

ARTIFICIAL INTELLIGENCE FOR EUROPE

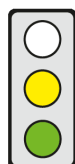
PILLAR 2: ADAPTING EDUCATION AND SOCIAL SYSTEMS

cepPolicyBrief No. 2019-12

KEY ISSUES

Objective of the Communications: The Commission wants to support the development and use of artificial intelligence (AI) in the EU and is calling on Member States to adapt their education and social systems to the new working environment.

Affected parties: Companies, employees



Pro: Improving digital skills will increase the competitiveness of the European economy.

Contra: There is no reason for EU support for (re-)training employees. In fact, there is a risk of dead-weight loss.

The most important passages in the text are indicated by a line in the margin.

CONTENT

Title

Communication COM(2018) 237 of 25 April 2018: **Artificial Intelligence for Europe** and
Communication COM(2018) 795 of 7 December 2018: **Coordinated Plan on Artificial Intelligence**

Note: Page references with the addition “M1” relate to Communication COM(2018) 237, references with the addition “M2” to the Communication COM(2018) 795 and those with the reference “CP” to the “Coordinated Plan” in the Annex to M2

Brief Summary

► General Background

- Artificial intelligence (“AI”) refers to systems that display “intelligent” behaviour, analyse their environment and act with some degree of autonomy to achieve specific goals [M1 p. 2, M2 p. 1].
- AI can be [M1 p. 1]
 - purely software-based e.g. search engines, digital assistants and translation software, or
 - “embedded” in hardware such as robots or autonomous cars.
- AI facilitates economic growth and gains in efficiency across all sectors, such as [M1 p. 1, CP p. 1]
 - better health care, e.g. by more accurate and faster medical diagnoses,
 - a safer transport sector due to autonomous vehicles,
 - a reduction in energy consumption and in the use of pesticides in agriculture and
 - more efficient production processes because e.g. robots take on repetitive and dangerous tasks.

► Context and objectives of the Communications

- The EU is home to “world-class” AI researchers and AI start-ups, a strong robotics industry and world-leading companies in sectors such as transport, healthcare and manufacturing in which AI is becoming increasingly important. In the face of tough global competition, the EU must join forces. [M1 p. 5-6, M2 p. 2 et seq.]
- In 2018, all Member States made a [Declaration](#) indicating their commitment to cooperate on AI.
- The Communication “AI for Europe” (M1) sets out the “European AI strategy”. The Commission wants [M1 p. 2 et seq. and p. 6]
 - to push ahead with the development and use of AI in the EU so that the EU remains competitive;
 - the EU to take the lead on developing “responsible” AI which benefits humans and is human-centric.
- The AI strategy consists of three pillars [M1 p. 3]:
 - Pillar 1: Investment in AI to strengthen “the EU’s technological and industrial capacity” and the distribution of AI across the economy [see [cepPolicyBrief 2019-10](#)],
 - Pillar 2: Adapting education, training and social systems to the new working environment [this [cepPolicyBrief](#)],
 - Pillar 3: Creation of an ethical and legal framework for AI [[cepPolicyBrief](#) to follow].
- More details are contained in the “Coordinated Plan on AI” in the Annex to M2, which was set up in 2018 by the Member States, Norway and Switzerland, in conjunction with the Commission, via the “Group on Digitising European Industry and AI” and which is to be updated annually [M2 p. 2, CP p. 2].
- This plan will bring together the parallel AI strategies in the EU, maximise the impact of investments, encourage synergies and cooperation and define collective measures [M2 p. 2, CP p. 2 and 4].

- ▶ **Second Pillar: Adapting education, training and social systems to the new working environment**
 - Automation, robotics and AI are transforming our working environment. AI can facilitate countless activities, replace certain jobs and tasks and create new ones. The precise impact of AI on employment is still unclear. [M1, p. 11]
 - The EU must manage and supervise this change in order to meet three major challenges [M1 p. 11]: These are:
 - to prepare the society as a whole for the change,
 - to provide retraining and further education for employees whose jobs disappear or change and support them on the labour market during the transition period,
 - remedy the lack of AI specialists in the EU by way of better training and by retaining “talent”.
- ▶ **Prepare the society as a whole for the “changes” due to AI**
 - A lack of basic technical knowledge in the population is preventing the use of AI [CP p. 11].
 - In order to prepare society for the “changes” arising from AI, everyone in the EU must [M1 p. 11]
 - acquire basic digital skills and
 - develop skills such as critical thought, creativity and management which complement the capabilities of machines and cannot be replaced by machines.
 - Member States should “modernise” their education and training systems at all levels and in particular [M1 p. 3, M2 p. 6, CP p. 11 et seq.]
 - include “digital skills that facilitate the development and use of AI” in all education and training curricula,
 - integrate “the topic of AI” into the study programmes of non-technical subjects so that employees acquire the necessary skills to handle AI in their (future) working environment,
 - “explore” how AI can be incorporated into secondary and tertiary education and vocational training and
 - develop “fast track retraining” programmes for the population in AI, e.g. “Open Online Courses”.
- ▶ **Re-skilling, up-skilling and support for affected employees**
 - Technological changes will mean that large numbers of workers will need to up-skill [M2 p. 5].
 - A “human-centric approach” to AI will ensure “inclusiveness” and that no-one is left behind as a result of the changes to the labour market [M1 p. 13, M2 p. 6].
 - Employees whose jobs might be replaced or modified by AI must be given every opportunity to acquire the necessary skills and abilities for dealing with “new technologies” and must “be supported” on the labour market during the transition phase [M1 p. 12].
 - In this regard, all citizens – including employees and self-employed workers – should be eligible for social protection pursuant to the European Pillar of Social Rights [see [cepInput No. 01/2018](#)] [M1 S. 12., see also [cepPolicyBrief 2018-33](#)].
 - The Member States should [CP p. 12]
 - facilitate “life-long learning” so that the workforce can acquire and expand AI skills,
 - exchange best practice on re-skilling and up-skilling the workforce.
 - The Commission wants inter alia
 - to support the skills development of employees with € 27 billion from the European structural investment funds (ESI funds) – of which € 2.3 billion will come from the European Social Fund (ESF) – and also calls on the private sector to provide financial support [M1 p. 12],
 - to set up (re-)training schemes for professional groups “at risk of being automated” and support them by means of the ESF as part of the “[Blueprint](#) on sectoral cooperation on skills” – a collaboration of stakeholders aimed at adapting vocational training to skills needs – [M1 p. 13],
 - to support employees, also in the case of redundancies resulting from digitisation and automation, from the “[European Globalisation Adjustment Fund](#)” [M1 p. 13],
 - to call on the social partners to include the impact of AI in their work programmes [M1 p. 13].
 - A high-level expert group commissioned by the Commission submitted its [Report on the impact of the digital transformation on EU labour markets](#) on 8 April 2019 [M1 p. 13, M2 p. 6, CP p. 4].
- ▶ **Training more AI professionals in the EU**
 - There is an acute lack of AI professionals in the EU and a skills deficit [M1 p. 12, CP p. 11].
 - The offer of AI-specific higher-education programmes is limited and not available everywhere [CP p. 11].
 - In the EU, more AI professionals must be trained, and “talent” encouraged [M1 p. 3 and 12].
 - Member States should
 - exchange best practice on encouraging AI “excellence” [CP p. 12],
 - address the need for AI-skills and how to support them in their national AI strategies, to be published by mid-2019 [CP p. 12, M2 p. 5],
 - develop strategies by the end of 2020 to attract women to AI-specific study programmes [CP p. 12],
 - improve automatic mutual recognition of university degrees and school certification in accordance with the Council Recommendation [2018/C 444/01] [CP p. 12].

- Member States should also include ethical issues, relating to the development and use of AI, in the training of AI professionals and promote skills in the field of ethics [M1 p. 15, CP p. 13].
- The Commission wants to help Member States and inter alia [M1 p. 13, M2 p. 5-6, CP p. 12-13]
 - support Master programmes and PhD programmes in AI by way of the EU Research and Innovation Programme and through closer collaboration between AI research excellence centres,
 - support on-the-job traineeships and joint degrees, e.g. in law and AI, in order to encourage interdisciplinarity,
 - include in the training schemes “ethical principles” developed by the EU,
 - examine the possibility of integrating AI-modules into Master programmes and adult training programmes and
 - beyond 2020, support Master programmes, on-the-job training, traineeships and short-term training in AI, high-performance computing and cybersecurity with € 700 million from the “Digital Europe” programme.
- ▶ **“Attracting” and retaining AI professionals in the EU**
 - The reason for the lack of AI professionals is also the fact that highly qualified experts and start-ups frequently accept more attractive offers from non-EU countries. Such talent must be “attracted” and retained in the EU. [CP p. 10-11, M2 p. 5]
 - In 2019, Member States should therefore exchange best practice on retaining talent and using the EU “Blue Card” system - an EU work permit for highly qualified non-EU citizens [Directive 2009/50/EC, see CP p. 12, M2 p. 5].
 - In order to attract and retain AI talent (longer) the Commission wants inter alia to
 - support partnerships between companies and educational institutions [M1 p. 13] and
 - collect proposals for joint industry-oriented PhD and post-PhD programmes that will serve as a “world-recognised European brand” [CP p. 12-13].

Policy Context

AI has been part of the EU support programmes and other initiatives of the Commission since 2004. The European Council has called for a “European approach” [EUCO 14/17] to AI, endorsed the development of a “Coordinated Plan” on AI [EUCO 9/18] and has invited the Commission, Council and Member States to consider ways of dealing with the shortage of AI professionals [EUCO 19/1/17]. The Council fully supports the Coordinated Plan [Conclusions of February 2019]. In 2016, in the “European Skills Agenda” [COM(2016) 381], the EU passed an Action Plan for the acquisition of skills, a “Digital Education Action Plan” [COM(2018) 22] and recommendations on adult training [2016/C 484/01] and Key Competences for “Lifelong Learning” [COM(2018) 024].

Options for Influencing the Political Process

Directorates General:	DG Communications Networks, Content & Technology
Committees of the European Parliament:	Industry, Research and Energy (leading), Rapporteur: Ashley Fox (ECR, GB)
Federal Ministries:	Economic Affairs and Energy (leading)
Committees of the German Bundestag:	Education and Research (leading)

ASSESSMENT

Economic Impact Assessment

In view of the expected changes resulting from AI, Member States should - as the Commission proposes - organise their general and vocational education to enable all citizens to acquire basic digital skills. These skills are already very important at work - but also in everyday life - and will become even more important as AI becomes more widespread. **Improving digital skills will** therefore improve the chances of employees on the labour market and **increase the competitiveness of the European economy**. Member States should, in particular, refrain from obstructing the impending changes by subsidising jobs that may be replaced by AI.

Skills development programmes, e.g. by way of open online courses, increase public understanding of AI. This facilitates acceptance and use by consumers, employees and companies.

Where an employee’s job changes due to the deployment of AI – such as because his employer introduces AI in order to increase productivity – and the employee therefore has to acquire new skills, it is the employer’s task to train his employees in the use of the new technology. Where an employee is made redundant because his job is completely replaced by AI, it is the task of the unemployment insurance system to retrain and up-skill the unemployed person. **There is therefore no reason for the Commission’s proposed EU support for (re-)training at-risk professional groups or for developing the skills of employees. In fact, there is a risk of dead-weight loss.**

Improving mutual recognition of university studies and degrees increases the cross-border mobility of graduates. They can then work more easily in those Member State where their abilities are most required.

The exchange of best practice on the use of the “Blue Card” system may help Member States to increase their ability to attract AI professionals from third countries. Support for partnerships between companies and educational

institutions as well as the creation of industry-oriented PhD and post-PhD programmes may also help to attract AI talent. As such partnerships facilitate the transition between training and the labour market, they also help to keep AI professionals in the EU.

Legal Assessment

Legislative Competency

In order to develop high-quality general education, the EU shall encourage cooperation between Member States and, if necessary, support and supplement their actions [Art. 165 (1) TFEU]. Similarly, it shall support and supplement their vocational education policy in order to facilitate adaptation to industrial changes – in particular through vocational training and retraining [Art. 166 (1) and (2) TFEU]. Financial support for study programmes, PhD programmes, degrees and on-the-job traineeships is covered by this competence. The EU can also support skills development and retraining for employees by way of the ESF [Art. 162 et seq. TFEU].

When it comes to implementation of the support measures, however, the EU must fully respect the Member States' responsibility for the teaching content and the organisation of national education systems and vocational training [Art. 165 (1), Art. 166 (1) TFEU]. The Commission implicitly requires Member States to “modernise” these systems and include skills such as “critical thought, creativity and management” as well as “digital skills that facilitate the development and use of AI” and also to integrate the “topic of AI” and the associated ethical questions into education. However, with these generally worded provisions, the Commission does not specify any concrete teaching content for the Member States; in any case, these would not be legally binding upon the Member States due to the non-binding nature of the Communication.

Subsidiarity

The Member States' responsibility for educational content is an expression of the principle of subsidiarity [Art. 4 (2) TEU]. Whether, and which, content should be included in order to promote AI skills must therefore be left up to the Member States. A legal obligation to integrate the “topic of AI” into education cannot currently be derived from the Communications due to their non-binding character. Such an obligation would also hardly be compatible with the principle of subsidiarity because there is currently no generally applicable definition of the term “AI” nor is there any clarity as to whether and which AI skills the Member States will need in the future. The demand that Member States should make ethical issues part of AI training could lead to a specified, concrete EU-imposed teaching content if the Member States had to comply with “ethical principles” established by the EU. This would, however, be consistent with the principle of subsidiarity as long as such ethical principles reflect fundamental EU rights and common EU values [Art. 2 TEU] such as human rights, freedom, equality and the rule of law, which are in any case binding upon the Member States.

Impact on German law

Dependent on the actual design of the follow-up measures. In Germany, the Federal States (*Bundesländer*) are responsible for the education system [Art. 30 GG]. The Communications are, however, too imprecise to establish a legal or actual obligation restricting the decision-making powers of the Federal States.

Conclusion

Improving digital skills will increase the competitiveness of the European economy. There is no reason for EU support for (re-)training employees. In fact, there is a risk of dead-weight loss. Improving mutual recognition of university studies increases the mobility of graduates. When it comes to implementation of the support measures, the EU must fully respect the Member States' responsibility for the teaching content and the organization of national education systems.