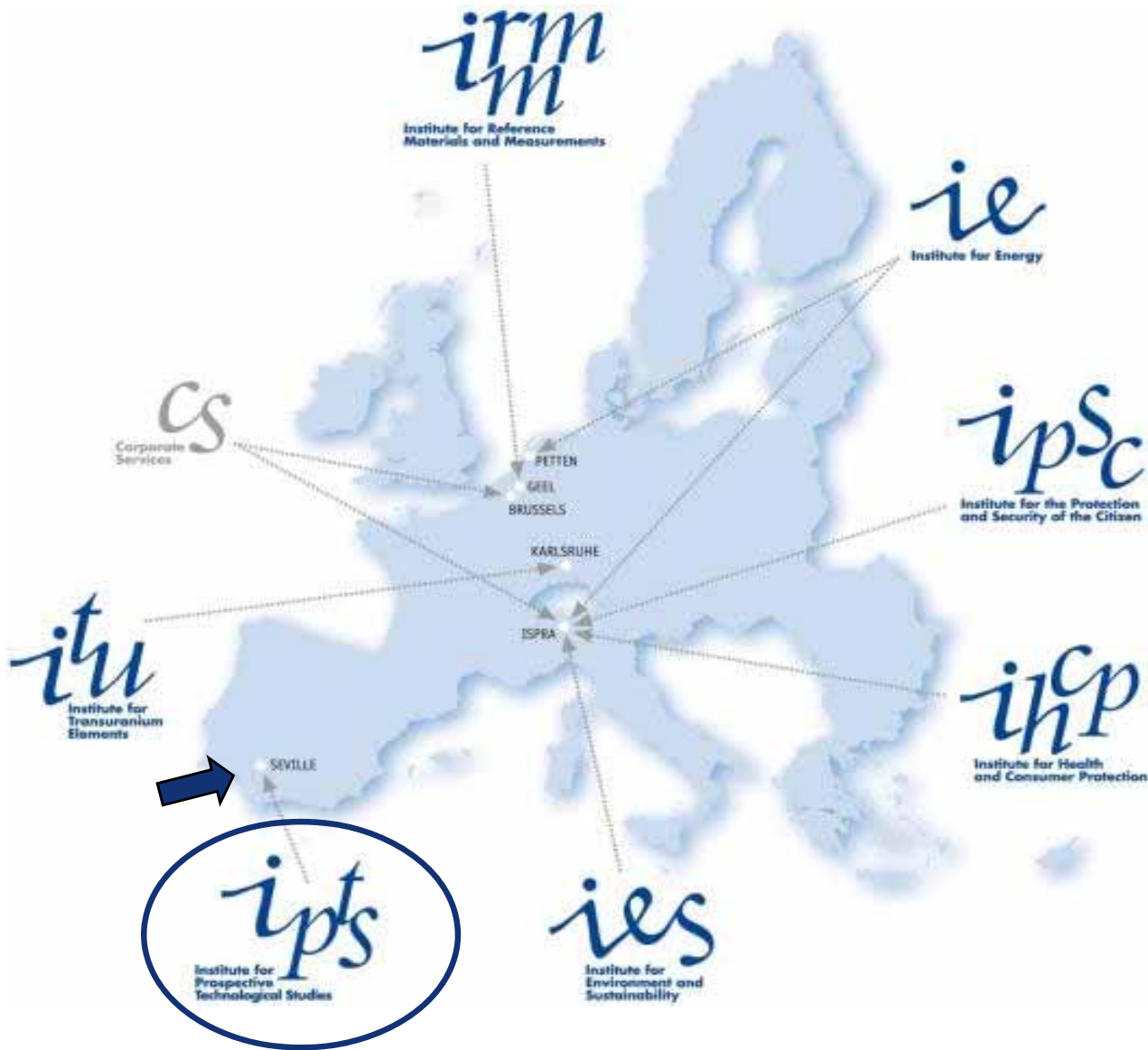# Open Education and Teaching Profession in 2030

Riina Vuorikari, Ph.D

Yves Punie, Ph.D

JRC Institute for Prospective Technological Studies

ETUCE 2014 Special Conference, Vienna, 26 November 2014

European Commission, Joint Research Centre

Institute for Prospective Technological Studies (IPTS):

Research institute supporting EU policy-making on socio-economic, scientific and/or technological issues

CS
Corporate
Services

itu
Institute for
Transuranium
Elements

ihcp
Institute for Health
and Consumer Protection

SEVILLE

ipts
Institute for
Prospective
Technological Studies

ies
Institute for
Environment and
Sustainability

Fuente: Nuria Chinchilla, INE y elaboración propia.

Horizon Report Europe 2014 >Schools Edition

Trends, technologies & challenges for European schools over the next 5 years

CHALLENGES

Wicked Challenges

› Supporting complex thinking and communication

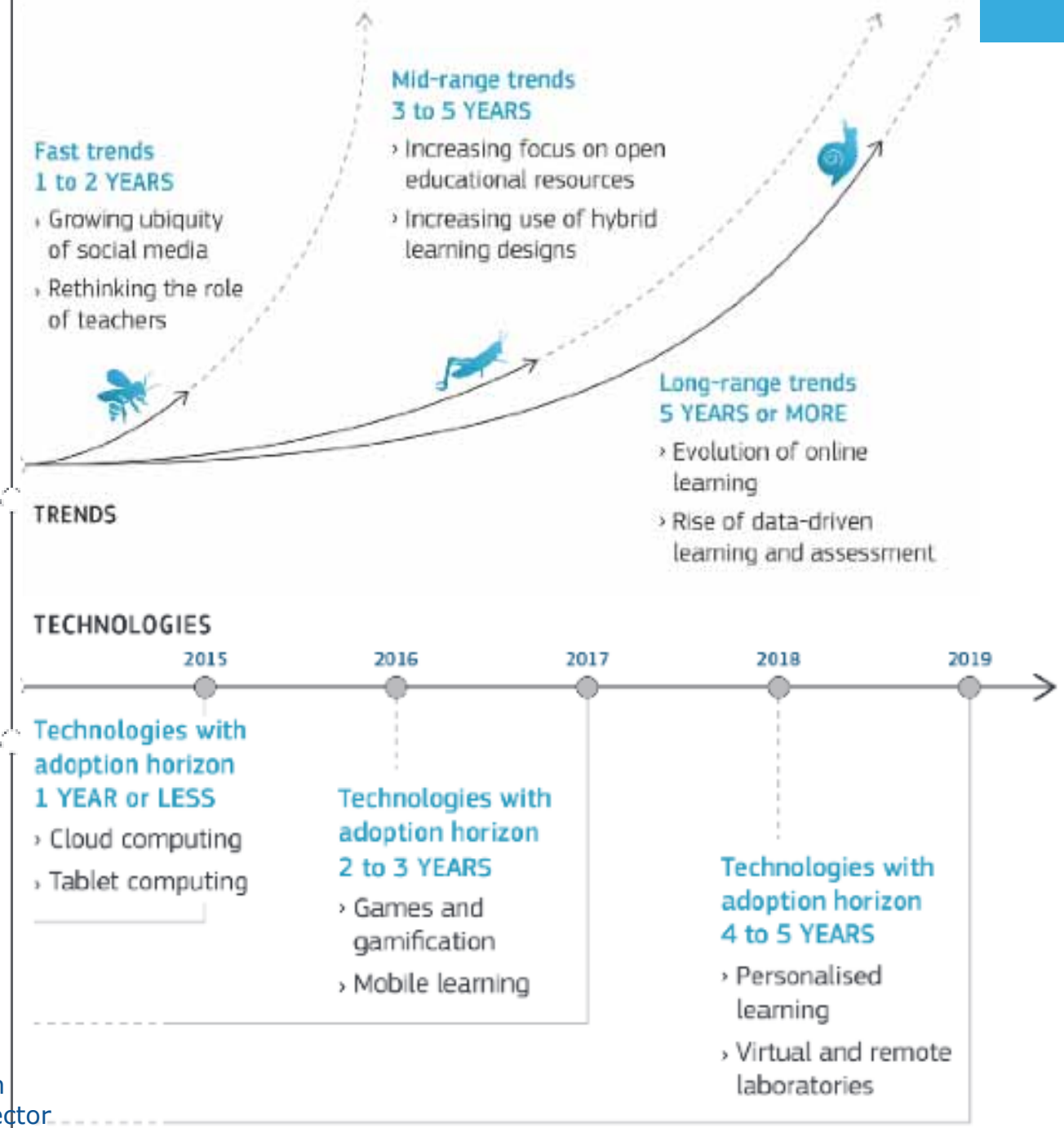› Students as co-designers of learning

Difficult challenges

› Creating authentic learning opportunities

› Blending of formal and non-formal learning

Solvable challenges

› Integrating ICT in teacher education

› Students' low digital competence

TRENDS

Fast trends 1 to 2 YEARS

› Growing ubiquity of social media

› Rethinking the role of teachers

Mid-range trends 3 to 5 YEARS

› Increasing focus on open educational resources

› Increasing use of hybrid learning designs

Long-range trends 5 YEARS or MORE

› Evolution of online learning

› Rise of data-driven learning and assessment

TECHNOLOGIES

2015	2016	2017	2018	2019

Technologies with adoption horizon 1 YEAR or LESS

› Cloud computing

› Tablet computing

Technologies with adoption horizon 2 to 3 YEARS

› Games and gamification

› Mobile learning

Technologies with adoption horizon 4 to 5 YEARS

› Personalised learning

› Virtual and remote laboratories

Source
NMC Horizon Report > 2014 Higher Education Edition
Graph adapted from Horizon 2014 Europe: School Sector

Outline

I. Setting the context: back to the future of Open Education

- History of Open Education

- EC Communication "opening up education" in 2013

II. Teaching Profession in 2030

- Tensions forming Open Education

- 5 scenarios for 2030

III. Final questions for discussion

I. Setting the context:

Back to the future of Open Education

EUROPEAN COMMISSION

PRESS RELEASE

Brussels, 25 September 2013

Commission launches 'Opening up Education' to boost innovation and digital skills in schools and universities

More than 60% of nine year olds in the EU are in schools which are still not digitally equipped. The European Commission today unveils 'Opening up Education', an action plan to tackle this and other digital problems which are hampering schools and universities from delivering high quality education and the digital skills which 90% of jobs will require by 2020. To help kick-off the initiative, the Commission today launches a new website, Open Education Europa, which will allow students, practitioners and educational institutions to share free-to-use open educational resources.

63% of 9 year olds are **missing** the **digital equipment** they need at school

"… bringing the digital revolution into education"

"Open technologies allow individuals to learn anywhere, anytime, through any device, with the support of anyone"
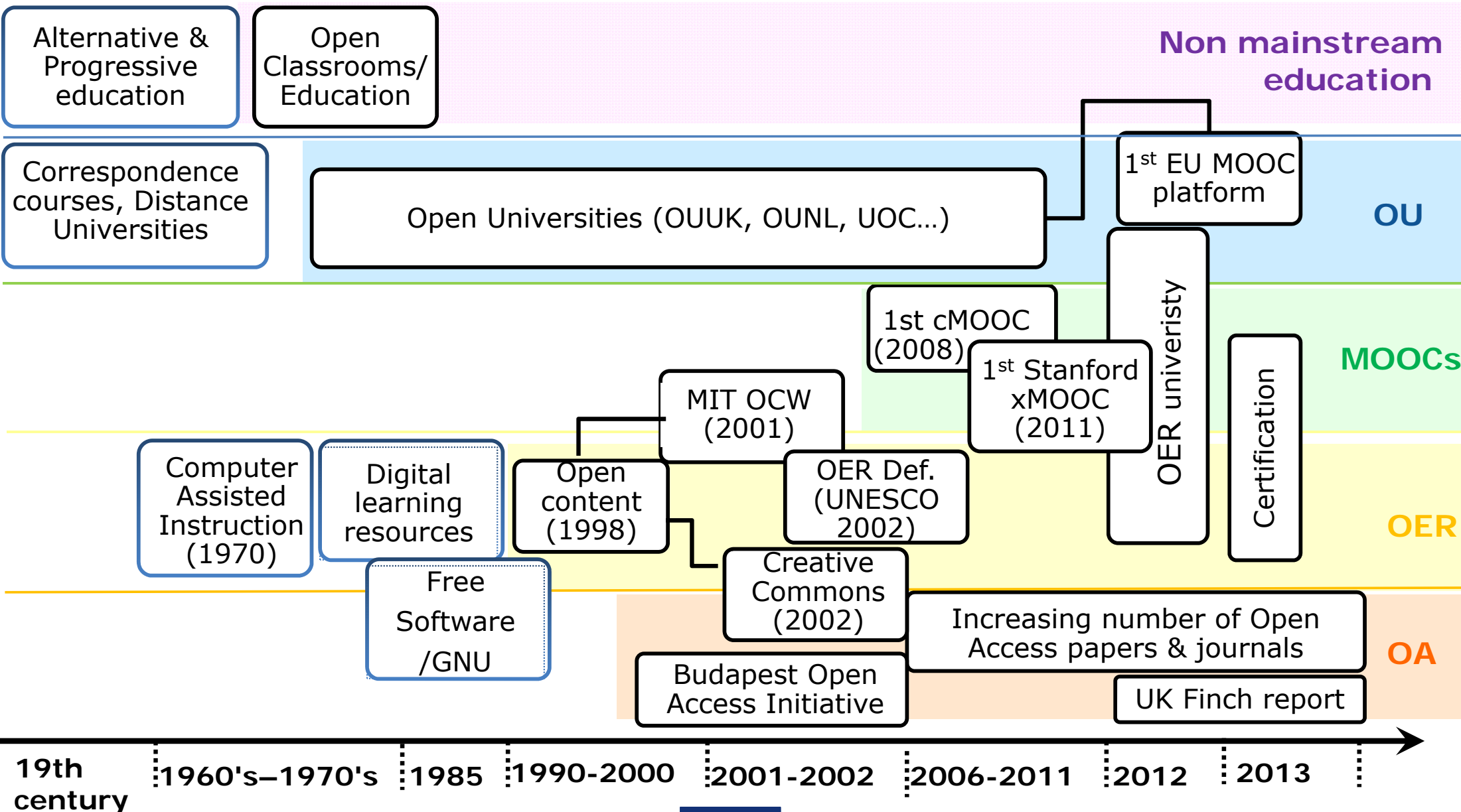
Open education is a collective term to describe institutional practices and programmatic initiatives that broaden access to the learning and training traditionally offered through formal education systems.

History of Open Education

European Commission

Non mainstream education

Alternative & Progressive education

Open Classrooms/ Education

OU

Correspondence courses, Distance Universities

Open Universities (OUUK, OUNL, UOC…)

1st EU MOOC platform

MOOCs

1st cMOOC (2008)

1st Stanford xMOOC (2011)

OER univeristy

MIT OCW (2001)

OER

Computer Assisted Instruction (1970)

Digital learning resources

Open content (1998)

OER Def. (UNESCO 2002)

Certification

Free Software /GNU

Creative Commons (2002)

OA

Increasing number of Open Access papers & journals

Budapest Open Access Initiative

UK Finch report

| 19th century | 1960's–1970's | 1985 | 1990-2000 | 2001-2002 | 2006-2011 | 2012 | 2013 |

Open Education: Five waves

1. **Open Classrooms** (Progressive education; 1960's)
2. **Open Universities** (1960's)
3. **Open Content** and Open Educational Resources (~2000)
4. **Sharing and collaboration of OER** with web 2.0 (~2006)
5. **Open Educational Practices** (now-)

The range of "Opens"

Open access to research literature		
Open data	Open Content	
Open educational resources		Open culture
Open source software		
Open infrastructure	Open infrastructure	
Open standards		
Open development		
Open education	Open process	
Open peer review		
Open research		
Open innovation		

e-InfraNet

CAPACITIES 7

e-InfraNet:
'Open' as the Default Modus
Operandi for Research and
Higher Education

European Network for co-ordination
of policies and programmes
on e-infrastructures (e-InfraNet)

- Is not only about Open Educational Resources and MOOCs
- Is not only about ICT and technology integration in education
- It is…
  - about widening access to education and learning in general (not only formal)
  - About new ways of learning, teaching, assessing, recognising, accrediting and delivering 21st century competences

=> Vast, ambitious, difficult agenda (status quo is not an option)

II. Teaching Profession in 2030

In the future, there will be

significant changes in

where we learn

when we learn

what we learn

how we learn and

with whom with learn.

Learner initiated (discovery)

Guided discovery

Self-guided discovery

goals

Guided ← Learning context → **Self-guided**

Learning

Guided journey

Self-guided journey

Externally set
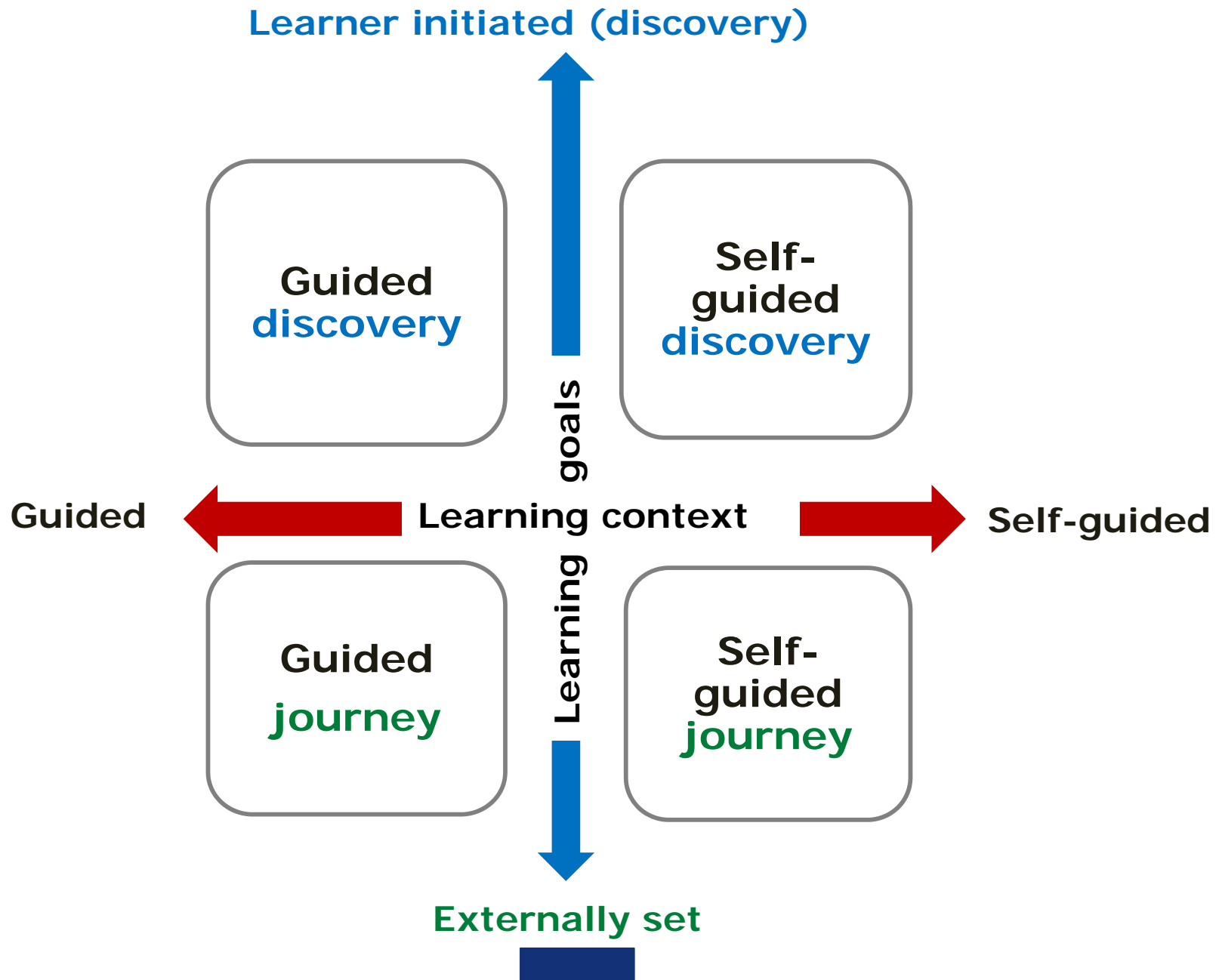
In the future, there will be

significant changes in

  where we learn

  when we learn

  what we learn

  how we learn and

  with whom with learn.

Thus affecting also the role of teachers

*Let's imagine
the teaching profession
in
2030*

to
challenge assumptions
and
*stimulate thinking
about
the present!*

Five stories of possible futures
for teaching profession
in 2030 (….as seen through the technology goggles)

	Name of the scenarios	Emphasis
Scenario 1	eNet: European Education Network	Expansion of eTwinning as centralised network
Scenario 2	MyNetwork	User-centred social network approach
Scenario 3	Intelligent Agents	Technology-focused approach
Scenario 4	Diversified Teaching Career	Autonomous learning and teachers as mentors
Scenario 5	Informal Learning Camps	Bottom-up peer learning

Table 1. Five scenarios for the teaching profession in 2025

Crosscutting issues affecting changes

- The role of Initial Teacher Training and Continuous Professional Development (CPD)

- Quality of teaching enhanced through networking, intelligent system, new teaching roles

- Recognition of teacher networks opening up towards new stakeholders

Technology:

- Underlying technological solutions: centralised vs. decentralised services; remote presence and robotic telepresence; artificial intelligence

- Ownership, control of data and commercialisation

- Privacy, security, safety, identity

Trends	Development of Trends	Scenarios				
		1	2	3	4	5
Teacher Training						
	Networking recognised as formal Initial Teacher Training	x			x	
	Networking recognised as formal Continuous Professional Development	x		x		x
Quality of teaching and learning						
	Teaching and learning improved through networking		x		x	
	Teaching and learning improved through an intelligent system			x		
	Teaching and learning improved through new teaching roles				x	x
Participation of Different Stakeholders						
	Teachers in Europe	x	x	x	x	x
	Teachers outside Europe	x	x			
	Teachers within the same local area			x		x
	Students	x	x		x	x
	Education researchers	x				
	Parents	x				
	Digital Mentors				x	
	Rotation Teachers					X
Data Management & Security						
	Safety and security managed by a public body	x				
	Users in control of their data		x			
	Private ownership of networks			x		

European Education Network (eNet)

is based on an idea of centralised technology where various tools and resources are made available in one place!

ENET - EUROPEAN EDUCATION NETWORK

According to this scenario, in 2025, eTwinning has evolved into a **European Education Network (eNet)**, a centralised network of networks which brings different education stakeholders together. The platform is funded and managed on behalf of the European Commission and is available in all the **official languages**. eNet has become part of Initial Teacher Training (ITT) and an eTwinning "licence" is given to all teachers. As **safety and security** are of paramount importance for eNet, all other users are requested to undergo an identification and verification process when requesting access to the network.

eNet is the main working tool for any teacher in Europe, through which their **Personal Teaching Record** is developed. This is linked to a career recognition system. eNet enables teachers to share and access high-quality resources free of charge (through an open content licence) in different European languages, prepare classes, document their work, assess their students, connect with other teachers through projects, look for jobs, search and apply for training and be active in suggesting changes in the curricula.

Students have their own pages on this new tool, but their activity can be monitored at any time by their teacher. Students feel it is a fun way of maintaining a form of "diary" of their school work and collaborating with students from other schools. **Parents** are also able to log-in to specific areas to view their children's progress.

Education researchers have a section where they share articles which could be useful for teachers and students, but can also participate, conducting research projects in collaboration with teachers and learners.

European Education Network (eNet)

is based on an idea of centralised technology where various tools and resources are made available in one place!

Pro's

- School exchange becomes part of initial teacher training and recognition of CPD
- Safe, secure environment for teachers, students and parents to interact
- Expansion towards more stakeholders
- Public funding (EU) for independence and sustainability

Con's

- Centralised governance and structure (big brother?)
- Less favorable in terms of openness, flexibility and interoperabilty with other networks and spheres of life.

2. MyNetwork

is based on decentralised technologies and user-centred social networking approach

SCENARIO 2
MYNETWORK

The **MyNetwork** scenario presents a personalised social networking approach to diverse and fragmented networks that exist alongside one other. This scenario is the opposite of eNet in terms of structure and governance.

In 2025, teachers are able to manage their networks through a single application. **MyNetwork** enables teachers and students to create multiple profiles through a single log-on, whereby they are able **to manage their personal data, its visibility and their list of contacts**.

Teachers are able to link to different external applications. A **complex identity management system** allows users to **change from one profile to another at the click of a button**. For the school profile, the teacher enters a **secure environment** which is compliant with the school's policies. Teachers can also connect with teachers outside Europe to share ideas and resources. As an application which **runs from the cloud**, it allows them to log on from anywhere, at any time. Students also have their own profile on MyNetwork, and there is no need for them to compromise their personal freedom because they are in control of what their teachers are able to see: their school profile. The teacher can observe how active the students are and if they take sufficient initiative for learning. In general, teachers find that students are **more involved in active learning**.

2. MyNetwork
is based on decentralised technologies and user-centred social networking approach

Pro's

- Decentralisation and federation across networks
- Flexible, serving a diverse needs and profiles
- Wide variety and choice - Personalised approach

Con's

- Market fragmentation and individual approaches
- Favours technology proficient users – others may stay behind
- Difficult to engage parents and other stakeholders
- Formal recognition as CPD unclear

3. Intelligent Agents

is based on emerging technologies like recommendations in Amazon.com

SCENARIO 3
INTELLIGENT AGENTS

In 2025, teachers are now connected 24/7 through different mobile devices. Given that teachers often feel isolated and overwhelmed by the sheer amount of teaching material and ideas available online, an **Intelligent Agent (IA)** has been created to **assist them in their work, help them rummage through extensive pools of information** and **enable them to stay connected with other teachers**.

The IA is programmed to perform searches, identify resources, present draft lesson plans and suggest a number of *buddies* who are also working in similar areas. This solution is provided by a private company and is paid for by the school. Several companies offer competing solutions.

The IA frees up time for the teachers which can be dedicated to **preparing lessons** and **attending Continuous Professional Development (CPD)**. This should lead to an improvement in terms of quality of teaching, since, for instance, the IA helps to **keep lesson plans diverse** and through CPD, more creative and innovative activities can be developed in the classroom. The IA can also identify buddies in the local area; these are **other teachers teaching the same subject in other schools**, so that teachers can maintain contacts with peers in the same geographical area, too.

3. Intelligent Agents
is based on emerging technologies like recommendations in Amazon.com

Pro's

- Almost like Amazon.com or a music recommender for teaching

- Avatar does the repetitive activities – reduction of workload

- Dealing with information overload and complexity

- Open Educational Resources

Con's

- Technology dependence: reliability, dependability, automated suggestions and decision-making

- Trust, security, privacy,

- Private market solutions only

4. Diversified Teacher Careers

is based on "remote presence from robotics" and personalised learning analytics

DIVERSIFIED TEACHING CAREERS

In 2025, students are accustomed to **personalised learning**. Students go to school every day but, two days per week, they are expected to be **autonomous** in choosing how they want to learn. The school is responsible for providing **different methods** to enable each student to receive different lessons.

Lessons are available in three different modes: (1) **in situ with the physical presence of teachers**, (2) **virtual in real-time learning with online presence of teachers**, and (3) **virtual learning in play-back mode** or by an **interactive application with the presence of a teacher**. It is up to the students to decide how they want to attend the class, in which order, where they want to do it and in which language. Within such a student-centred system, Initial Teacher Training is now divided into different career paths: **teaching in class, teaching virtually or student mentoring**.

The role of the teacher as **mentor** and guide has become indispensable for any student. Students are given various options **to personalise their learning paths**. Teachers will be trained to remotely mentor the group of students for whom they are responsible. This takes place through a digital network which links students' activities to the mentor. While students' mentors will be alerted if the student has not completed his/her task for the month, at the same time students may refer to their mentor whenever they encounter a difficulty in their work.

4. Diversified Teacher Careers

is based on "remote presence from robotics" and personalised learning analytics

Pro's

– Autonomous learners through personalisation and taking responsibility

– Different teaching professions: teaching in class, teaching virtually, student monitoring

Con's

– Highly dependent on use of digital technologies for organisation and administration of learning

– Significant investment in teacher training

5. Informal peer camps: Off-line peer learning

is based on "information fatigue" and disbelief on badly designed technological applications

INFORMAL LEARNING CAMPS

This scenario assumes that, by 2025, conventional teacher training has failed in many respects. In the last five years, teachers have spent substantial amounts of time learning new networking applications for teacher collaboration, but they increasingly criticise the lack of face-to-face contact and learning. An alternative group of teachers has emerged who come together a couple of times per year for a full weekend, to learn and train each other. These face-to-face learning "boot camps" are completely bottom-up, unstructured and shaped by the participants themselves.

In these informal **teachers' collaboration and networking events**, teachers get an opportunity to co-operate, e.g. through collaborative projects with other teachers. As technology is expected to be ubiquitous by 2025, for teachers it is important to have specific teaching materials and applications that meet diverse teachers' needs. Thus, teachers will, for example, jointly develop new applications for teaching, all based on **open technologies, open source software and Open Educational Resources**. These applications can be modified and applied in each individual's teaching practice, as well as shared freely with students and parents.

According to this scenario, the face-to-face learning events are at the core of teacher cooperation and CPD. Technologies and networking applications are only considered as a means of increasing the quality of the produced learning materials and on the other hand, increase the effectiveness of the teachers' interaction and communication in-between boot camps.
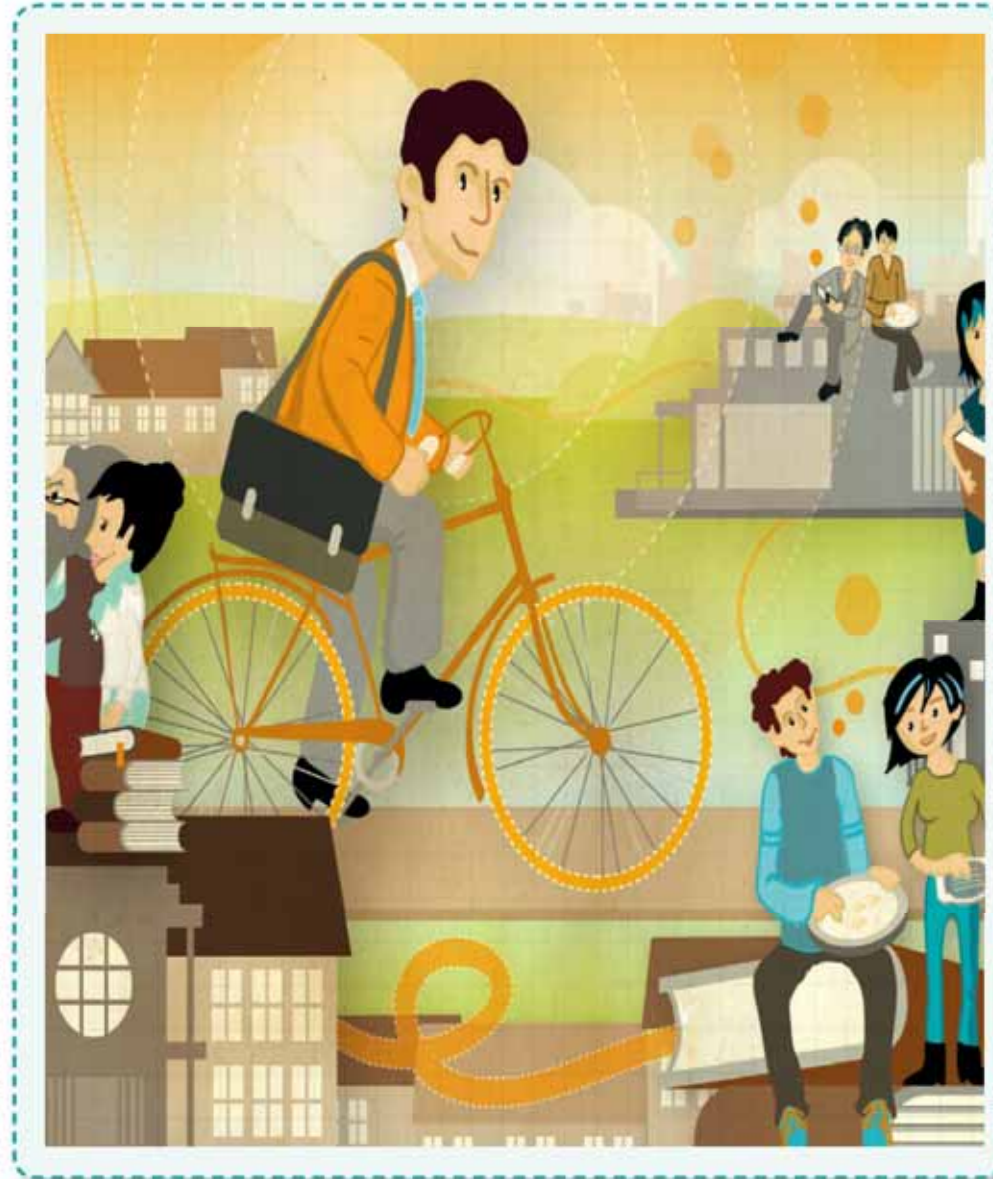
5. Informal peer camps: Off-line peer learning

is based on "information fatigue" and disbelief on badly designed technological applications

Pro's

- The face-to-face time is valued
- Collaboration is embedded in innovating with teaching
- Open technologies allow new case specific innovation

Con's

- Current technologies failed teachers and didn't understand their needs
- Digital divide between teachers who engage in CDP on technology and those who don't
- Lack of institutional support leaves teachers without formal recognition of their efforts

eTwinning

Teaching profession in 2025 – what does the future bring?

This activity introduces a new type of eTwinning material for teachers' professional development purposes. The material and instructions can be used by any teachers, for example with colleagues in the same school, to start a group discussion on different future perspectives for the teaching profession, or with teachers in another school.

The material consists of five scenarios introducing different possible futures of teachers' profession in compulsory education in 2025. By reflecting on possible futures through the support of five scenarios, teachers are encouraged to discuss and explore different ideas of how the teacher profession could be in 2025 and beyond.
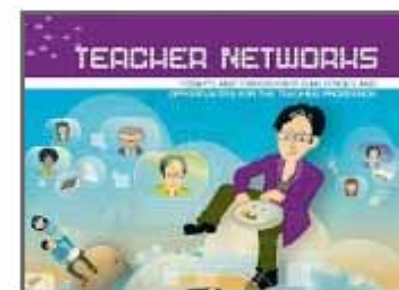
This self-paced activity can be done in any size of a group (minimum 2) and takes about 2 hours to complete. The downloadable material includes step-by-step instructions. Additionally, a Teachers Room is opened specifically for this module on the Desktop to allow teachers to share their opinions and visions with others. The module can also be used for eTwinning projects between teachers only. This module has been created as part of Tellnet - Teachers' Lifelong Learning Network (http://www.tellnet.eun.org), a project funded by the European Commission Funding Programme: Lifelong Learning, Key Activity 4.

Type of activity: teachers' professional development
Tools and method: group work, common discussion
Target audience: teachers and educational practitioners
Level: intermediate/difficult
Duration: 2 hours
Material: Download the scenarios (pdf) for each participant

Other support material:

http://www.etwinning.net/en/pub/collaborate/modules/teaching_profession_in_2025.htm

III. Final questions for discussion

For ETUCE:

Which scenario, or a combination of them, is desirable?

Which scenario, or a combination of them, is undesirable?

**(Should you make your own scenario
that would be more desirable?)**

**What do you have to do today to make that scenario
take place, or prevent it to take place, in 2030?**

Thank you for your attention!

https://ec.europa.eu/jrc/en/institutes/ipts

http://is.jrc.ec.europa.eu/pages/EAP/eLearning.html