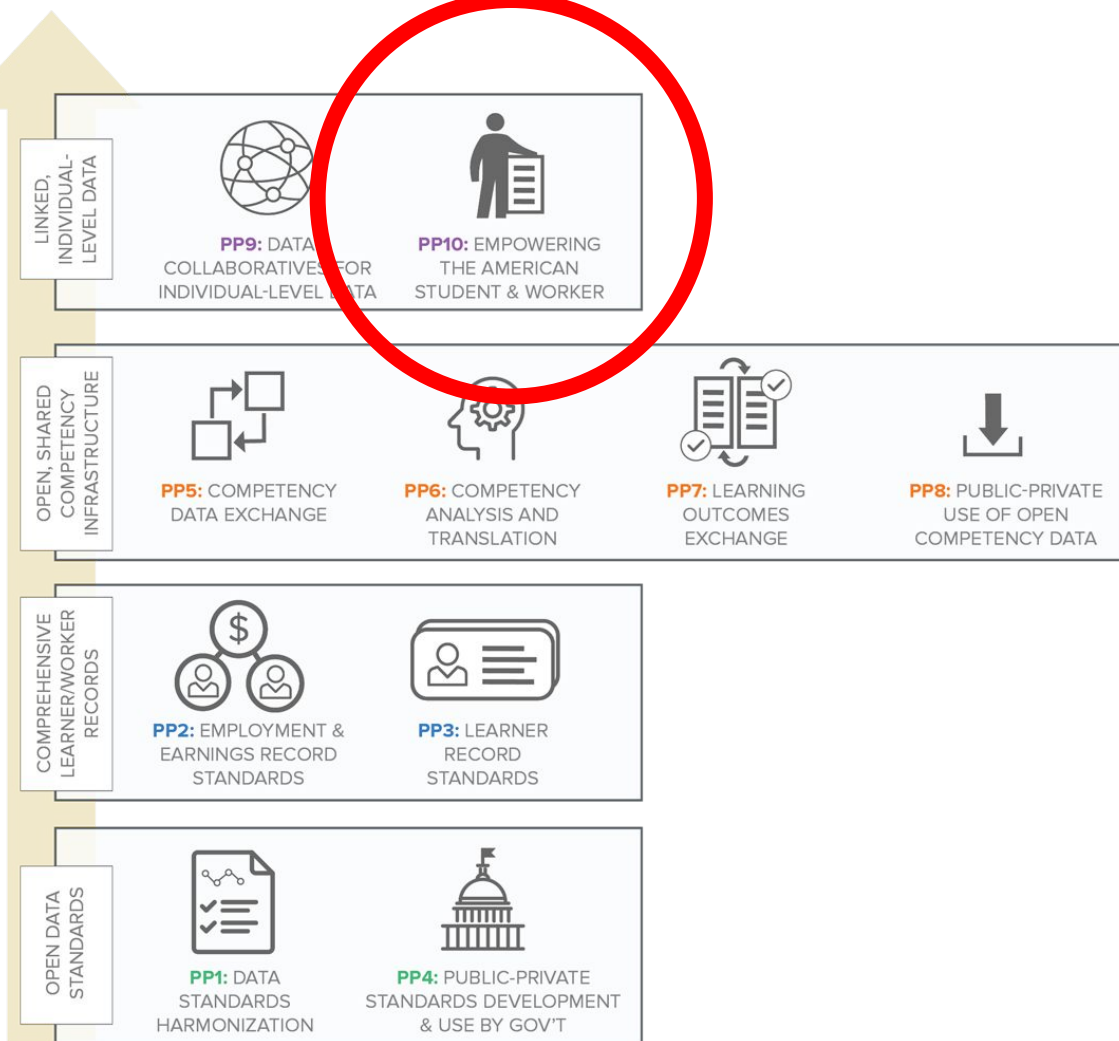


**PP4:** PUBLIC-PRIVATE STANDARDS DEVELOPMENT & USE BY GOV'T



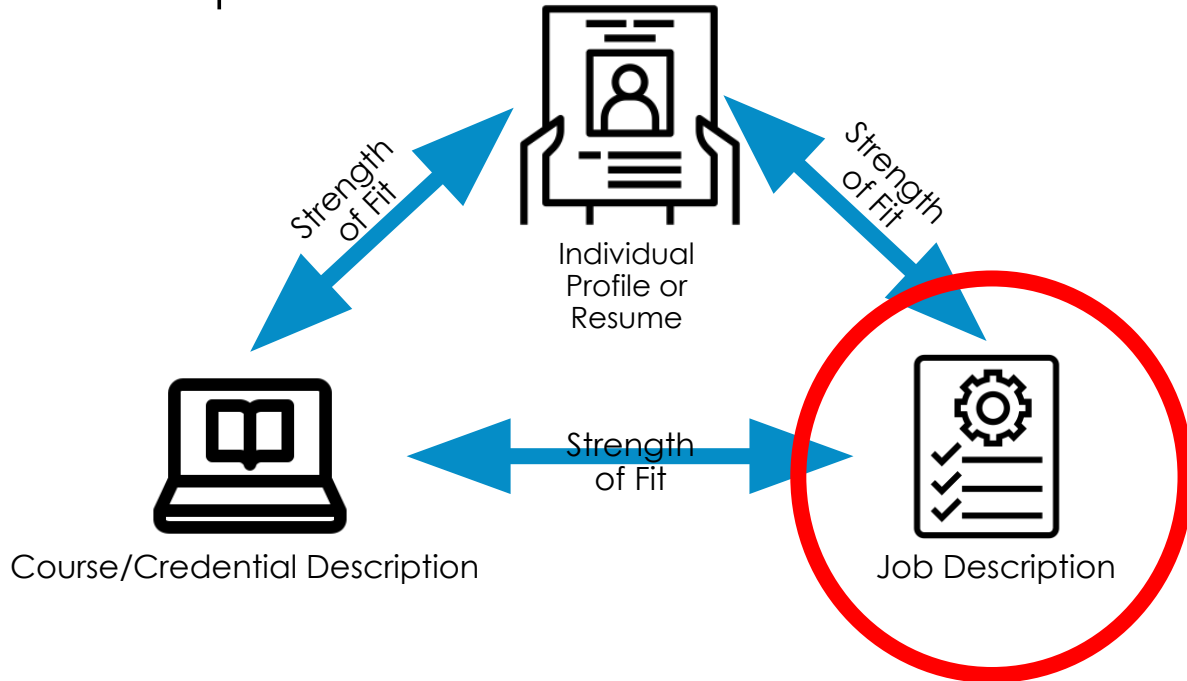
# T3 Projects

400+ organizations working together to build an open, distributed, public-private data and technology infrastructure for a more equitable talent marketplace



# The Fundamental Challenge of Skill & Competency Development and Translation

Assessing the strength of fit and structural relationship between two skills or competencies





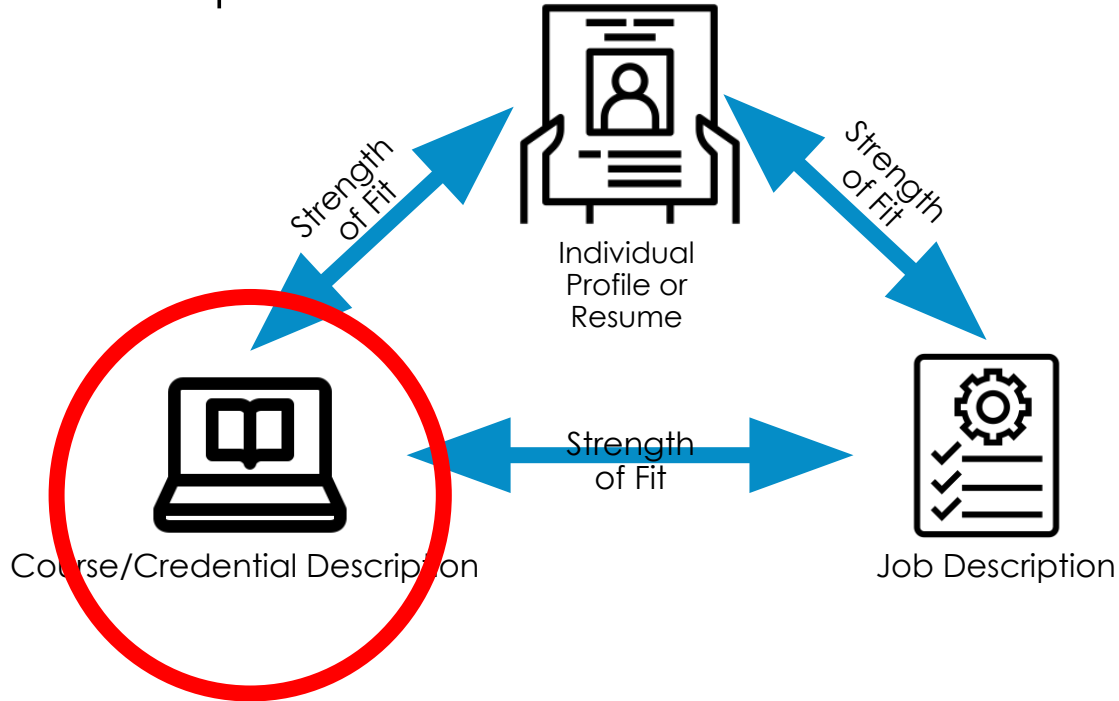


# Interoperable Learner Records



# The Fundamental Challenge of Skill & Competency Development and Translation

Assessing the strength of fit and structural relationship between two skills or competencies



# OPEN SKILLS STACK ALLIANCE

## *Overview*

*A coalition of education providers, employers, and technology companies with a shared mission: make skills-based education and hiring standard practice for the majority of organizations in the United States.*



# OPPORTUNITY

---

Open skills technologies and supporting standards, when broadly adopted by both open and proprietary systems and vendors, lay the foundation for a more responsive, **learner and worker-centric education ecosystem** enabling...

- **Dynamic, Industry-Aligned Competency and Skills-Based Education**
- **Expanded Educational and Experience-Based Pathways to Career Success**
- **Interoperable Lifelong Learner Records**
- **Competency and Skills-Based Hiring**

The Open Skills Stack Alliance's mission is to **accelerate interoperability** between technology platforms through open standards, and to **reduce costs of implementing skills-based hiring and skills-based education** through shared technologies.

# ECOSYSTEM ALIGNMENT AND KEY ALLIANCES

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## Supporting Employer Use Cases for Open Skills

### *Employer Partners and U.S. Chamber of Commerce Foundation*

- OSMT v2 and OSSA standards guidance to include capability to export employer skills/competency frameworks in existing formats and job descriptions/postings in JDX JobSchema+.
- Pilot with existing employer and/or HR partners, such as Walmart and the TPM NEXT platform. Build on T3 Network tools and resources.

## Supporting Education Use Cases for Open Skills

### *Education and Training Institutions (SNHU, UMGC, SEI)*

- OSMT v1 will support skills tagging for courses and records that will immediately support ILR pilots

## Supporting Data & Tech Provider Adoption of Open Skills

### *Technology Platforms, Registries, and Data Vendors (Emsi, CE, IBM, Salesforce)*

- OSMT will support publication and use of open skills from internal and external skills registries and libraries

# PROJECT 1: OPEN SKILLS MANAGEMENT TOOLSET

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## Problem Statement:

Much of the data needed to support skills-based education and hiring already exists, however, this skills data is **not easily accessible** and **not machine actionable**, nor is it contextualized to specific roles, tasks, functions, employers or learning outcomes.

To move from skills siloes to an **open and actionable skills data ecosystem** will require a critical mass of skills data providers and users to make the shift to open skills.

## Our Challenge:

**Search.** We need to be able to more easily search existing skill frameworks to source dynamic/relevant content for writing contextualized skills statements.

**Author/Edit.** We need to be able to more efficiently author and edit rich contextualized skills statements using a standard syntax and tagging to relevant meta-data.

**Organize.** We need a better system to document and curate skills statements into libraries we can share through an open license.

**Publish.** We need an efficient system through which we can publish skills to our DAMS, CMS and HRIS systems.

# OPEN SKILLS MANAGEMENT TOOLSET DRAFT PLAN

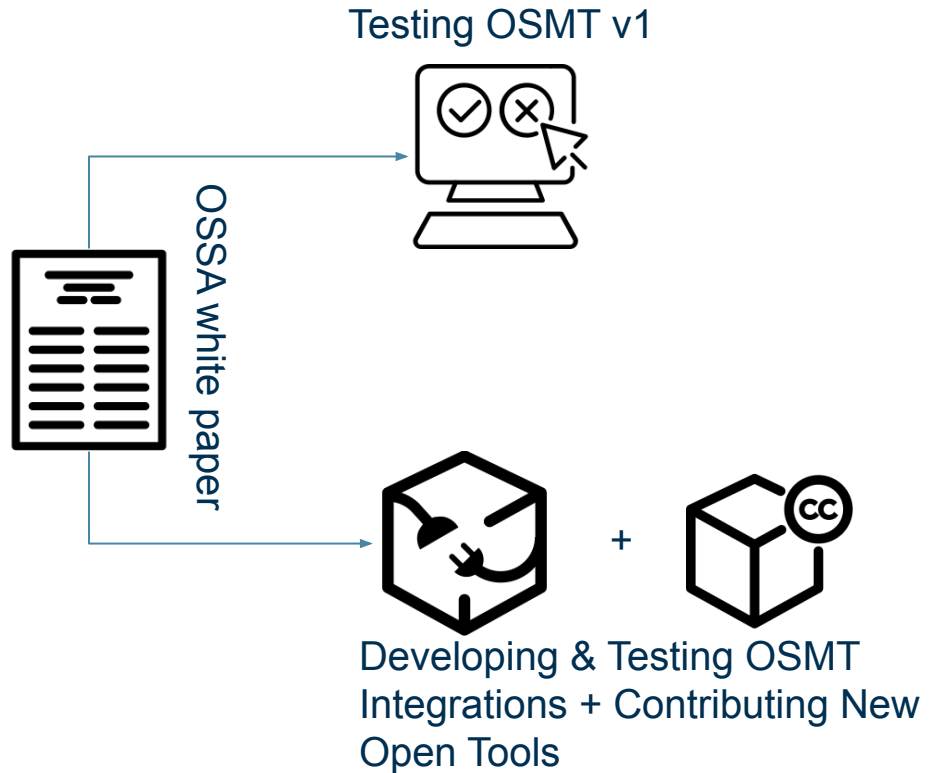
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# PARTNERSHIP COMMITMENTS - INITIAL WORKSTREAMS

**Alliance Partners**  
bringing open skills into practice

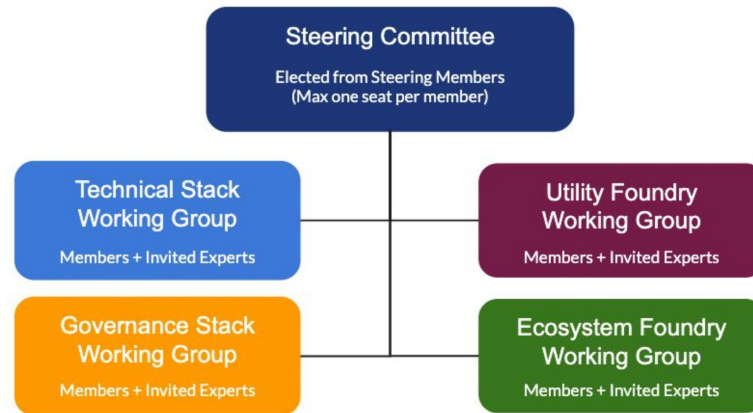
**Technical Contributors**  
work group participation



# SUSTAINABILITY AND GOVERNANCE

## May - June: Developing the OSSA Charter

Planning now for alliance growth and longer-term governance in the context of a connected ecosystem by looking to successful examples from other industries



*example governance structure from the Trust Over IP Foundation*

# JOINING THE OPEN SKILLS SKILLS ALLIANCE

---

## Opportunities for partnership

1. Read the [OSSA Partnerships Info](#) document. To respond to or accelerate receiving a proposed partnership scope, please provide input via [Google form](#) for expediency.
2. Explore/sign LOI with individual Partnership Agreements by end of May.
3. Participate in next meeting to set meeting cadence, work groups, and resources/funding, and collaborate on the OSSA Charter.



# WRAP UP

---

- 1. The WORLD is in the middle of a radical digital transformation of the talent marketplace to skills-based education and skills-based hiring**
- 2. Comparative taxonomy management is central to the this transition**
- 3. The Open Skills Stack Alliance is a new opportunity for collaboration among educational institutions, employers, government, and tech/data platforms**

# Thank you!

Matt Gee  
BrightHive CEO

[matt@brighthouse.io](mailto:matt@brighthouse.io)

@matthewgee



**brighthouse**



**Ingo List**  
*Founder & CEO*  
**Antares Project GmbH**

# NEXT GENERATION

BY DESIGN



## Taxonomies in a nation-wide education network

Ingo List

Founder and CEO

Antares Project GmbH

# Situation in Germany

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- The federal government is not responsible for schools
  - 16 states are responsible for curricula, employment of teachers and approval for textbooks
  - Thousands of school authorities are responsible for school buildings, platforms and content
- 
- High complexity of competences
  - Complex value chains for education industry
  - High number of weak standards
  - No nationwide formal taxonomies

The alliance „Bündnis für Bildung“ was founded by states, companies and organizations to define an interoperable reference architecture for education:

- Central nationwide background services
- ID-management hub to connect all local ID-management systems
- Content hub to connect all kind of content repositories
- High-Level interoperability (organization, legal, taxonomies etc.)

# Standards and APIs

## Content metadata

- Standards 😊😊😊 Dublin Core, LOM, ONIX, MARC, EAF, MAB2, ...
- APIs 😊😊😊 OAI-PMH, SRU/CQL, Z39.50, ARIX, ...
- Interoperability 😞

## Content licenses

- Standards 😞 Creative Commons, no standard for commercial licenses
- APIs 😞
- Interoperability 😞😞😞

## Content itself

- Standards 😊😊😊 HTML5, SCORM, CC, epub, PDF, TOM, ...
- APIs 😊😊😊 https – everything is browser compatible
- Interoperability 😞 - every content is a black box

## ID-Management

- Standards 😞 there is especially a lack of taxonomies
- APIs 😊 LDAP, AD, oAuth, OpenIDconnect, SAML, Shibboleth, ...
- Interoperability 😞

# Approaches

---

## Academic approach

- Definition of a reference architecture
- Identification of interfaces and data flows
- Identification of fitting standards and taxonomies
- Definition of missing standards and taxonomies
- Looking for a sustainable further development of standards

## Just-do-it-approach

- This can only be done by running systems!
- Connect whatever must be connected
- Pragmatic mapping of standards and taxonomies
- Creation of meta-standards. As few as possible

Both approaches need each other. If it is too academic, you can wait decades. If it is too proprietary, you run in a vendor-lock-in.

# EduBasis

EduBasis is founded by a consortium:



m2more



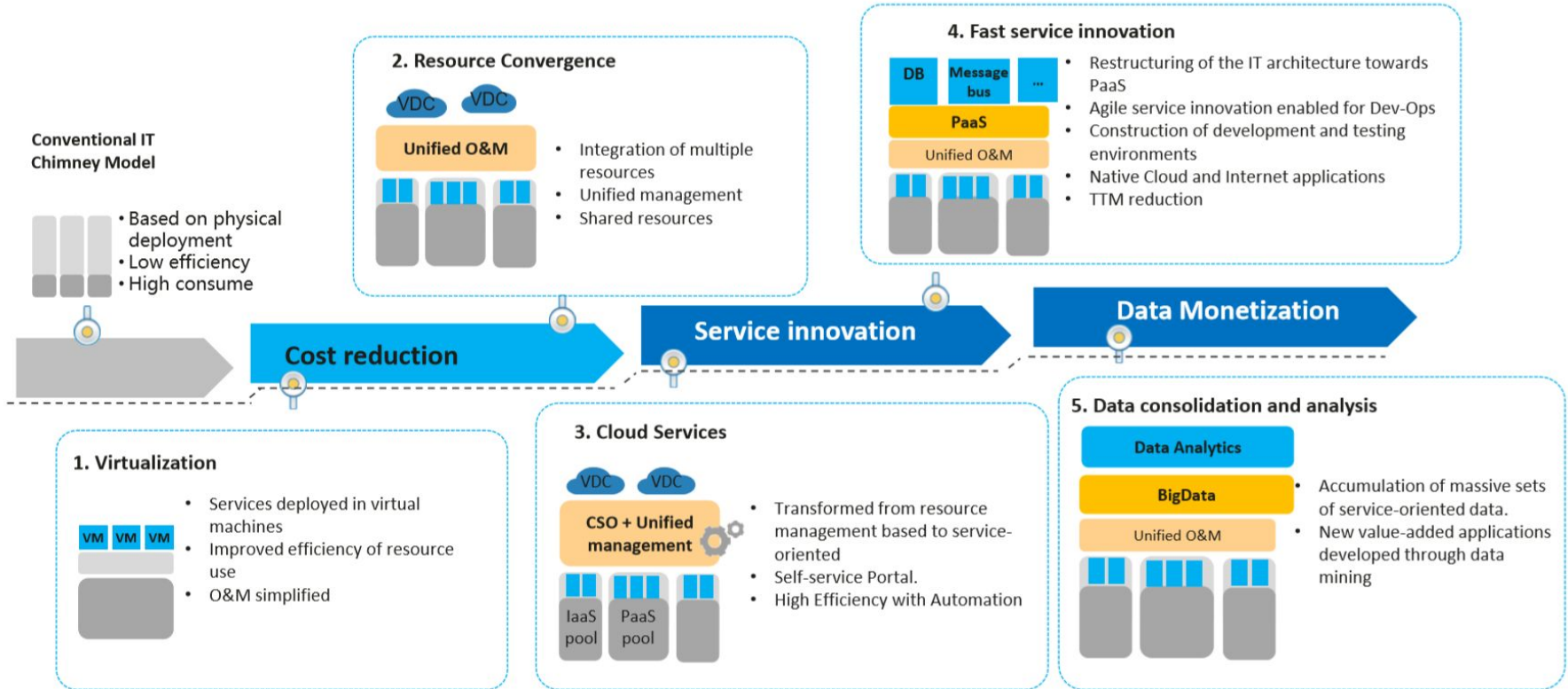
## Objectives

- Running a nationwide technical infrastructure for education
- Distributed state of the art cloud infrastructure
- Scalable for >10 million users
  
- Playout and management of all kinds of educational content up to docker container
- Building up a content distribution network
- Central license management and search
- ID-Management hub
- Other central services like statistics, xAPI-hub etc.

We build up pragmatic meta-standards and taxonomies and share these with Bündnis für Bildung for standardization.



# Cloud transformation





**Francesc Santanach  
Delisau**  
*eLearning Specialist  
and Manager*  
**Universitat Oberta de  
Catalunya**



Universitat Oberta  
de Catalunya

**Comparative Taxonomy Management**

# **Competency-based learning at UOC**

uoc.edu

**eLearn Center**

Francesc Santanach - [fsantanach@uoc.edu](mailto:fsantanach@uoc.edu)

Online University  
Started in 1995  
Fully online from the beginning  
More than 70,000 students



Universitat Oberta  
de Catalunya



R&I

eLearn  
Center

eLearning Research and innovation center  
Vision/strategy provider  
Educational Model implementation and evolution  
Support to research and innovation

**eLearn Lab**

Experiments, Proof of concepts, etc.  
Infrastructure and developments

01

## Competency-based Learning / Competency-based Education (CBE)



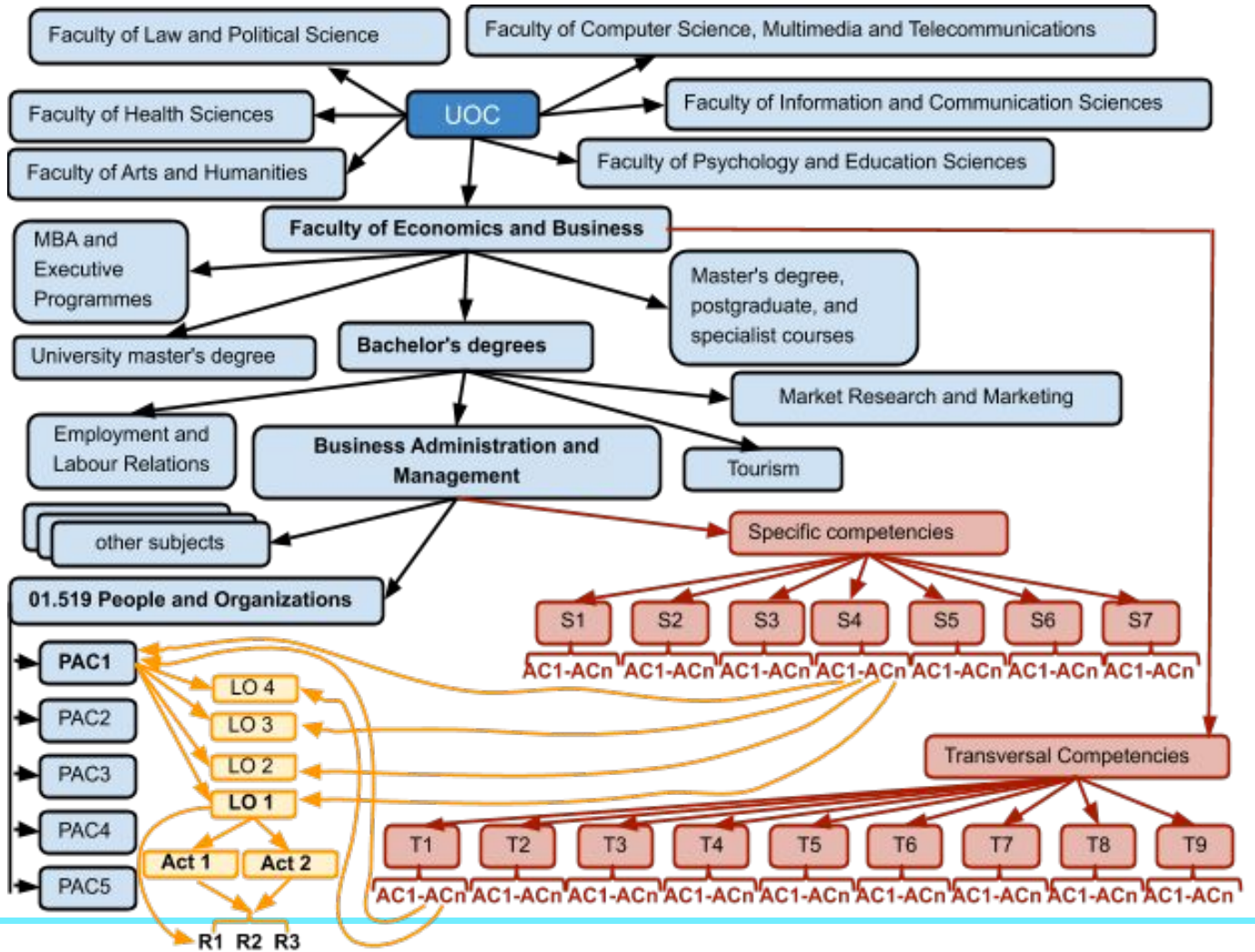
Since:  
Bologna Process - 1999  
and The European  
Higher Education Area  
(EHEA) - 2010

**Competencies to give access to  
academic studies and labor market**

# Competencies. A complex taxonomy linking problem

Multiple taxonomies involved & a lot of relationships

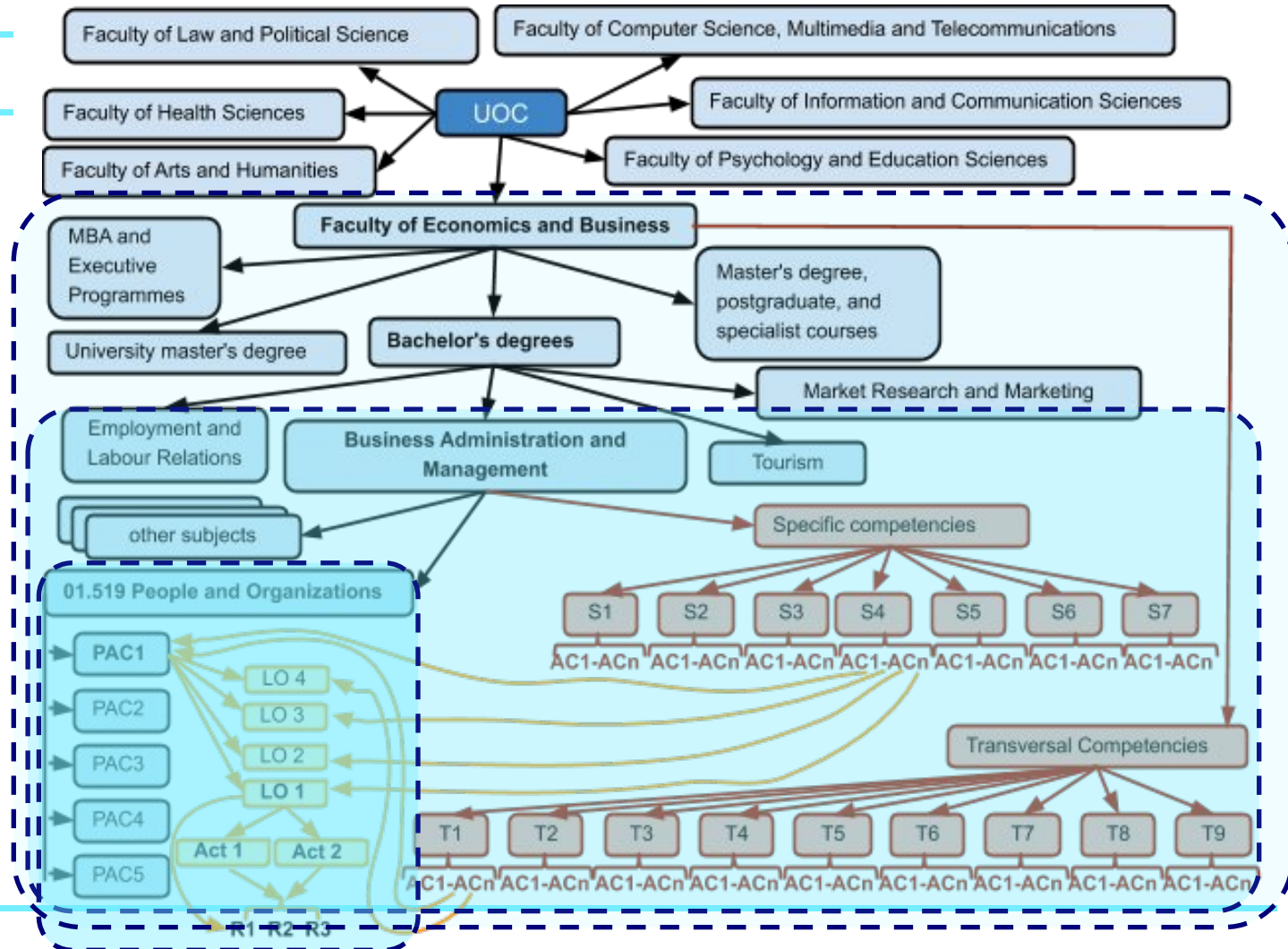
UOC example:



# Competencies. A complex taxonomy linking problem

Different processes, times and roles

UOC example:



# Academic Offerings design

**Process:**

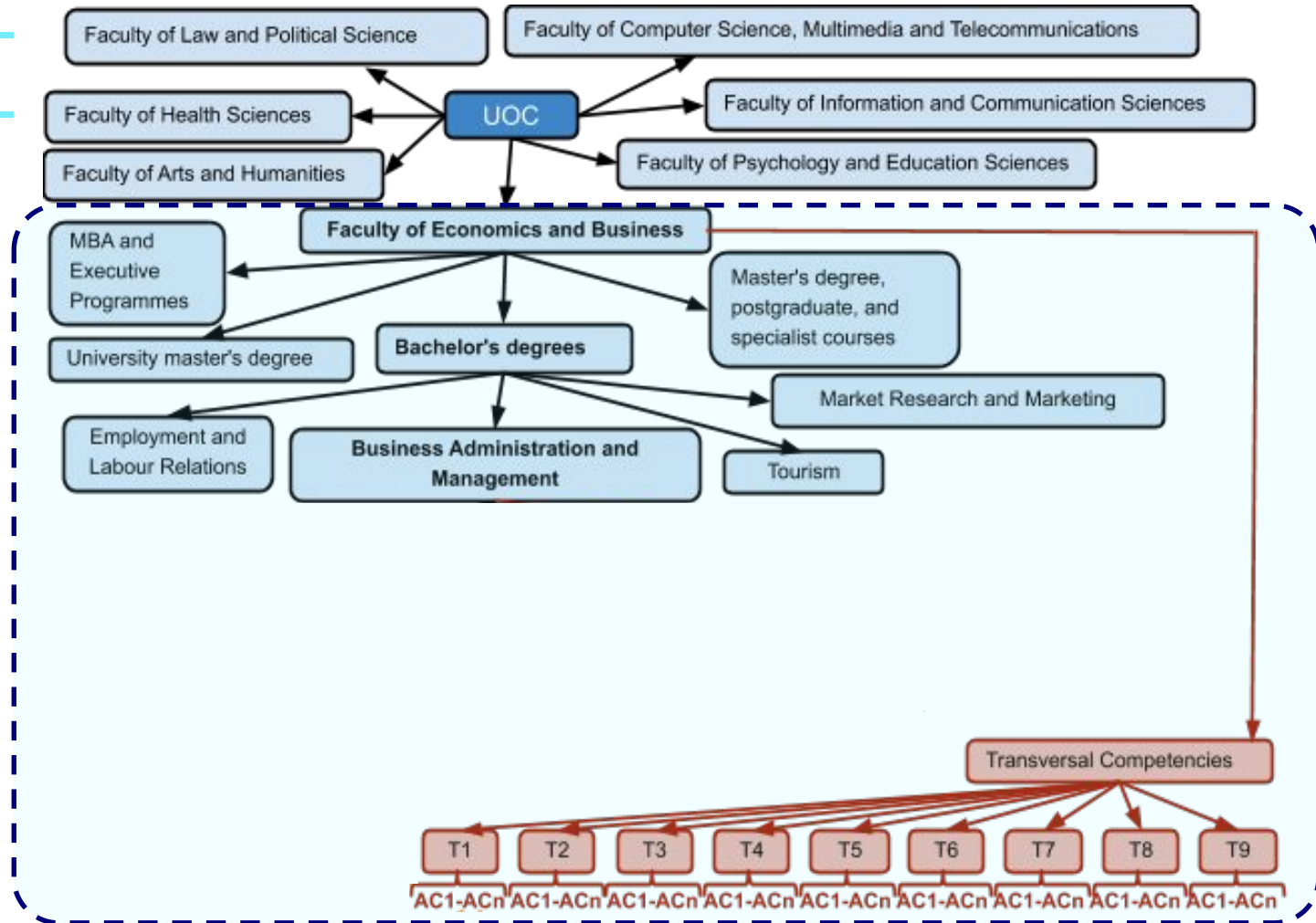
Academic offerings design

**When:**

Before new faculty, school, academic department, etc.

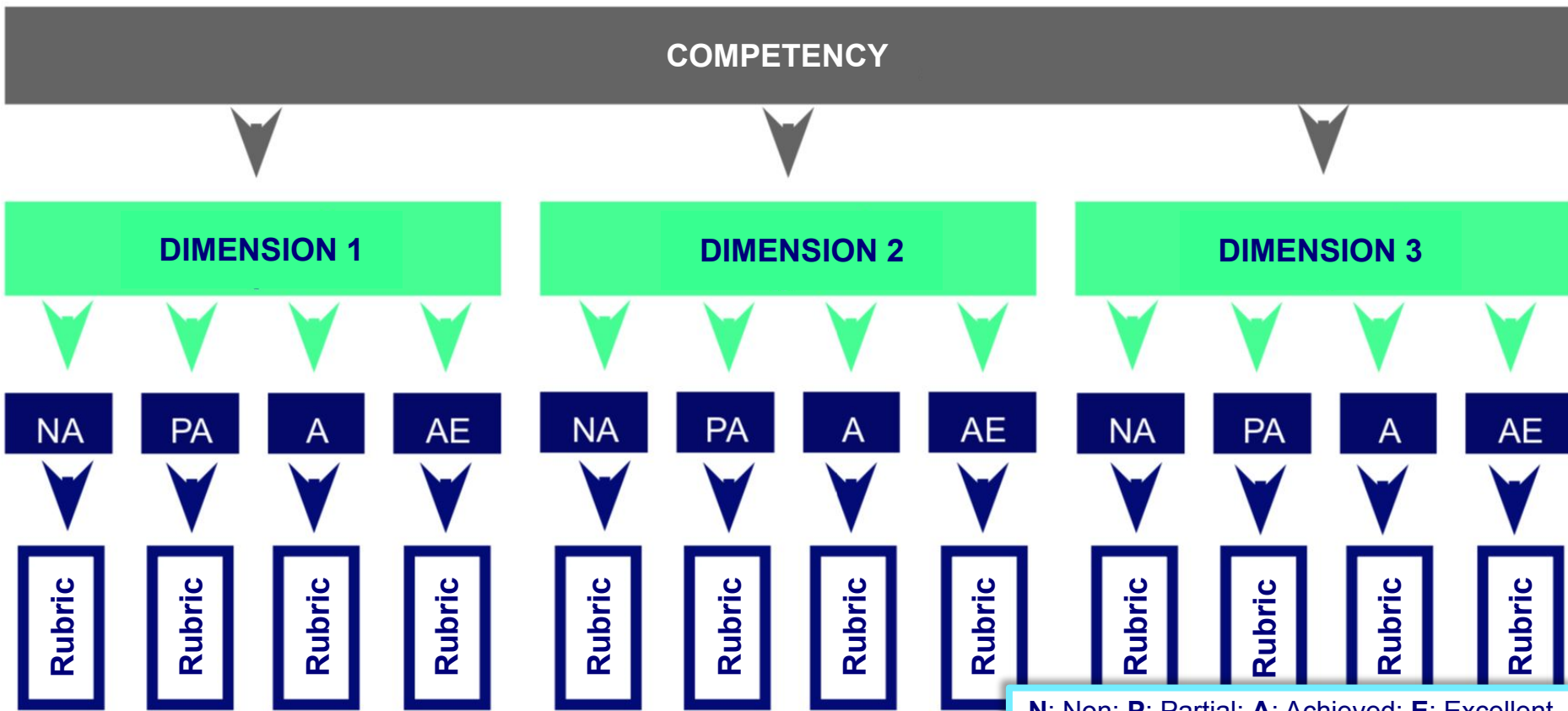
**Roles:**

Lead by the Director





## 02 UOC's Competency Taxonomy

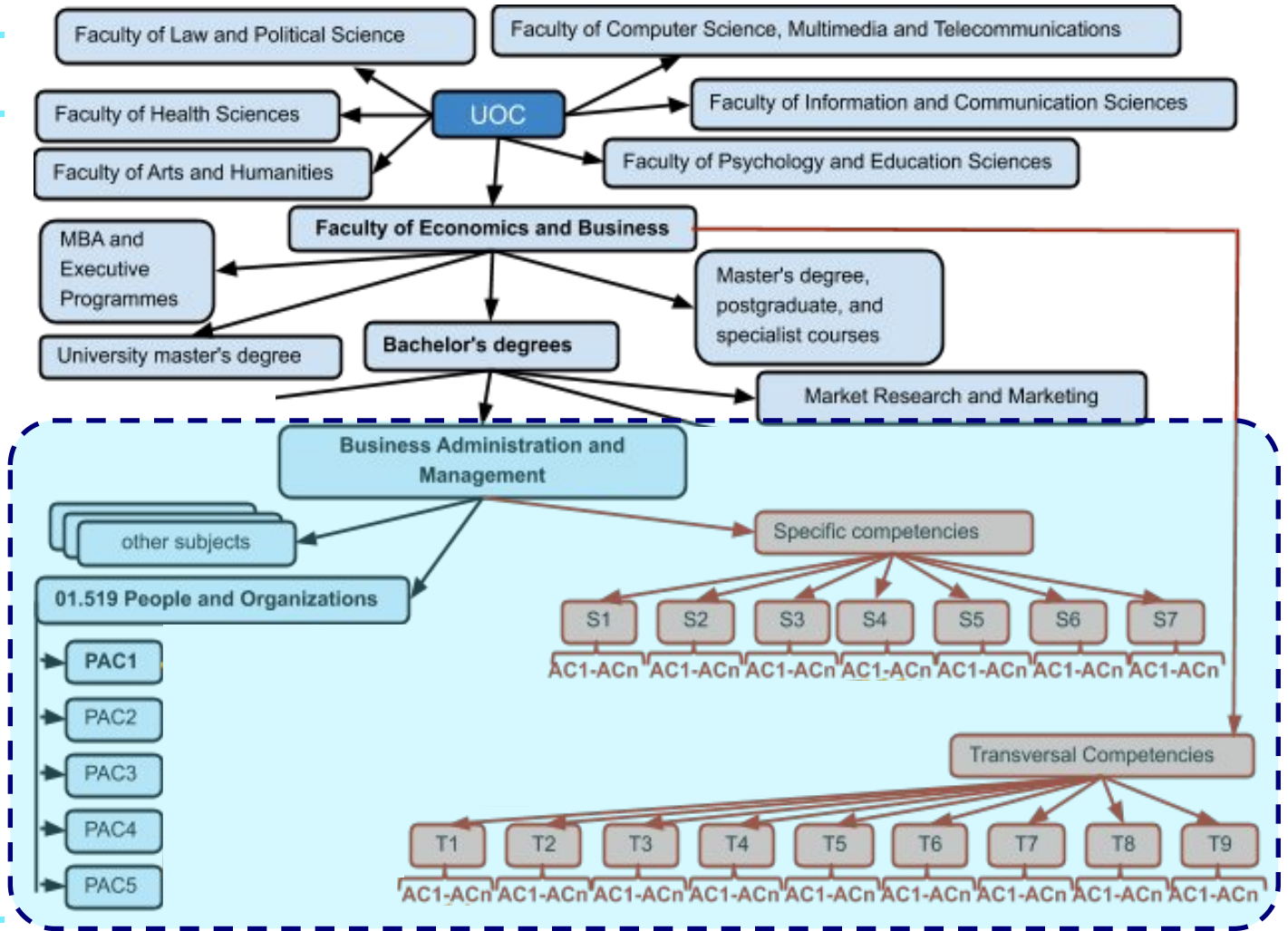


N: Non; P: Partial; A: Achieved; E: Excellent

**Process:**  
Program design

- When:**
- Before new program
  - When a program is redesigned

- Roles:**
- Program Director (leader)
  - Faculty staff





# 03 Program Design tool

## Diseny, Identitat Visual i Branding

Publica Tots els canvis s'han desat

Edita Competències i Dimensions

Assignatures	CE1 +	CE2 +	CE3 - Toma de decisiones y gestión del cambio				CT1 +	+	+	+	+	
Fes clic damunt d'una assignatura per veure'n l'assignació a nivell activitat	Cp Dm	Cp Dm	CE3	D1	D2	D3	D4	Cp Dm	Cp Dm	Cp Dm	Cp Dm	Cp Dm
<a href="#">Cultura del diseño y las marcas</a>								0%	41%			
<a href="#">Tendencias y enfoques emergentes del diseño</a>								24%	0%	25%		
<a href="#">Estrategia de branding y arquitectura de marca</a>			17%	66%	10%	20%	0%					
<a href="#">Marca gráfica e identidad visual</a>			33%	10%	32%	22%	50%					
<a href="#">Identidad verbal y storytelling</a>			0%	5%	0%	30%	23%					
<a href="#">Entorno de marca e identidad sensorial</a>								0%				
<a href="#">Medio digital y motion brands</a>								25%				
<a href="#">Packaging y diseño sostenible</a>			0%	12%	35%	20%	15%					35%
			50%	7%	23%	8%	12%			0%		
								25%				
				75%				10%	0%			
<a href="#">Trabajo Final de Máster</a>								100%	75%	5%		
	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Set of Program's Subjects

Dimension percentage of achievement

Competency percentage of achievement

## Process:

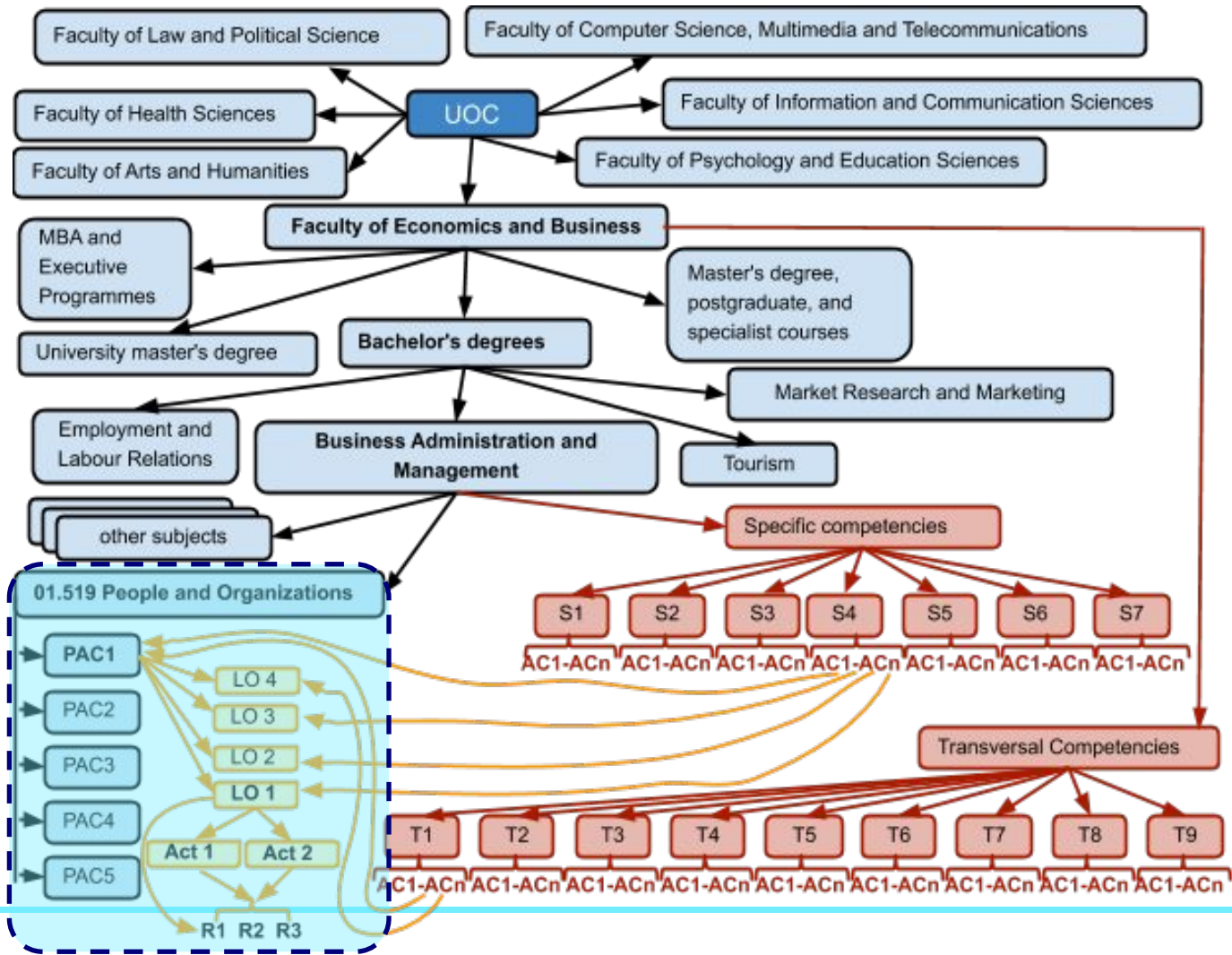
Course design

## When:

- Before new course is offered
- When a course is redesigned

## Roles:

Each course coordinator (faculty staff)



# 04 Course Design tool. Competency Design

Competency Dimensions

Competencies

Set of Course's Learning Activities

Percentage of achievement

de Catalunya **Disseny competencial**

Estratègia i Competitivitat > **Creació i gestió de l'empresa publicitària**

**Creació i gestió de l'empresa publicitària**

Publica Tots els canvis s'han desat Editar Competències i Dimensions

Activitats	CT1 <i>#uso y aplicación de las tic</i>			CT2 <i>#expresión oral y escrita</i>		CG1 <i>#resolución de situaciones complejas</i>		
	D1	D2	D3	D1	D2	D1	D2	D3
Repte 1 - Nom de l'activitat 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repte 2 - Nom de l'activitat 2 que com que és llarg surt en dues línies	5	<input type="checkbox"/>	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	<input type="checkbox"/>
Repte 3 - Nom de l'activitat 3	5	<input type="checkbox"/>	<input type="checkbox"/>	5	<input type="checkbox"/>	5	<input type="checkbox"/>	<input type="checkbox"/>
Repte 4 - Nom de l'activitat 4 que torna a resultar ser llarg	15	<input type="checkbox"/>	<input type="checkbox"/>	15	<input type="checkbox"/>	15	<input type="checkbox"/>	<input type="checkbox"/>
Repte 5 - Nom de l'activitat 5	30	<input type="checkbox"/>	<input type="checkbox"/>	30	<input type="checkbox"/>	30	<input type="checkbox"/>	<input type="checkbox"/>
Repte 6 - Nom de l'activitat 6	40	<input type="checkbox"/>	<input type="checkbox"/>	40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repte 7 - Nom de l'activitat 7	5	<input type="checkbox"/>	<input type="checkbox"/>	5	<input type="checkbox"/>	5	<input type="checkbox"/>	<input type="checkbox"/>
	100%	0%	0%	100%	0%	60%	0%	0%

## 04 Course Design tool. Assessment design

Access to rubrics

Learning Activity

The screenshot shows the course design tool interface for 'Eina de disseny competencial'. The breadcrumb trail is 'Estratègia i Competitivitat > Creació i gestió de l'empresa publicitària > Lliurables Repte 1 - Nom de l'activitat 1'. The main heading is 'Lliurables Repte 1 - Nom de l'activitat 1'. Below the heading, there is a 'Torna' button and the text 'Tots els canvis s'han desat'. A button labeled 'Visualitza les rúbriques' is located on the right side. The main content is a table with two columns: 'Lliurables' and 'Eina on es lliuren'. The table contains three rows of assignment types: 'Word' (RAC), 'Participació al Debat' (Debat de l'activitat), and 'Presentació' (Langblog). Each row has a trash icon on the right. At the bottom of the table, there is a '+ Afegeix un lliurable' button.

Lliurables	Eina on es lliuren
Word	RAC
Participació al Debat	Debat de l'activitat
Presentació	Langblog

Set of  
Assignment types

Add more  
assignment types

## 05 Assessment process

# ASSESSMENT

**Process:**

Assessment process

**When:**

After students complete  
their assignments

**Roles:**

Each course Instructor



05

# Assessment tool

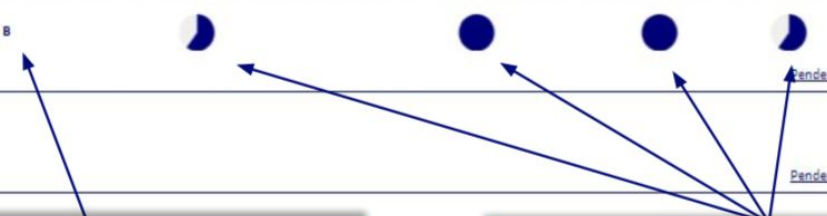
## 99.068 Aula proves eLC

Prova Test UOC X RNC

Estudiant	Repte 1 +	Repte 2 +	Repte 3 -	#Planificació 03	#Lideratge 03	#Toma 03	# 03
			Nota				
<b>test user10, elearn</b> <a href="#">Veure Graf</a> <a href="#">Contacta</a>			B				
<b>test user3, elearn</b> <a href="#">Veure Graf</a> <a href="#">Contacta</a>							Pendent
 <b>test user4, elearn</b> <a href="#">Veure Graf</a> <a href="#">Contacta</a>							Pendent
 <b>test user5, elearn</b> <a href="#">Veure Graf</a> <a href="#">Contacta</a>							Pendent
<b>test user6, elearn</b> <a href="#">Veure Graf</a> <a href="#">Contacta</a>							Pendent

**Activity Qualification**

**Competency Qualification**



# 05 Assessment tool. Grading Competencies

Document, Debate, presentation, etc.

Competency name

Dimension name

Rubric description. Instructor can edit

Rubric description. Feedback for the student

Assignment Grade

Rubric to select

Rubric suggestion

Rubric selected by the instructor

Send to Grading Book

General feedback

The screenshot shows the 'Qualificació PAC' interface. At the top, there is a grade selector with options A, B, C+, C-, D, and N, where 'B' is selected. Below this is the 'Avaluació Competències' section, listing dimensions such as '#Planificació y organización', '#Establece Medidas Correctivas', '#Lideratge en la gestió de persones i equips de treball', and '#Se Conoce y Conoce a los Demás'. Each dimension has a corresponding rubric icon and a description. The interface is designed for instructors to select a rubric and assign a grade.

The screenshot shows the 'Repte 3' interface. It features a list of rubric options, each with a circular progress indicator. A 'Send to Grading Book' button is visible. The interface also includes a 'General feedback' section at the bottom. The interface is designed for students to view their progress and receive feedback.

The screenshot shows the '99.068 Aula proves eLC' interface. It features a list of rubric options, each with a circular progress indicator. A 'Send to Grading Book' button is visible. The interface also includes a 'General feedback' section at the bottom. The interface is designed for students to view their progress and receive feedback.

05

# Assessment. Student's view

**Global MBA** Irene Elies Xalamanch

Competency feedback related to a specific Activity

**Expressió oral i escrita** Assoliment **47%**

CT01 Expressió  
CT02 Creativitat  
CT03 Aprenedre  
CT04 Síntesi  
CT05 Lideratge  
CT06 Ressolució

**Dimensió 01** Fer servir estratègies per organitzar i presentar la informació

**Direcció de persones PAC01**  
Assoliment parcial

**Direcció de persones PAC02**  
Assoliment

**Dimensió 02** Produir i presentar textos orals i escrits formalment correctes i formalment coherents, que s'ajuden a la normativa ortogràfica i gramatical, i a les convencions gràfiques i estètiques més conegudes i acceptades en cada especialitat.

**Anàlisi de mercats PAC01**  
Assoliment parcial

**Dimensió 03** Produir textos orals i escrits adequats, que s'ajupen al seu context comunicatiu i al públic objectiu, tant pel que fa al llenguatge com al nivell de formalitat.

**Legística i globalització PAC01**  
Assoliment

**Dimensió 04** Produir textos orals i escrits clars, que inclouen el contingut rellevant, font un bon ús de les fonts d'informació disponibles.

**Macroeconomia PAC01**  
Assoliment parcial

**Dimensió 4** Produir textos orals y escritos claros, que incluyen el contenido relevante, utilizando adecuadamente las fuentes de información disponibles.

**Semana Presencial 1: Trabajo por equipos (semana residencial Collbató)**  
Assoliment Excel·lent  
Se exponen adecuadamente las ideas y conceptos importantes. Se incluye una bibliografía final completa, y los criterios formales son adecuados y coherentes.

**Dirección Estratégica: Actividad evaluable 1. Reflexiones sobre el reto del caos al orden**  
Assoliment  
Se exponen adecuadamente la mayoría de ideas y conceptos importantes. Se incluye una bibliografía final bastante completa, y un uso adecuado y coherente de los aspectos formales, pero puede haber alguna carencia o incoherencia.

**Dirección Estratégica: Actividad evaluable 2: CASO TIMBERLAND**  
Assoliment Excel·lent  
Se exponen adecuadamente las ideas y conceptos importantes. Se incluye una bibliografía final completa, y los criterios formales son adecuados y coherentes.

**Dirección Estratégica: Actividad evaluable 3: CASO MIND THE BYTE**  
Assoliment Excel·lent  
Se exponen adecuadamente las ideas y conceptos importantes. Se incluye una bibliografía final completa, y los criterios formales son adecuados y coherentes.

**Dirección de Personas: Reto 1: ¿Cómo atraer e incorporar talento a una startup?**  
Assoliment Excel·lent  
Se exponen adecuadamente las ideas y conceptos importantes. Se incluye una bibliografía final completa, y los criterios formales son adecuados y coherentes.

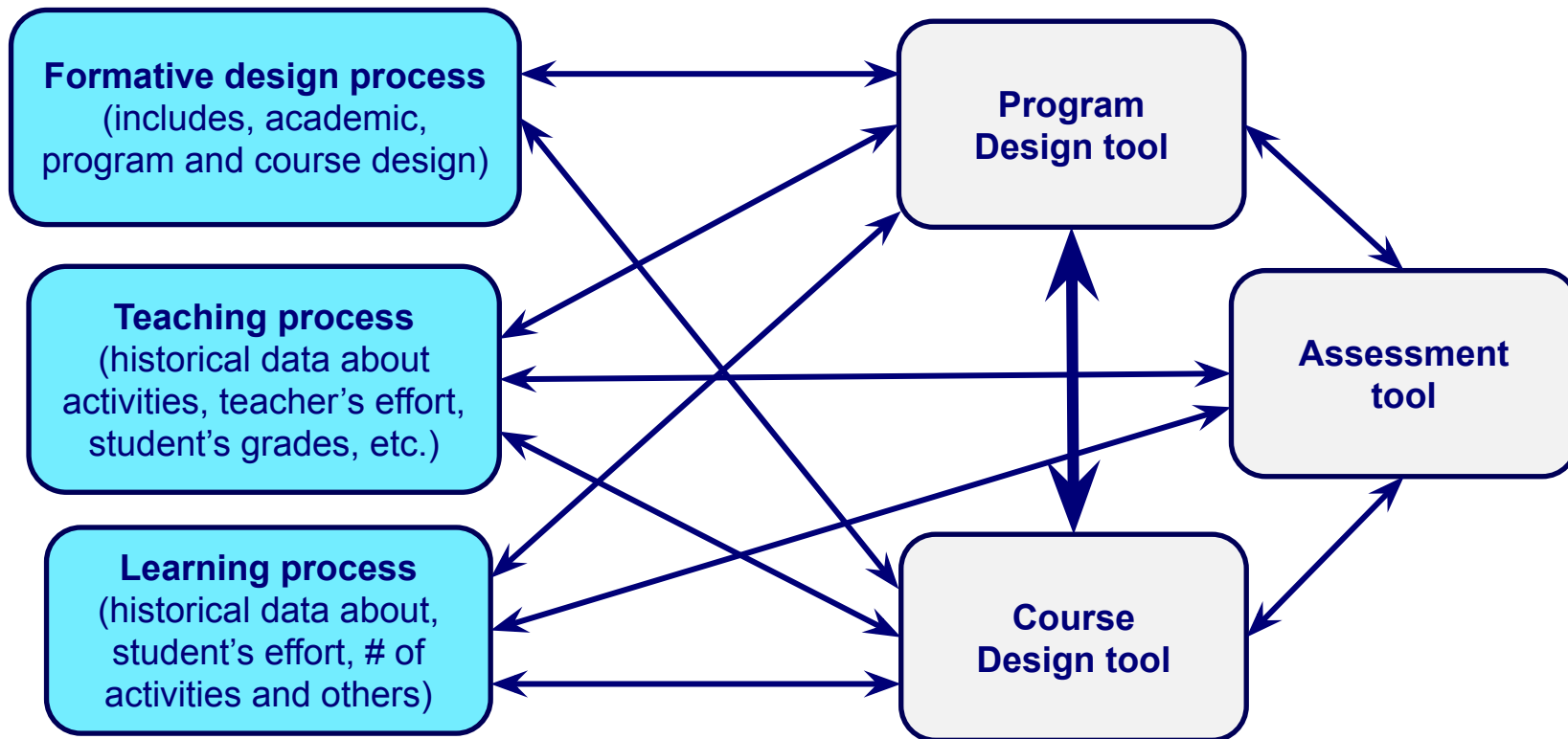
**TFM: Gestión de Proyectos: Debate 1: El rol del PM. Los interesados del proyecto**  
Assoliment  
Se exponen adecuadamente la mayoría de ideas y conceptos importantes. Se incluye una bibliografía final bastante completa, y un uso adecuado y coherente de los aspectos formales, pero puede haber alguna carencia o incoherencia.

**TFM: Gestión de Proyectos: Caso práctico: MSF**  
Assoliment  
Se exponen adecuadamente la mayoría de ideas y conceptos importantes. Se incluye una bibliografía final bastante completa, y un uso adecuado y coherente de los aspectos formales, pero puede haber alguna carencia o incoherencia.

Rubrics

## 06

## Analytics and Artificial Intelligence for CBE management



# 06 Program Design tool

## Diseny, Identitat Visual i Branding

Publica Tots els canvis s'han desat

Edita Competències i Dimensions

Assignatures	CE1 +	CE2 +	CE3 - Toma de decisiones y gestión del cambio	CT1 +	+	+	+	+				
	Cp ▲ Dm ▲	Cp ▲ Dm ▲	CE3 Ⓞ	D1 Ⓞ	D2 Ⓞ	D3 Ⓞ	D4 Ⓞ	Cp ✓ Dm ▲	Cp ✓ Dm ✓	Cp ✓ Dm ✓	Cp ✓ Dm ✓	Cp ✓ Dm ✓
<a href="#">Fes clic damunt d'una assignatura per veure'n l'assignació a nivell activitat</a>												
<a href="#">Cultura del diseño y las marcas</a>			▲					0%	41%			
<a href="#">Tendencias y enfoques emergentes del diseño</a>								24%	0%	25%		
<a href="#">Estrategia de branding y arquitectura de marca</a>				17%	66%	10%	20%	0%				
<a href="#">Marca gráfica e identidad visual</a>				33%	10%	32%	22%	50%				
<a href="#">Identidad verbal y storytelling</a>				0%	5%	0%	30%	23%				
<a href="#">Entorno de marca e identidad sensorial</a>								0%				
<a href="#">Medio digital y motion brands</a>								25%				
<a href="#">Packaging y diseño sostenible</a>				0%	12%	35%	20%	15%				35%
				50%	7%	23%	8%	12%		0%		
								25%				
								75%	10%	0%		
<a href="#">Trabajo Final de Máster</a>								100%	75%	5%		
	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Set of Program's Subjects

Dimension percentage of achievement

Competency percentage of achievement

06

# Course Design tool

Competency Dimensions

Competencies

Set of Course's Learning Activities

Percentage of achievement



# 06 Assessment tool. Grading Competencies

Document, Debate, presentation, etc.

Competency name

Dimension name

Rubric description. Instructor can edit

Rubric description. Feedback for the student

Assignment Grade

Rubric to select

Rubric suggestion

Rubric selected by the instructor

Send to Grading Book

General feedback

The screenshot shows the 'Qualificació PAC' interface. At the top, there is a grade selector with options A, B, C+, C-, D, and N. Below this is the 'Avaluació Competències' section, which lists several dimensions: '#Planificació y organización', '#Establece Medidas Correctivas', '#Lideratge en la gestió de persones i equips de treball', and '#Se Conoce y Conoce a los Demás'. Each dimension has a corresponding rubric icon. A red dashed circle highlights the rubric for '#Establece Medidas Correctivas'. The interface also includes a 'Descripció' field for each dimension, which is currently empty.

The screenshot shows the '99.068 Aula proves eLC' interface. At the top, there is a search bar and a 'Repte 3' section. Below this is a list of assignments, each with a title, a description, and a grade. The 'Send to Grading Book' button is visible. The detailed view of an assignment shows a title, a description, and a grade selector. The 'General feedback' field is also visible.

## DXtera software as a basis

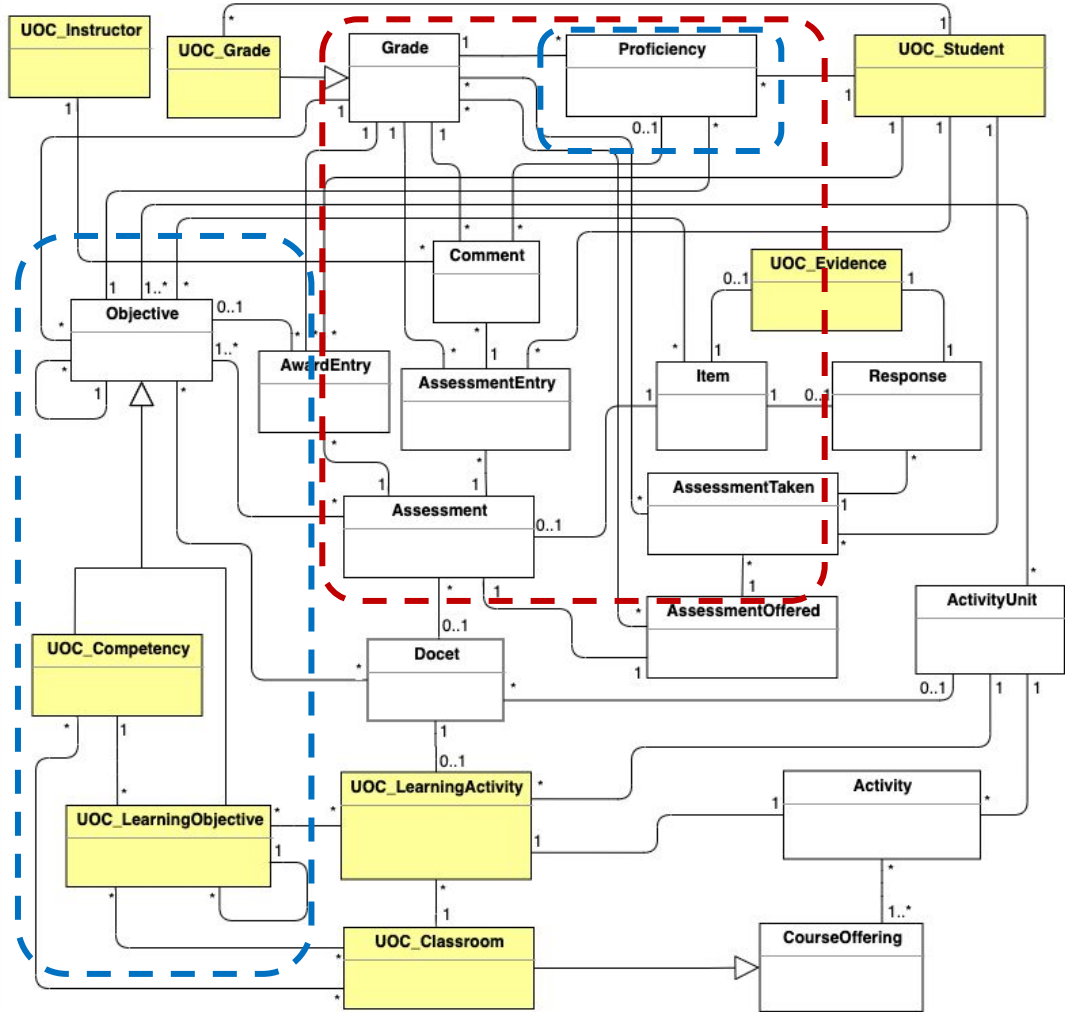
### MC3: (<https://mc3.mit.edu>)

The MIT Core Concept Catalog (MC3) is an academic data service to help manage and share information about the curricular topics, learning goals, and related content within and across disciplines and subjects of the Institute.

### QBank:

(<https://github.com/UOC/qbank-lite>)

Qbank is an academic data service to help manage and share information about questions and tests and the assessment processes as well.








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Universitat Oberta  
de Catalunya

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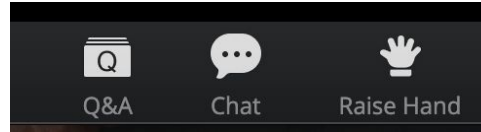
 UOC.universitat  
 @UOCuniversitat  
 @uocuniversitat

**Thank you!**

Francesc Santanach - [fsantanach@uoc.edu](mailto:fsantanach@uoc.edu)  
eLearn Center - Lab  
Universitat Oberta de Catalunya – <http://www.uoc.edu>

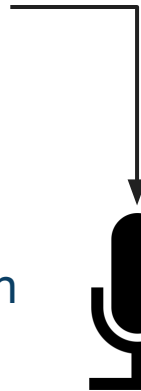
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# Discussion and Questions

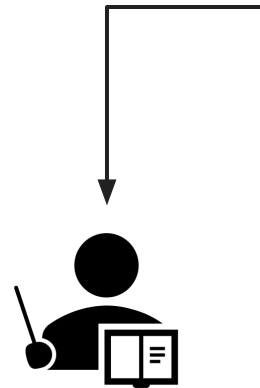


Raise hand

Ask in the Q&A



You ask your question



Facilitator will ask your question for you

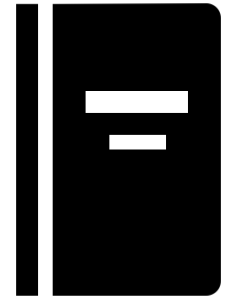
# Discussion

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# NGBD Series Sessions and Next Steps

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- All Webinar recordings, papers, community discussions, and details to be posted on the [NGBD](#) Site.
  - May 19 - Next Generation Education Systems
  - May 26 - Exploring New Frontiers
- Summary papers to be published
- Questions or comments to [info@dxtera.org](mailto:info@dxtera.org)



# NEXT

# GENERATION

## BY DESIGN



# Thank You