

## STREAM 2

### Trends and factors shaping mismatches

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## Objective

assessing the conceptual clarity  
and practical relevance of the proposed  
structure and logic



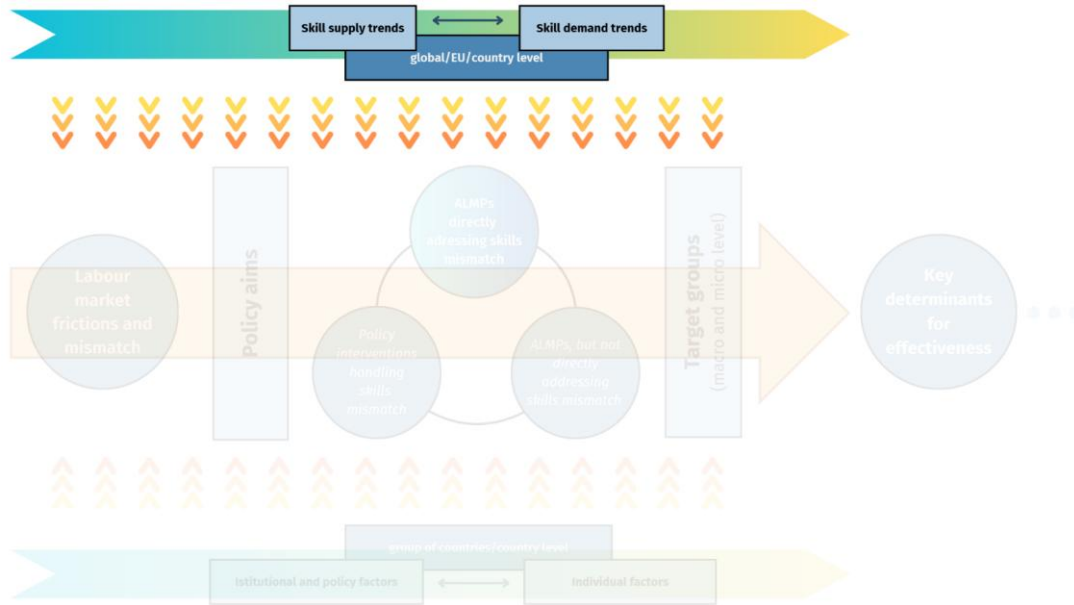
Focus on the **two transversal dimensions**  
highlighted by the framework:

- ⌘ **key trends** of skills mismatch;
- ⌘ **factors** influencing the implementation of ALMPs.

Guided discussion with participants



# Part A: core trends of skills mismatch



Mismatch is tied to specific temporal and spatial contexts, driven by forces affecting both skill demand and supply. These dynamics create new frictions while reshaping existing ones, making trends crucial as they **establish the context for mismatches** and **determine how ALMPs remain relevant and adaptive**.

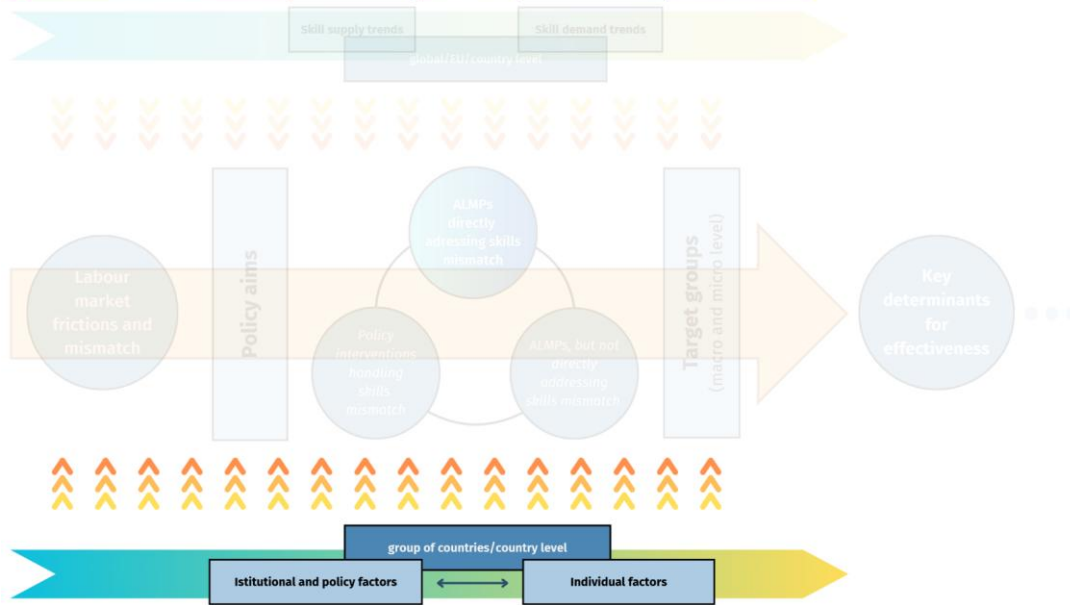
Major drivers - like technological change or the green transition - **alter activity structures and required competences** on the demand side, while shifts such as migration and demographic change affect **workforce composition, qualifications, and responsiveness** on the supply side.

Looking at trends from both angles does more than provide background; it defines the **conditions under which ALMPs are conceived and evaluated**. By tracing how these dynamics interact, the framework shows that mismatch is not merely the product of individual pathways or sectoral tensions, but the outcome of broader **systemic transformations that continually reshape skills needs and resources**.



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# Part A: factors in ALMPs design and implementation



The role of ALMPs in addressing skills mismatches is inseparable from the **institutional and policy setting** in which they operate.

A whole range of **factors** shapes the design, implementation, and effectiveness of ALMPs. These influences interact rather than act alone and, for analytical purposes, can be grouped into four domains: the **wider policy and institutional environment**, the **governance of skills systems**, the **organisation and delivery of ALMPs**, and the capacity for **innovation and adjustment**

Studying and understanding these elements helps explain **why results can diverge across contexts**, highlights the **need to align ALMPs with education, welfare, mobility, and industrial strategies** - while ensuring effective governance and institutional capacity - and provides a **basis to assess whether outcomes stem from programme features or the surrounding enabling or constraining conditions**.



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## 1. DEMAND

- 1.1 Technological change
- 1.2 Fair Green Transition
- 1.3 Geopolitical and Macro-economic Changes

## 2. SUPPLY

- 2.1 Demography
- 2.2 Migration
- 2.3 Participation in education and training
- 2.4 Literacy and Numeracy Evolution



# 1.1 Technological Change

**Description of Trend:** Introduction of technological supports and devices of different types into organizations and processes, adoption of new technological applications...

Specifics and dimensions	Examples of available evidence (selection)	Possible impact on skills mismatch
Impact related to digitalization, automation, AI and generative AI introduction and adoption... (softwares, robots, digital devices)	<ul style="list-style-type: none"> <li>• Cedefop ESJS data;</li> <li>• OECD data;</li> <li>• at national level, surveys on adoption of technologies into companies and processes</li> <li>• ...</li> </ul>	<p>Impact on demand-side:</p> <ul style="list-style-type: none"> <li>• changes in the <b>types of tasks</b> required in jobs, in the types of instruments required and therefore need for <b>upskilling/reskilling</b> specific occupations;</li> <li>• at the extreme end, possible disappearance of specific jobs as they are (might morph into other occupations)</li> </ul>

Workers use a computer device to do their job in **87%** of EU+ jobs



New digital technologies were introduced in the workplace of **44%** of EU+ adult workers during 2020-21



**35%** of EU+ adult workers had to learn to use new digital technologies to do their job during 2020-21



**72%** of users of computer devices in the EU+ need to use the internet for their main job



**7%** write programmes or code for their job



**8%** of EU+ adult workers work with robots as part of their main job



**9%** operate 3D printers



# 1.2 Fair Green Transition



**Description of Trend:** Normative and operational transition to Green Economy

Specifics and dimensions	Examples of available evidence	Possible impact on skills mismatch
Impact driven by EU-wide normative requirements on activities and processes	<ul style="list-style-type: none"> <li>• Reports on estimates of impact of Green Transition,</li> <li>• types of skills needed and available,</li> <li>• impact on employment and labour shortages,</li> <li>• comparison with other countries</li> </ul>	Creates <b>demand for new skills and makes other skills potentially obsolete</b> ; these drive the need for <b>reskilling and upskilling</b> interventions

Table 2. **Forecast job creation and destruction in 2020-30 linked to EGD implementation in most heavily impacted sectors by occupation level (difference in employment levels between baseline and EGD skills forecast scenario)**

Occupation	Coke & refined petroleum products	Gas, steam & air conditioning	Mining and Quarrying	Water supply, Sewerage, Waste management & Remediation activities	Construction	Electricity	Computer programming, information services
Highly skilled non-manual occupations	-62.7	-36.0	-19.4	404.1	122.5	90.9	56.3
Skilled non-manual occupations	-14.5	-8.4	-3.9	104.3	28.6	20.3	4.8
Skilled manual occupations	-76.8	-14.5	-31.4	244.9	305.2	28.5	3.7
Elementary occupations	-13.7	-1.3	-3.4	207.3	30.4	2.8	0.5
<b>Total</b>	<b>-167.8</b>	<b>-60.3</b>	<b>-58.2</b>	<b>960.5</b>	<b>486.6</b>	<b>142.4</b>	<b>65.3</b>

NB: A main assumption underlying the analysis is that the occupational composition of employment in sectors is not affected by EGD implementation (see also Chapter 2).

Source: Cedefop skills forecast, 2020 baseline and EGD scenario estimates.



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# 1.3 Geopolitical and Macro-economic Changes



Dealing with International Summit

## UN General Assembly, New York, 23-29 September 2025

The 80th session of the UN General Assembly opened on 9 September 2025. The first day of the high-level general debate will be Tuesday 23 September, under the main theme 'Better together: 80 years and more for peace, development and human rights'.

### Description of Trend: Changes in geopolitical equilibria and new alliances

Specifics and dimensions	Examples of available evidence	Possible impact on skills mismatch
Isolationism, trade tariffs increase and volatility, increased perceived need for autonomy and independence (e.g. energy, defense)	<ul style="list-style-type: none"><li>• Policy briefs on renewed European competitiveness and independence;</li><li>• data from foreign trade;</li><li>• national researches on specific sectors and categories...</li><li>• Think tanks contributions...</li></ul>	<p>Impact on demand-side:</p> <ul style="list-style-type: none"><li>• might <b>increase demand of specific skills</b> both for enhanced innovativeness (high-skilled professionals),</li><li>• for advanced manufacturing (skilled professionals),</li><li>• and for several types of occupations in the industry being re-shored in Europe due to geopolitical or trade changes, or developed ex novo</li><li>• Increased <b>uncertainty</b> on foresight and data</li></ul>



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# 2.1-2.2 Demography and Migration



**Description of Trend:** Demographic changes in Europe; Migration flows – strictly linked to migration policies, discussed under “Key Factors”

Specifics and dimensions	Examples of available evidence	Possible impact on skills mismatch
<ul style="list-style-type: none"><li>• Different ratios across age cohorts; dependency rates; impact on employment and welfare;</li><li>• Composition of skills of migrants, and their qualifications</li></ul>	<ul style="list-style-type: none"><li>• Projections on demographic evolutions, composition by age cohorts, evolution of dependency rates...;</li><li>• Evidence on migrations and skills might be less developed, at country-level, compared to other trends and topics;</li><li>• usually covers qualifications gained abroad; might cover patterns of recognition of skills</li></ul>	<ul style="list-style-type: none"><li>• Impact on supply-side, in terms of <b>potentially available skills</b> and updating needs of older cohorts, which might be in need of developing additional or new skills compared to what is already available;</li><li>• Migration flows can impact the <b>baseline of available skills</b>, and under specific institutional conditions alleviate skills mismatch in specific areas.</li></ul>



## 2.3-2.4 Participation in Education and Training and Evolution of Literacy/Numeracy



**Description of Trend:** Participation in general education and tertiary education, in vocational education and training, and in lifelong-learning can directly impact skills mismatch by delivering or not – skills required by the economy.

Specifics and dimensions	Examples of available evidence	Possible impact on skills mismatch
Participation in different types of education and training, and corresponding achievements and qualifications	Database on the evolution of educational and training attainments, on participation in lifelong learning, on relation between such participation and different socio-demographic variables  - PIAAC Data for Literacy and Numeracy	<ul style="list-style-type: none"><li>• Educational and training attainment, albeit they do not measure skills level, are a useful proxy for the type of competences available and their evolution, allowing skills intelligence to progress;</li><li>• Useful to map possible availability of skills and qualification, compared to expressed and projected needs</li></ul>





## Policy and institutional factors affecting labour and skills supply and demand



**Understanding differences in institutional and policy environments across countries is crucial for assessing variations in skill mismatches**



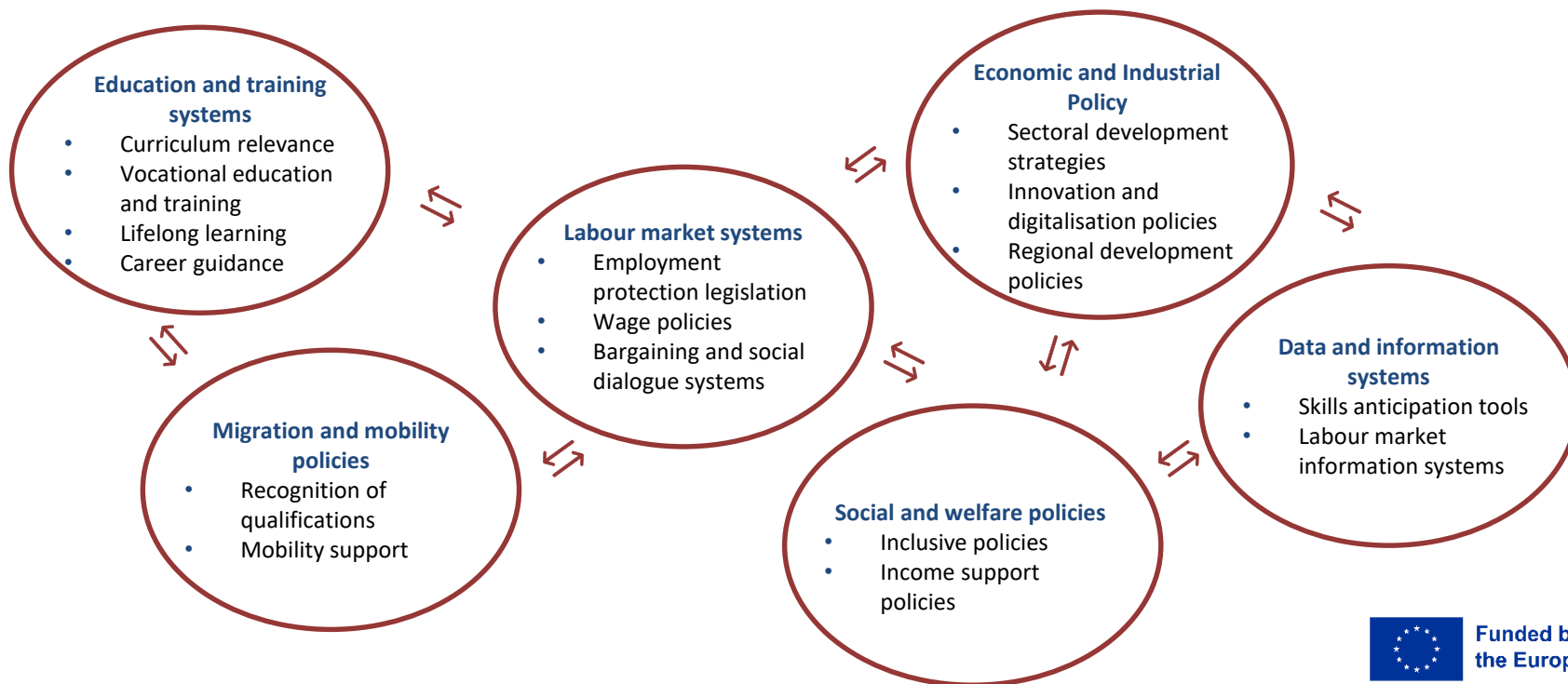
- Policy factors affecting skills mismatching: wider policy environment/skills ecosystem and its governance
- Institutional factors: institutional set-up and structure of ALMPs



## Policy factors: Wide policy environment



Skills matching - aligning individuals' skills with labour market needs - is influenced by a range of policy factors that pertain to a **wider skills ecosystem**



# Governance for a wide skill ecosystem



A wide skills ecosystem calls for an **integrated and holistic approach** among policy domains and systems to improve policy coherence and coordination **horizontally and vertically**, ensuring **high stakeholder engagement** and **commitment at both national and local level**



Effective governance mechanisms are at the core of a **coordinated and coherent approach**



- Co-ordination, co-operation and collaboration across the various government levels (both horizontal and vertical dimensions)
- Engagement with stakeholders throughout the policy cycle
- Integrated information systems
- Alignment and coordination between financing arrangements

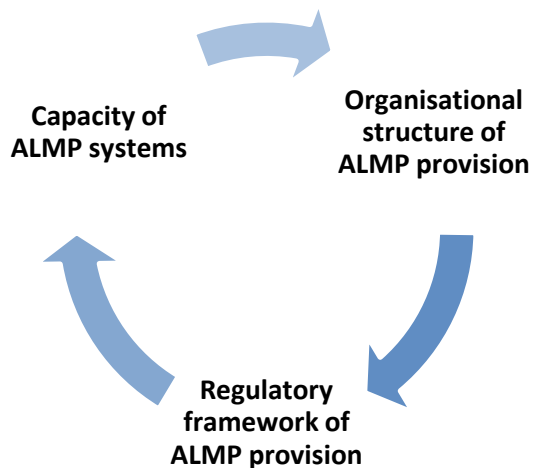
- Effective communication practices  
Strengthened stakeholder and institutional capacity
- Effective and sustainable monitoring and evaluation systems
- Coordinated and shared data and information systems



# Institutional set-up and structure of ALMPs



ALMPs' **design, institutional framework, coverage, targeting, and the way they are implemented**, play a key role in the way they address the supply and demand of labour and skills



- ↔ **Organisational structure of ALMP provision:** allocation of responsibilities for ALMPs among key stakeholders, along with the mechanisms of coordination and collaboration between them.
- ↔ **Regulatory framework of ALMP provision:** legal provisions governing the design and implementation of ALMPs, including their flexibility and level of complexity.
- ↔ **Capacity of ALMP systems:** availability of public funding and resources for employment services, such as job placement and related services, and ALMP initiatives.



# Governance models and structure of ALMPs



## Organisational structure of ALMP provision

### Key institutions in ALMP provision

- **Competent ministry (Ministry of Labour/Social Affairs)**
  - Defines ALMP framework
  - Develops budgets and policies
- **Subnational governments**
  - Guidance and coordination among PES
  - Implement own initiatives aimed at specific targets (e.g., jobseekers, unemployed)
- **Public Employment Services (PES)**
  - Implements ALMPs
  - Decision-making in execution
- **Additional stakeholders** vary across EU countries



### PES legal status categories across the EU

- **Independent** public body
- **Independent** public body with local/regional management
- **Integrated** into responsible ministry
- **Integrated** nationally, regional PES under regional governments
- **Integrated** nationally, regional/local PES under different ministry



### PES autonomy & ALMP responsibility

- PES' influence and decisional powers depend on budget and political decisions
- **ALMP responsibility in EU countries:**
  - **Fully** responsible: Most federal and unitary countries
  - **Partial** responsible: Some unitary countries
- **Private Employment Services (PrES)** involvement varies across the EU

### Inter-institutional collaboration Ministries and PES partner with:

- Employment service providers
- Training institutions
- Temporary work agencies
- Non-profits and local stakeholders
- PrES
- ...



### Role of social partners in ALMP provision

#### Advisory and supervisory roles in PES and ministries

- Full involvement
- Advisory only
- PES supervision but not ministry
- Ad-hoc involvement



# Governance models and structure of ALMPs



## Regulatory framework of ALMP provision

### Key components of the regulatory framework

- National legislation and parliamentary acts
- Ministerial and government regulations
- Regional and local authorities' legal instruments
- Decisions by PES supervisory bodies and executive decisions



### Flexibility vs. Complexity

- **Regulatory flexibility:**  
The ease of modifying ALMP provisions
- **Regulatory complexity:**  
The number of regulatory layers governing ALMPs

**Both factors influence the extent to which ALMP systems adapt to labour market changes**



### Classification by regulatory framework across the EU

- **Complexity**
  - **High** complexity: ALMPs set by 3+ regulations
  - **Moderate** complexity: ALMPs set by 2 regulations
  - **Low** complexity: ALMPs set by 1 regulation
- **Flexibility**
  - **Low** flexibility: ALMP provisions require parliamentary adoption
  - **More** flexibility: ALMP conditions can be modified without parliamentary approval



### Strategic flexibility in ALMPs: role of subnational governments/actors

- **Decentralised systems**  
ALMP adaptability **depends on the delegation of authority** to subnational governments
  - Regional governments design ALMPs
  - National policies set, but regions choose implementation
  - Hybrid approach: National and subnational governments collaborate
- **Centralised systems**  
National governments retain responsibility of ALMPs, with **some local adaptation**



# Governance models and structure of ALMPs



## Capacity of ALMP systems

### Funding and resource allocation

- **Public funding sources:** National, regional, and local budgets.
- **EU funds** (e.g., ESF+, REACT-EU, RRF) play varying roles in different countries



### ALMP expenditure

ALMP spending **averages 0.5% of GDP** across EU Member States

#### ➤ Significant regional variation:

- Nordic countries invest the most
- Southern Europe allocates lower resources



### Capacity of PES

#### ➤ Key factors:

- Resource **availability and stability**
- Political **prioritisation**

**PES budgets are sensitive to fiscal policies and austerity measures**

### Regional investment patterns

- **Continental Europe:** High ALMP and PES investment
- **Northern Europe:** balanced approach - moderate-to-high spending on both PES and ALMP
- **Eastern Europe:** Moderate ALMP, low PES
- **Southern Europe:** Low ALMP and PES investment



### PES human resources

- Changes in staff levels often **linked to new ALMP initiatives**
- **Internal organisational adjustments** impact ALMP system performance



# Innovation and adaptation: role of digitalisation and AI



## Digital transformation of PES

- **Integrated Labour Market information Systems and dashboards** → monitor uptake, evaluate effectiveness, adjust interventions.
- **Online platforms** → scalability, accessibility, and continuous engagement for jobseekers.



## AI in employment services

- **Digital tools** - from online job portals to AI-powered matching systems
- **Algorithmic matching tools**
- Integrated **databases** and **real-time tracking** systems



### ➤ Benefits

- Faster response to labour market changes
- Better targeting and evidence-based policymaking
- Optimisation of large-scale processes

### ➤ Challenges and risks

- Digital literacy and infrastructure gaps
- AI governance → data quality, human oversight, ethical frameworks



# Key questions for reflection



How well do the identified trends and factors capture the main drivers of labour market dynamics and skills mismatch?



What additional data, intelligence, or capacity is most needed by policymakers and stakeholders to respond effectively?



### Trends:

- Focus more on the gender dimension in the European and national context.
- Key datasets: Web Intelligence Hub; Global Trade Alert; Field of education of new supply of university graduates (just for Spain).
- Focus on global trade from a macroeconomic perspective.
- Industrial policy and trade policy is essential to understand and predict occupations in the future.
- Cope with historical biases – specific ethnicities and how this affects mismatches.
- Focus on horizontal skills and incorporating them: relevant for the labour market besides the digital and green skills.
- Individuals who pursue careers outside their area of academic specialization are not necessarily disadvantaged - > raises questions about the validity of existing metrics used to assess skills mismatches in the labour market

### Factors:

- Importance to strengthen the system and the cooperation and coordination on a horizontal level. From a local level this is essential as there are many stakeholders working on this.
- Considerations in the field of education and not only educational attainment.
- Relevance of administrative data, use of formal channels and formal networks to increase knowledge and select employees (e.g., from Italy). There is a misuse of these data due to reliance on informal channels and an inaccurate application of classification taxonomies.
- AI and digitalisation raise important ethical considerations and require careful attention to the evolving nature of technology, particularly in discussions surrounding job displacement and the roles of key stakeholders.
- Sentiment towards technology might hinder their learning and upskilling.



## Key question reflection...



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# Thank you!

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