



**Deutscher Bundestag**

Enquete-Kommission  
Berufliche Bildung in der  
digitalen Arbeitswelt

**Kommissionsdrucksache**

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31. Mai 2019

# **Digitalisation and the future of work and vocational training**

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Deutscher Bundestag

Vocational training in digitally advanced regions: learning from the best

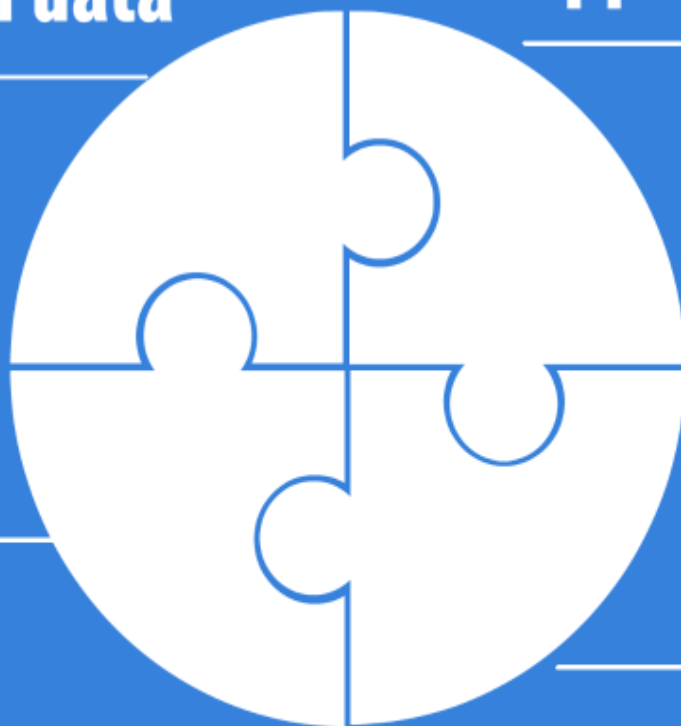
03 June 2019

**Collecting novel data**

**Supporting EU countries**

**Consequences  
of automation**

**VET policies in  
new forms of work**

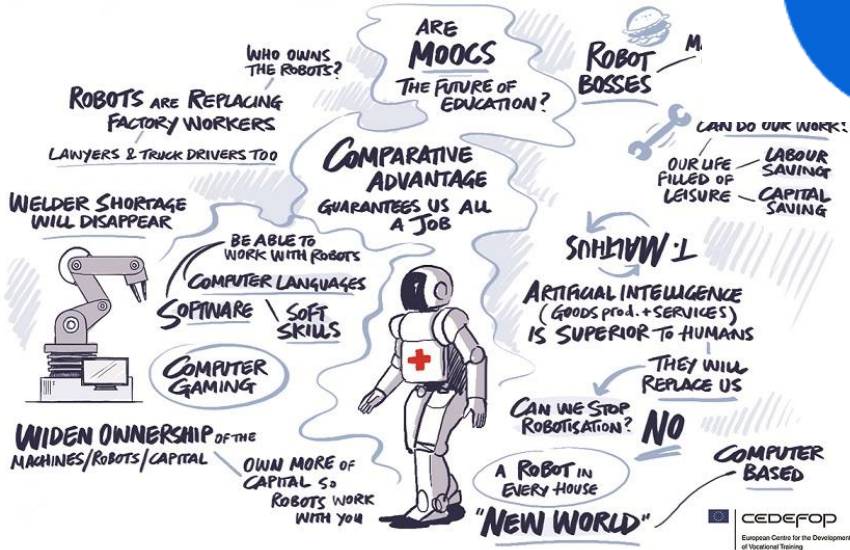


**Our value**

# Cedefop and future of work & learning

2018-2021

Robots and the future of work:  
is technology destroying jobs and skills?



POLICY LEARNING FORUM

Skills anticipation methods and practices

14 and 15 June 2018

#skillsanticipation



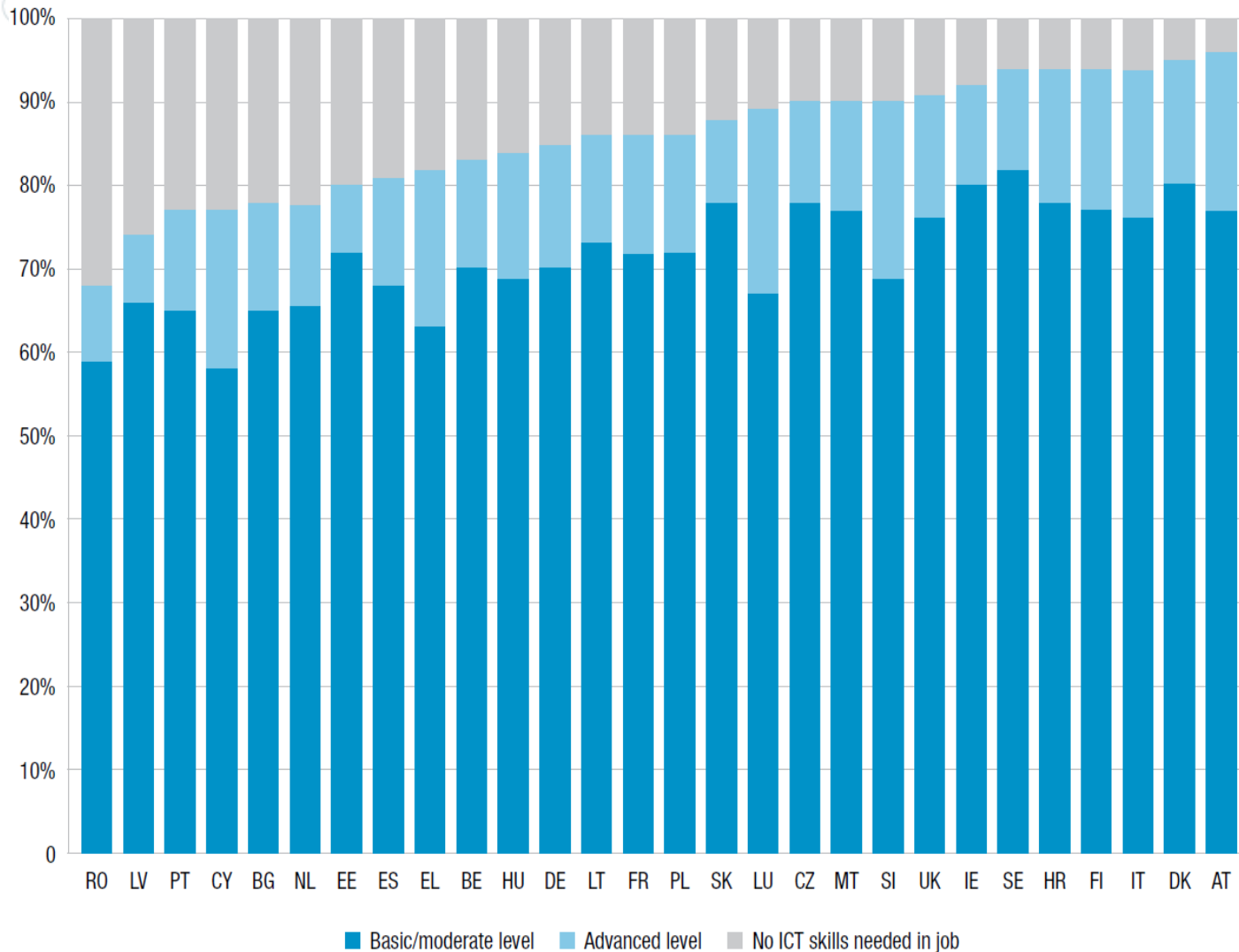
Online job vacancies and skills analysis

A Cedefop pan-European approach



# Digitalisation is raising the bar for skills

Level of importance of ICT skills in jobs, adult workers, 2014, EU28



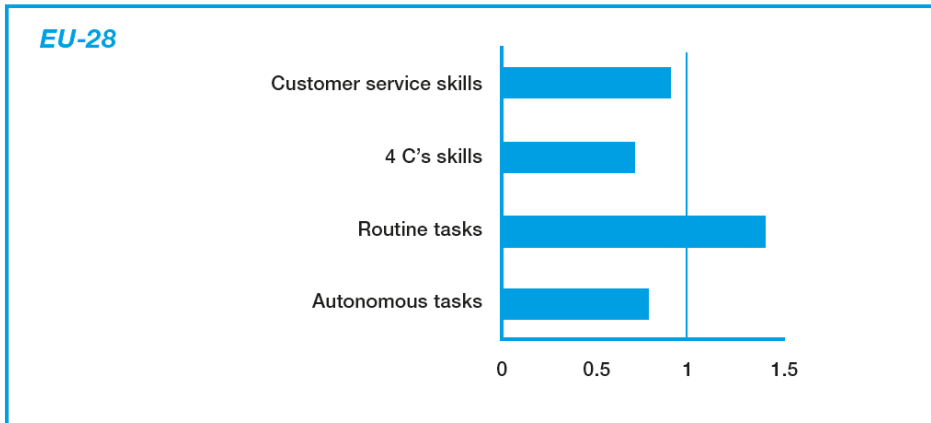
- 7/10 EU jobs need > basic digital competences
- 14% advanced ICT
- Highest: SE, DK, IE  
Lowest: CY, RO, EL
- 1/3 workers risk of digital skill gap

Source: [European skills and jobs survey](#)

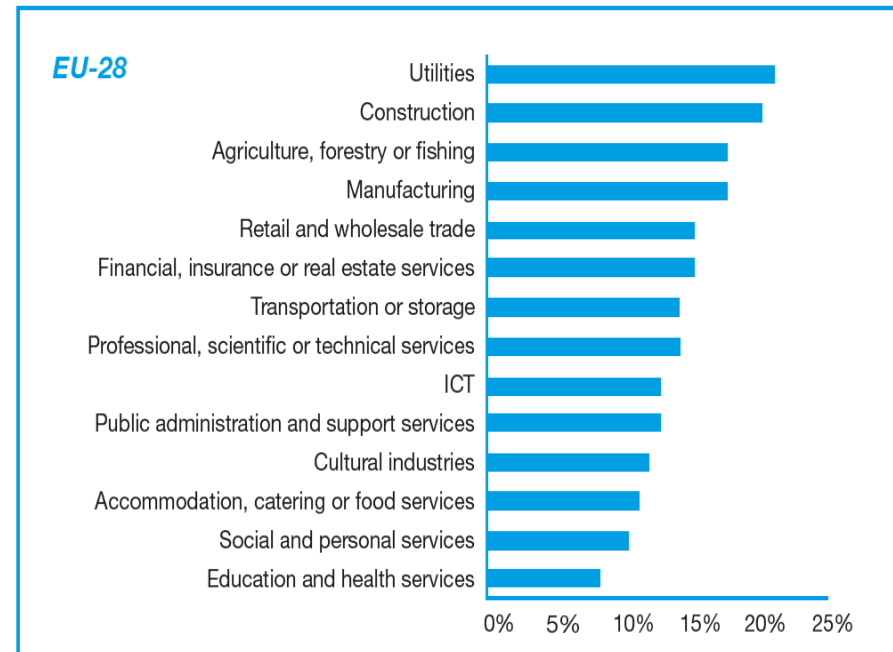


# ...transforming jobs and skill needs

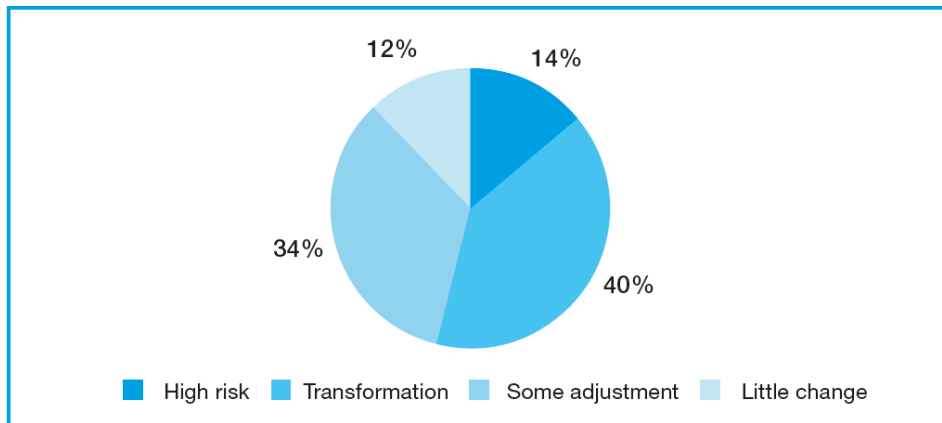
## Job skills/tasks conducive to automation, logistic regression



## Share of EU workers at very high risk of automation, by industry



## Types of EU workers at risk of automation



NB: Automation risk classes defined as: High risk = 70% probability; Transformation = between 50-70%; Some adjustment –30-50%; Little change = automation risk < 30%

Source: [Pouliakas \(2018\)](#); [European skills and jobs survey](#)

# ...and the way we learn and work

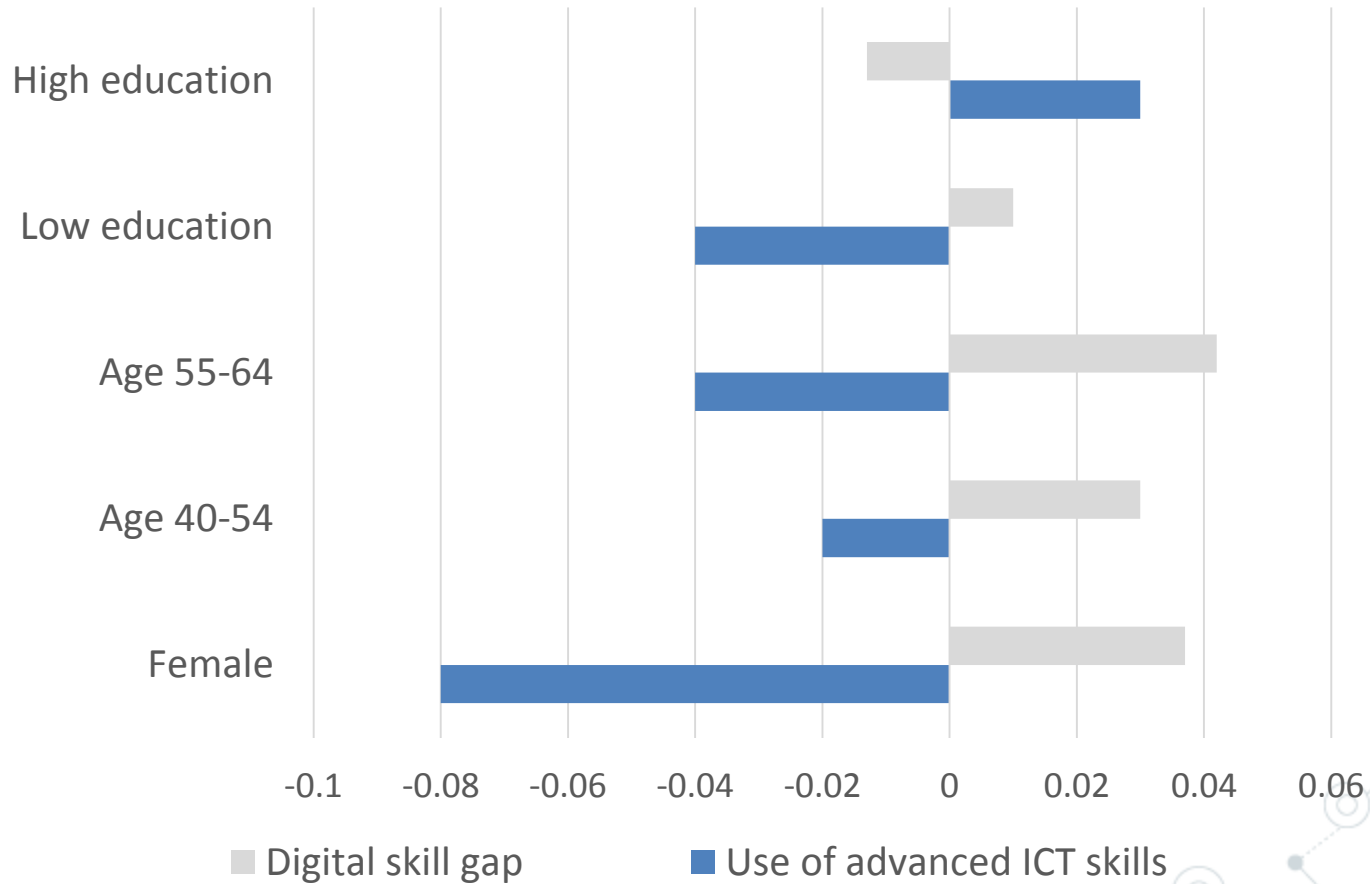


Key skills for crowdworkers

Source: [Cedefop CrowdLearn Study](#)

# ...giving rise to a digital divide

Use of advanced ICT skills in jobs and risk of digital skill gaps in jobs, 2014, EU28



Source: [European skills and jobs survey](#)

# Some are adapting better than others

Digital Economy and Society Index 2018, Human capital



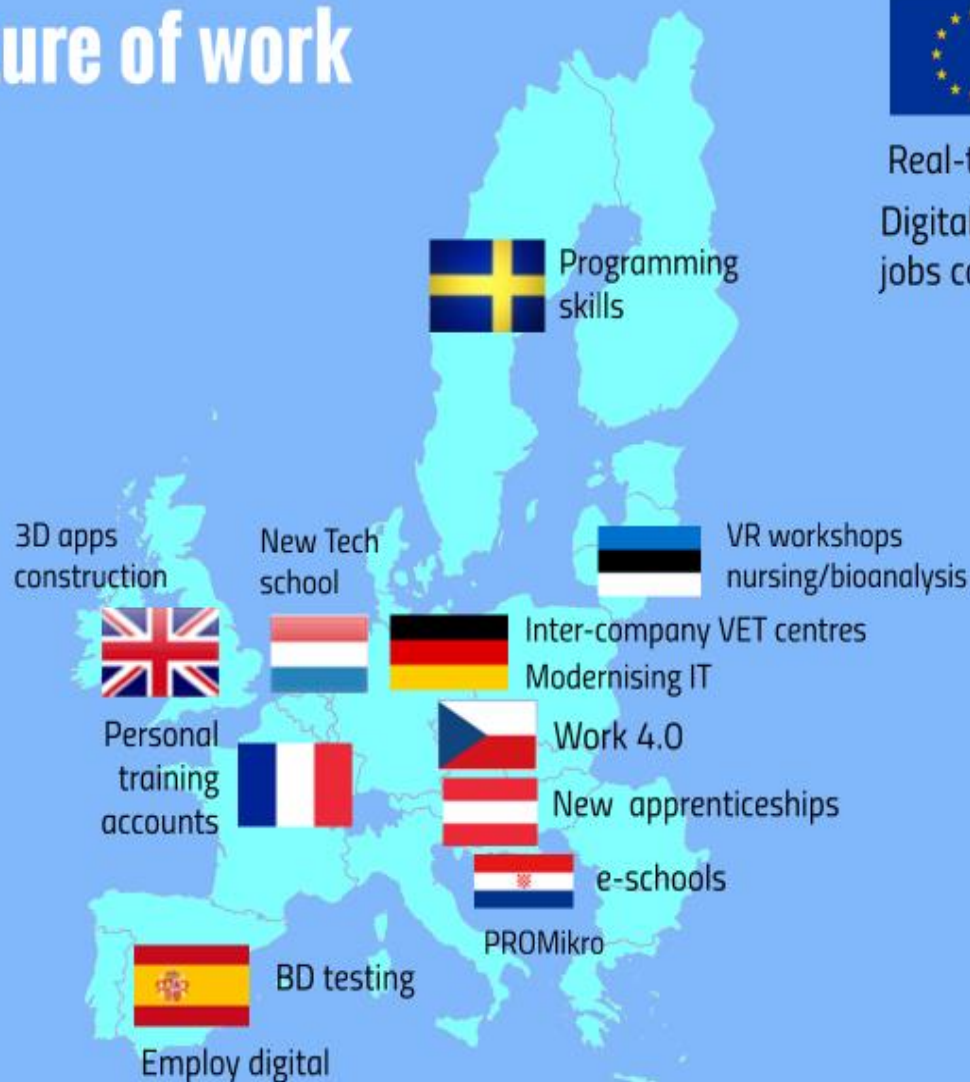


# VET policies for the future of work

- Policy strategies for Industry 4.0
- Investments in modernising digital infrastructure in schools/WBL
- New programmes and teaching methods
- Revision to curricula
- Digital/AI technologies for tackling skill shortages
- Use of big data for adapting VET provision
- Digital skills and jobs coalitions
- Training in new forms of work

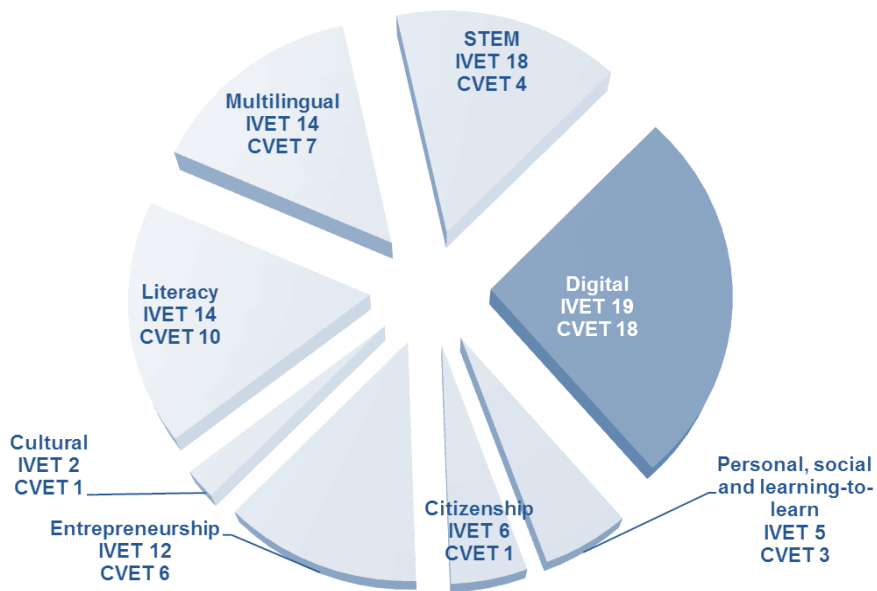


Real-time LMI  
Digital skills & jobs coalition

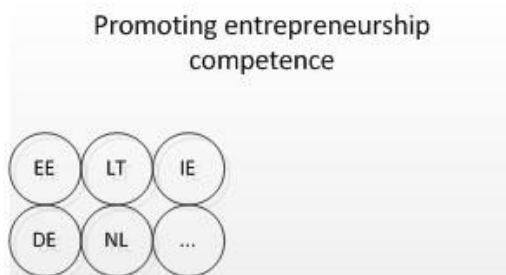


# EU VET systems: 'robot-proof'?

VET policy on key competences, 2015-18



## Continuing VET policy clusters in 2015-17



# Towards an AI Education

- AI-powered OERs
- Intelligent (dialogue-based) tutoring systems
- Personalised / self-directed learning
- Online learner communities
- Finland teaches 1% of population on AI (challenge to SE, DK)
- Estonia 'STEAM labs'
- France AI institutes (3IA) & AI school
- China offers textbooks on AI at primary school

Changing learning landscape

Learner feedback



Learning sequencing

Tackling misconceptions

# Learning from the best

- Digital culture in learning
- Access to digital infrastructure & learning resources
- Interdisciplinary curricula & VET programmes
- Digital competence assessment methods
- Digital learning analytics
  
- Teacher and school leaders' competence development
- Trust in teachers!



# Learn more

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## Project info:

<http://www.cedefop.europa.eu/en/events-and-projects/projects/digitalisation-and-future-work>

<http://www.cedefop.europa.eu/en/events-and-projects/projects/european-skills-and-jobs-esj-survey>

