

Opinion of the European Economic and Social Committee on the 'Future of work — acquiring of appropriate knowledge and skills to meet the needs of future jobs'

(Exploratory opinion requested by the Bulgarian Presidency)

(2018/C 237/02)

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1. Conclusions and recommendations

1.1. The progressive and fast-changing introduction of new technologies, digitalisation and robotisation in business, but also in the public sector, is having a momentous impact on the production systems, labour conditions and organisational models of the labour market and the society in general.

1.2. The New Industrial Revolution has the potential to improve productivity and life and job quality if duly accompanied with a sound mix of policies for inclusive and sustainable innovation-driven growth. The impact on jobs will be significant: new ones will be created, some will be transformed and others will be replaced at a rapid pace. Quality basic education, as well as high-standard and effective training, lifelong learning, up- and re-skilling will be the necessary tools for grasping the job opportunities of the future and fostering enterprise competitiveness.

1.3. In order to prepare and respond to these rapid technological and digital changes, the EESC, taking into account the subsidiarity principle, asks the European Commission (EC) and the Member States to design targeted policies and take tangible measures in order to improve and appropriately adapt their education and training systems, co-design national competency strategies and recognise the right to appropriate training for all age groups of people and workers and across sectors by:

- first ensuring that all EU citizens have equal access to quality early education;
- setting new common education and training benchmarks in order to narrow the gaps among EU countries and strengthen cohesion;
- reorienting education and training and strengthening VET systems in order to ensure the rapid acquisition of the necessary skills;
- supporting collective bargaining and social dialogue, in line with national industrial relations systems, in order to be able to anticipate and adapt the skills to technological and digital developments and develop on-the-job training;
- encouraging interaction between education institutions and companies;
- launching a qualification offensive to underpin the growing digitalisation of our labour markets;

- developing new measures — such as result-based incentives, setting new monitoring mechanisms to evaluate the results achieved as far as digital and lifelong training coverage is concerned, exchange and widening at EU level the collection of best national practices concerning access to and participation in training, training leave, etc. — in order to include everybody in training programmes, both those looking for a job and workers, with particular attention to low-skilled and adult workers;
- securing for all the provision of, and participation in, training in a way that simultaneously improves enterprise performance and workers' personal and professional growth and extends coverage to non-standard jobs ⁽¹⁾; ideally, it should be further examined whether such an individual training right should be portable, i.e. if people should be able to transfer it between employers and across countries;
- taking steps to check if and what measures are needed to establish the right to paid educational leave and considering EU measures with a view to making good practice in the area of minimum standards regarding entitlements to educational leave standard practice in some Member States ⁽²⁾;
- setting up a European homogeneous system of evaluation and validation of non-formal and informal learning;
- investing at EU level with specific and targeted funds to accompany the transition and setting new result-based criteria for their allocation;
- encouraging job exchanges among enterprises in order to support 'brain exchange' opportunities and create platforms for information and best-practice sharing.

1.4. The winning future lies in the complementarity of skills, not only digital, but also of basic, technical and soft skills which require efficient school systems and well prepared teachers. But in the 'new forms of work' — characterised by the integration of material production processes and digital technologies — it is important to keep a human-centred approach.

1.5. Last but not least, the EESC asks the EC and the Member States to find ways not to leave behind but to accompany vulnerable people who will not be able to respond to the changes and the growing demands of the new technological era.

2. Introduction

2.1. Digitalisation, automation and new economic models such as Industry 4.0, the circular and sharing economy have given birth to **new forms of work** characterised by the integration of material production processes and digital technologies, which are performed both off- and online and which are having a significant impact on the production processes of enterprises, organisational models of the labour market, working conditions, duration of labour contracts, social protection coverage and the employment relationship.

2.2. New technologies and digitalisation have the potential to allow for better personal lives and working conditions and for a better balance between them, to improve productivity and to lead to overall better job creation if duly accompanied by a just transition approach and a sound policy mix, for inclusive and sustainable innovation-driven growth. Some existing jobs and areas of activity will evolve, some traditional jobs will disappear and new activities will be created. Three phenomena can be observed: **creation, transformation and replacement**, in a different combination and intensity in all sectors ⁽³⁾.

2.3. The debate on whether this new labour context will result in **job losses or gains** is ongoing. Employment and business model disruptions in some sectors (manufacturing, transport, health, hospitality, finances and education) will be significant according to the OECD. 9 % of jobs are at risk of being displaced as over 70 % of the tasks they involve can be

⁽¹⁾ OJ C 173, 31.5.2017, p. 45.

⁽²⁾ OJ C 13, 15.1.2016, p. 161.

⁽³⁾ As reported by Cedefop. See Cedefop (2017). *People, machines, robots and skills*. Briefing Note.

automated. Another 25 % of jobs would be transformed, since only half of the tasks involved can be automated⁽⁴⁾. At the same time, digitalisation has the potential to create new jobs not only in the industrial production sector, but also in services. The outcome will depend on an integrated policy agenda, on public decisions as well as on the policies that are implemented to address the challenges that new production processes and business models raise, notably as concerns equipping young people with the necessary skills, and training and up- and re-skilling both people searching for a job and the existing workforce. Whether these new processes and digitalisation will ultimately increase employment will depend on how successfully enterprises and workers in the EU **adapt** to technological developments, how the introduction and use of technologies and changes to organisational structures are dealt with jointly by the social partners, how workers' training is carried out, as well as the extent to which the EU and Member States will be able to create a **favourable policy and regulatory environment** to safeguard the interests of both enterprises and working people⁽⁵⁾. The role and expertise of the social partners will be critical in this process and social dialogue and collective bargaining, in line with national law and practices, will have a key role to play.

2.4. The challenge with the new forms of work is no longer linked to the need for 'innovation and digitalisation' but to the need to ensure that everybody receives the **appropriate, high quality education and training**, designed in such a way as to allow people to **promptly** acquire new knowledge, skills and competences. The issue is how we complement robots and human intelligence and keep both a **human-centred approach** over artificial intelligence (AI) and digitalisation introduction in all economic sectors, including along business value chains⁽⁶⁾.

2.5. Therefore, in the framework of active labour market policies and regulation, one of the most important questions is how to **re-orient education, training and lifelong learning**, on the one hand, in alignment with employers' and labour market needs and, on the other hand, towards higher and better employability in a fast-changing labour market environment, and how to adapt the content of training and education pathways for the upgrading and re-skilling, including of adult workers. This challenge affects employers and employees equally, compelling them, as well as labour market institutions, to put more effort into **forecasting, planning, financing and strategy**.

2.6. The EESC would like to call on the European Commission and Member States to address the serious problem of the increasing number of people who lack the necessary educational background and who subsequently are unable to keep up with the speed of change, thus risking **marginalisation**.

3. The state of play

3.1. The issue of skills — both those acquired through initial education and training and lifelong learning — has received considerable attention from EU institutions and international organisations lately and has been examined from different angles, in a scenario of rapid changes taking place in the world of work. In this opinion, only data from their **latest documents** are used.

3.2. Several of these documents, discussed below, explore the question of productivity and focus on two of its factors: **skills and new patterns of work organisation**. They all agree that one of the main challenges the Fourth Industrial Revolution poses for the labour market will be **defining** which **new skills** workers will need. Some suggestions and useful best practices have recently been discussed. The EESC would praise the e-Skills for Jobs campaign of 2015-2016 and the e-Skills Manifesto launched then by the **European Commission**. It recommends the ten essential principles outlined as good guidelines for future digital policies⁽⁷⁾, and reiterates the conclusions of its relevant recent **opinions**⁽⁸⁾. The New Skills Agenda for Europe⁽⁹⁾, on the other hand, launched a review of the EU's key competences framework, and the e-Skills

⁽⁴⁾ OECD (2017). *Future of Work and Skills*. Paper presented at the 2nd Meeting of the G20 Employment Working Group. February 2017. See p. 8.

⁽⁵⁾ *Statement of the European social partners on digitalisation*, adopted at the Tripartite Social Summit on 16 March 2016.

⁽⁶⁾ As Cedefop points out in one of its briefing notes (see note 1, above): 'Technological unemployment is a recurring theme, but joblessness in the digital age will depend on human, not artificial, intelligence'.

⁽⁷⁾ They are listed in the *Riga Declaration on e-Skills* of March 2015, which was issued at the launch of the eSkills for Jobs campaign 2015-2016 and the e-Skills Manifesto; cf. the Riga Conclusions of June 2015.

⁽⁸⁾ OJ C 434, 15.12.2017, p. 36; OJ C 434, 15.12.2017, p. 30; OJ C 173, 31.5.2017, p. 45; OJ C 303, 19.8.2016, p. 54; OJ C 13, 15.1.2016, p. 161; OJ C 347, 18.12.2010, p. 1; OJ C 128, 18.5.2010, p. 74; OJ C 93, 27.4.2007, p. 38.

⁽⁹⁾ OJ C 173, 31.5.2017, p. 45.

Manifesto of December 2016, with the review and update of digital competences being an important element in this process. The EESC appreciates the recent adoption by the European Commission of two important initiatives: the proposal for a Council recommendation on key competences for lifelong learning and the Communication on the digital education action plan⁽¹⁰⁾; it expects a prompt implementation of the guidelines they contain.

3.3. Two recent **OECD** reports⁽¹¹⁾ highlight the link between wage inequality and the use of computers, in other words the positive impact of technological change on the wages of skilled workers — which results, however, in a **widening of the wage gap** with low-skilled workers, various examples of new jobs and skill requirements, as well as the **rising demand** in particular for **ICT** specialist skills necessary for programming, and ICT generic and complementary skills. The EESC also appreciates the recent OECD report 'Key issues for digital transformation in the G20' for its comprehensive analysis of the policy challenges and the recommendations in this regard⁽¹²⁾, and would like to stress the importance of **sound industrial relations** for the success of the policies adopted in the G20 and at EU level. This is why the EESC also reiterates the conclusions and recommendations of its recent **opinions and studies**, especially those focusing on the effects of digitalisation on traditional businesses and industries⁽¹³⁾, the need for change in industrial relations⁽¹⁴⁾, the issue of working conditions of non-standard workers⁽¹⁵⁾, the impact of the on-demand economy⁽¹⁶⁾, the role of governments in policy measures and the importance of lifelong learning for the future⁽¹⁷⁾. The OECD is working on the **New jobs strategy** to be launched next year, in which one chapter will be on skills and digital divides. The EESC expresses some concerns regarding the lack of real added value to policy recommendations to governments in the narrative under discussion. As the OECD is still however in the preparatory phase of the Jobs Strategy, the EESC will follow the debate in the framework of the Skills Strategy, not least with a view to the OECD Skills Summit next June, and asks the EC to explore new common initiatives.

3.4. The **World Economic Forum**, while supporting the Fourth Industrial Revolution, warns about the potential risk, according to some forecasts, that about 5 million jobs could disappear by 2020 in 15 major developed and emerging economies with no substitution for them anticipated at the moment, and raises some points for discussion regarding **skills stability, industry gender gap and work strategies**⁽¹⁸⁾.

3.5. At the March **2016 Tripartite Social Summit**, the European social partners asked the European Commission to underpin the digital transformation of economies and labour markets, and to work together with it, in order to ensure that labour market and skills policies are designed **both for enterprises and workers**⁽¹⁹⁾.

⁽¹⁰⁾ COM(2018) 24 and COM(2018) 22.

⁽¹¹⁾ T. Berger and C. Frey (2016), *Structural Transformation in the OECD: Digitalisation, Deindustrialisation and the Future of Work*, OECD Social, Employment and Migration Working Papers, No 193, OECD Publishing, Paris; and OECD (2016), *New Skills for the Digital Economy*, OECD Digital Economy Papers, No 258, OECD Publishing, Paris.

⁽¹²⁾ OECD (2017). *Key issues for digital transformation in the G20*. Report prepared for a joint G20 German Presidency — OECD conference. For the list of recommendations, see pp. 145-149.

⁽¹³⁾ OJ C 13, 15.1.2016, p. 161.

⁽¹⁴⁾ OJ C 434, 15.12.2017, p. 30.

⁽¹⁵⁾ OJ C 303, 19.8.2016, p. 54.

⁽¹⁶⁾ EESC (2017). *Impact of digitalisation and the on-demand economy on labour markets and the consequences for employment and industrial relations*. Study prepared by a CEPS research team.

⁽¹⁷⁾ OJ C 173, 31.5.2017, p. 45.

⁽¹⁸⁾ World Economic Forum (2016). *The Future of Jobs. Employment, Skill and Workforce Strategy for the Fourth Industrial Revolution*. Global Challenge Insight Report.

⁽¹⁹⁾ See above, note 2.

3.6. The EESC supports the European Parliament **resolution** of 16 February 2017 with recommendations to the European Commission on **Civil Law Rules on Robotics** ⁽²⁰⁾, especially those on **ethical principles** (human safety, health and security, freedom, privacy, integrity and dignity, self-determination and non-discrimination, personal data protection, and transparency; the need to update the European Union legal framework with a guiding of ethical principles in line with the complexity of robots) and on **education and employment** (the call to the Commission to provide significant support for the development of digital skills in all age groups and irrespective of employment status; and the need to get more women interested in a digital career, to start analysing and monitoring medium and long-term job trends more closely, to highlight the importance of foreseeing changes to society — especially from the point of view of employment and of flexibility of skills; the recognition of the great potential of robotics and AI in several areas).

3.7. The **Cedefop** briefing note 'People, machine, skills and robots' ⁽²¹⁾ suggests that, before reaching conclusions about the future, it is important to understand the different ways in which technology is changing the world of work: job substitution, job creation and job transformation; the analysis by sector of adult employees who have **experienced technological change** in the workplace during 2009-2014 — who globally represent 43 % of adult employees — is important in order to understand the scope of the present challenge.

3.8. The EESC would recall two of its **recent opinions** of last July on new forms of work ⁽²²⁾; in particular the importance of **social security** for those in new forms of work, such as crowdworkers, and of the new types of work environment; the relevance of lifelong learning and the need of future skills; the **fundamental role of social partners and collective bargaining**, in line with national law and practices, and the role of civil society, in general, in limiting the negative effects of these fast changes and in enhancing the positive aspects.

3.9. Last month's **Eurofound** report 'Non-standard forms of employment: recent trends and future prospects' ⁽²³⁾ is important for the analysis of new ways of working, but also, and especially, for raising the alert regarding **social protection, income, working hours** and the unclear status of people working in non-standard contracts: the EESC agrees with what Eurofound has suggested, and calls on decision-makers to pay attention to these issues, already mentioned by the EESC in the documents mentioned above.

4. The future is now: (a) Actions and proposals

4.1. In the new fast-changing work context, it is difficult to **identify new professions — and the relevant skills** — in a theoretical way. Usually the labour market, often with the involvement of enterprises and the social partners, **anticipates the definition** of new professional profiles according to its needs. **Collective bargaining** at all levels — in line with national law and practices — and **workers' participation mechanisms** at firm level are relevant tools in order to address the changes in skills and training needs and in order to help anticipate these changes and increase innovation.

4.2. In addition, the EESC underlines the fact that there are **new methods**, such as big data analysis, that can help get **rapid signals of change** in labour market needs: these techniques complement traditional forecasting and other skills anticipation tools and can help get a better understanding of quickly changing skills demand in a context of rapid adoption of new technologies.

4.3. The proliferating forms of non-standard employment in the digital economy raise the need for appropriate levels of regulation so that social protection and equal access to training and skills qualifications should be secured for all, including non-standard workers ⁽²⁴⁾. It should be further examined whether such an individual training right should be portable, i.e. if people should be able to transfer it between employers and across countries.

⁽²⁰⁾ European Parliament resolution of 16 February 2017, with recommendations to the Commission on Civil Law Rules on Robotics, A8-0005/2017.

⁽²¹⁾ See above, note 3.

⁽²²⁾ OJ C 434, 15.12.2017, p. 36 and OJ C 434, 15.12.2017, p. 30.

⁽²³⁾ Eurofound (2017). *Non-standard forms of employment: Recent trends and future prospects*. Eurofound, Dublin.

⁽²⁴⁾ OJ C 434, 15.12.2017, p. 30.

4.4. The EESC considers that it is also crucial to improve workers' participation in lifelong learning and to determine, together with enterprises, the content of on-the-job training in a way that will bring benefits to workers and enterprises alike. Workers' equal access to job-related learning and continuing vocational training should be ensured by investing in different programmes and tools. The potential offered by online and digital learning platforms could also be exploited; however their use should be agreed by social partners respecting working time provisions and workers' free time'. It is important to recognise that lifelong learning can be formal, non-formal or informal in nature. All learning can bring added value, if well designed among the relevant actors. The validation of non-formal and informal learning is important for enhancing and proving the person's skills and competences.

4.5. The **involvement of workers** in schemes regarding the correct use of technology in the enterprise is fundamental. This will ensure that they will be given the tools and training that will allow them to manage the technology in their field, but also that they will participate in the innovation process, thus making sure that **awareness** will transform their fears of change into opportunities for personal and professional growth.

4.6. The EESC stresses the importance of taking tangible action to help national education and training systems to **adapt their programmes** as quickly as possible, so that the curricula and work-based systems can correspond better to labour market needs, and to ensure that training and education systems are effective in reaching everybody, including workers at risk of exclusion because of the new digitally driven forms of employment, such as the **low-skilled, people with disabilities** and the **rural population** in areas where broadband penetration is much lower than in metropolitan ones. It is therefore essential to **simplify** the related administrative procedures in those Member States where they are burdensome. In order to reach these objectives, the EESC calls upon the Commission and the Member States, in the framework of the European Semester process, to adopt practical measures, such as: new monitoring mechanisms at EU level in order to collect and evaluate data on the results achieved at national level as far as digital and lifelong training coverage is concerned; the setting of new benchmarks in order to reach new common basic education levels and digital skills schemes at EU level and avoid the widening of the gap among EU countries; reinforcing synergies among countries through participation in networks of e-infrastructures; fixing new result-based robust criteria for the allocation of funds and the provision of incentives in order to improve the **cohesion** among Member States of their education and training systems.

4.7. The EESC is indeed concerned about the future of **low-skilled**, and more generally of **vulnerable groups** in Europe. It fears that the New Skills Agenda action 'Upskilling pathways' may not be enough to tackle the problem. As Cedefop has shown recently ⁽²⁵⁾, the definition of this large group, comprising many different categories of disadvantaged people, is complex and poorly understood, while numbers are worrying — for instance, in 2015 one in four European adults aged 25 to 64 (about 64 million adults) still held only low qualifications, while the share of the adult population with low cognitive skills in literacy and numeracy was 18 % and 20 % respectively. Cedefop data show that this group is less likely to participate in learning activities. Given that the study has proven that investing in skills pays off, the EESC expects the European Commission to do more to ensure that vulnerable groups such as **ageing people** will be able and encouraged to participate in **adult learning initiatives** to avoid the risk of their being marginalised in the labour market. It is also important to reach out to workers in the **55-64 age group** as they are often the least likely to take part in lifelong learning. The EESC also stresses the importance of adapting machinery and new technology software so that they can also be used by **people with disabilities**.

4.8. Particular attention should also be given to **gender-specific measures** to close digital divides; persistent gender differences in the field of study may mean that women will benefit less from new job opportunities in STEM-related occupations; greater work flexibility may increase women's employment but also have a negative impact on their job quality ⁽²⁶⁾.

⁽²⁵⁾ Cedefop (2017). *Investing in skills pays off: The economic and social cost of low-skilled adults in the EU*.

⁽²⁶⁾ OECD (2017). *Going Digital: The Future of Work for Women*. Policy Brief on the Future of Work.

4.9. In this situation of rapid and continuous change, it is vital to offer everybody many and different learning opportunities that can lead to the acquisition of **valid (usable) skills** for (in) the labour market, in line with the digital dimension of the new world, protecting everybody from the risk of being excluded from the labour market or relegated to precarious forms of work. Workers' expectations and the needs of the labour markets should be reflected in the available education and training schemes, so that enterprises can grow and people can find a job or thrive in their existing job, in line with their skills, anticipations and competences. **Active worker involvement** in lifelong learning schemes and in in-work training is a *condicio sine qua non* for the growth and competitiveness of enterprises, for the employability of workers and for securing quality jobs.

4.10. The EESC also stresses the importance of increasing the provision of, and participation in, **lifelong learning** aimed at improving enterprise performance and workers' personal and professional growth. Practical measures should be adopted in order to secure the provision of, and participation in, lifelong learning for all⁽²⁷⁾ — according to identified needs — which should be provided on a proper cost- and management-sharing basis between governments, employers and workers and in collaboration with public and private institutions as well as social partners. The EESC would point out here that steps should be taken to check if and what measures are needed to establish the right to paid educational leave and that EU measures should be considered with a view to making good practice in the area of minimum standards regarding entitlements to educational leave standard practice in some Member States⁽²⁸⁾. The EESC stresses the need for a **qualification offensive** to underpin the growing digitalisation of our labour markets, to provide incentives for investing both at company level and in the public sector, to promote public and private **investment in vocational education and training**.

4.11. The EESC stresses, furthermore, the need to guarantee **equal access to digital services** for all, especially the elderly and people with disabilities, so that the new technological goals are not an obstacle, but a real and major opportunity for all, without discrimination or barriers. It calls on the European Commission and the Member States to find instruments to guarantee adequate support for everybody in this 'new society' and, at the same time, ensure that the public sector has the resources it needs to respond to these needs. Those, in particular, at risk of losing their job due to automation should be provided with training that would allow them to be re-skilled.

4.12. The EESC invites the European Commission and the Member States to develop schemes — with the involvement of the social partners and other civil society organisations — to grant free access possibilities to training, training vouchers or co-sharing the costs for those who are not in a position to bear the costs. Where workers need to undertake additional training, it is important to achieve a **balance between working time and learning time** commitments that is acceptable to both the worker and the employer. In this respect, the EESC reiterates the importance of looking at and sharing experiences on how training is organised and provided in different Member States, including, for example, the multitude of workplace practices aiming at providing life-long learning in employment and the practice of **training leaves** — some of which are paid — which should be encouraged and supported across the EU.

4.13. The quality of investments in **inclusive growth** and the creation of **good quality jobs** are essential. The EESC therefore stresses the need to provide **adequate resources** to accompany the transition towards technological change and digitalisation, addressing the urgency of the acquisition of relevant skills and competences, not only at workplace level, but also through the development of effective training systems, in order to ensure continuous skills adaptation. The EESC considers it a priority to identify **specific funding lines** dedicated to this transition and to evaluate new result-based criteria for their allocation.

4.14. The EESC also asks the European Commission and the Member States to make the best possible use of the **Structural Funds**, particularly the European Social Fund — whose priorities for human capital investment must be confirmed and safeguarded — for the adaptation of competences, as a complementary tool. The European Commission and the Member States, together with civil society stakeholders, should develop a framework of common criteria in order to have a mutual understanding of the new skills needs and goals, taking into account: on the one hand, the differences across the European Union and the mobility not only of physical persons but also of work content; and, on the one hand, the requirement of homogeneous re- and up-skills levels in order to foster cohesion among EU countries.

⁽²⁷⁾ Communication from the Commission to the Council and to the European Parliament "Efficiency and equity in European education and training systems", COM (2006) 481 final.

⁽²⁸⁾ OJ C 13, 15.1.2016, p. 161.

4.15. Duly updated tools, such as the **European Qualification Framework** and the implementation of the **Professional Qualifications Directive**, are useful for the transparency of qualifications obtained.

4.16. Digital skills are obviously very important in the Fourth Industrial Revolution. In this context, **basic skills** (notably mathematics, physics, chemistry and biology), which are also learned in technical and professional institutes, as well as advanced language skills, have to be given a new recognised value: without them, it is not possible to take the next step towards the highly specialised technological and informatics skills needed to work in multicultural environments where digitisation and robotics are the key concepts of professionalism.

4.17. Basic knowledge is essential, as it nurtures critical thinking which is necessary for the selection of information sources and for understanding new technologies. More attention though should be placed on both technical and specialist skills as well as on soft skills; the first are needed in production processes, but the latter can help workers to manage complex and changing scenarios. A winning future lies indeed in the complementarity of skills. In particular regarding soft skills, it is also necessary to adequately train teachers and education and training providers, and to help **families** become aware of their importance.

4.18. The EESC supports an approach giving **strong emphasis on soft skills** — such as complex problem solving, critical thinking, teamwork, sense-making, novel and adapting thinking, cross-cultural competency, virtual collaboration, cognitive flexibility, etc. —, as they are key elements of human development and can help workers to think in an autonomous way, before they are asked to become digitally competent. The EESC suggests paying particular attention to the development of these skills in the revision of the **European framework for key competences**.

4.19. Dedicated **information** about the world of work and **orientation** regarding education, training and working opportunities need to be provided to young people at **school**, in order to guide their further development and career path, but **lifelong guidance** will also be essential in the future. The **choice of a profession** is a crucial decision. Guiding young people during this period by showing them the variety of training and professional careers available allows them to make informed choices.

4.20. Depending on their connection to the territory, on the one hand, and their mission, on the other, **schools, universities and training institutions** offer a mix of new knowledge and new ways of learning. The EESC considers it important to **interlink** their role and activities with the role of central and local governments and institutions, as well as with the world of work. This process must be encouraged and supported, recognising the central role of civil society organisations and social dialogue, which has to be developed starting from the local and territorial level.

4.21. The EESC asks the Commission to further develop the setting up of an updated '**good practice registry**' which has the potential to serve as facilitator for an EU-wide debate to identify guidelines and standards based on best practices in the field of vocational training.

4.22. Competences acquired through **non-formal and informal learning** pathways are ever more important. In its opinion from 2015 ⁽²⁹⁾, the EESC underlined the need for doing what is necessary so that national qualifications systems can ensure their **validation** (according to Council Recommendation 2012/C 398/01 ⁽³⁰⁾) and for highlighting the crucial role of organised civil society in this process. Appropriate validation (consisting of identification, documentation, assessment and certification) will bring their added value in the labour market, and serve to highlight individual professional awareness, i.e. knowledge of one's capabilities. It is thus crucial to encourage **employment services** and 'private/public agencies' to become much more active in this. The validation should be accessible and affordable in order to benefit both employees and employers.

4.23. The EESC flags up the ten priority actions of the **New Skills Agenda**: the Upskills Pathways initiative, making VET a first choice, the Key Competences Framework, the Digital Skills and Job Coalition, the EQF, the Skills Profile Tools for Third Country Nationals, the Europass Framework, the collection of data to address the risk of brain drain, the Blueprint for Sectoral Cooperation on Skills and, finally, the recommendation on tracking graduates are all useful tools for equipping people with the right competences.

⁽²⁹⁾ OJ C 13, 15.1.2016, p. 49.

⁽³⁰⁾ Council Recommendation on the validation of non-formal and informal learning of 20 December 2012.

4.24. For a fair transition and for active labour market policies to work, there is a need for equally efficient employment services, capable not only of managing demand and job supply, but also of offering guidance and counselling to job-seekers. The EESC calls on the Member States to invest more resources in the enhancement of the effectiveness, efficiency but also of the capacity of employment services and their staff, as well as in the design of tools to support those who are not yet in the labour market. In such a way, workers could be offered the opportunity to reach entrepreneurs able to appreciate their value and competencies in a healthy, virtuous circle of professional growth and corporate competition.

4.25. Regarding employment opportunities, it is very important for the EU to address the issue of the so-called **brain drain**, i.e. the loss by certain Member States of their highly skilled human capital. Ideally, mobility in Europe should encourage a **brain exchange** between countries, i.e. lead to an enrichment that benefits all Member States. Reality, though, is different. Certain EU countries — mainly Western and Northern European countries — are much more attractive to mobile workers from the most fragile and least structured countries — mainly Eastern and Southern European countries — due to the greater availability of jobs and their capacity to offer higher wages. It is mainly Industry 4.0, from manufacturing to services and research, but also other fields such as the medical and the research sectors, which by definition feeds much of this exodus. This leads to a significant outward flow of people, skills and talent from sending countries, which results in a loss of competitiveness, as well as in a loss of their investment in education and in national tax revenues⁽³¹⁾. In some cases, highly qualified mobile people fail to find jobs matching their qualifications in the receiving country labour market, and end up in jobs for which they are overeducated. This can be avoided if Europe encourages **job exchanges between enterprises from different Member States**. In more general terms, further efforts are required at EU level to promote **convergence towards inclusive economic, innovation-driven and job-rich growth** and more **social cohesion**.

4.26. Another important issue to be addressed is the **health and safety** of workers. Technological innovations are likely to replace heavy and dangerous work, thus improving the quality of work, but new pathologies may emerge, especially for isolated (tele)workers. Social dialogue at European, national and industry levels is the useful tool for examining whether and to what extent employees' health and their private lives require **additional protection** in a time of ubiquitous digital mobile communication and which measures, are appropriate in this regard. It is consequently necessary to identify the means for preventing them: one example is the so-called **'right to disconnect'**, recently recognised in France, and applied in some sector and enterprise-level agreements in certain EU countries, but not yet evaluated at EU level. This needs to be further assessed at EU level, taking into account the need to respect working time provisions and in line with the new approach towards work-life balance.

4.27. The Internet of Things (IoT), privacy and big data are other issues of primary relevance when it comes to familiarity with digitalised training and e-learning tools and data protection challenges in this respect. The role of **consumer associations** should also be emphasised here because they can effectively contribute to the design of new tools to address the major challenges linked to the need to guarantee people's privacy with respect to the purchase and use of online learning services⁽³²⁾.

5. The future is now: (b) Examples of best practices for reskilling and upskilling workers

5.1. Recognised best practices include the Open Educational Resources (OER, i.e. digital educational materials made available with licenses that allow them to be re-used, modified and distributed) and Massive Open Online Courses (MOOC, i.e. open, network courses designed for distance learning). They are relatively recent but not new, but it is important to step up counselling and information about them. The use of OERs and MOOCs can be an important tool for **opening up access to education and training** in a resource-efficient way which enables people to balance work and family commitments.

⁽³¹⁾ Schellinger, A. (2017). *Brain Drain — Brain Gain: European Labour Markets in Times of Crisis*. A Friedrich-Ebert-Stiftung Project 2015-2017, p. 88.

⁽³²⁾ OJ C 81, 2.3.2018, p. 102

5.2. The EESC considers a **European e-Competence Framework** a useful tool at European level: it provides a reference of 40 competences applied in the Information and Communication Technology workplace, using a common language for competences, skills, knowledge and proficiency levels that can be understood across Europe, including skills and knowledge requirements of ICT professionals, professions and organisations at five proficiency levels, and is designed to meet the needs of individuals, businesses and other organisations in public and private sectors, in particular training institutions and companies.

5.3. With regard to **company-based vocational training**, the dual vocational training systems in countries like Austria, Germany, Denmark and the Netherlands have to be seen as best practice given the involvement of the social partners in the ongoing adaptation of the VET systems towards the new digitally driven world of work⁽³³⁾.

5.4. The EESC considers the Spanish Fundación Estatal para la Formación en el Empleo (FUNDAE), the French Organismes paritaires collecteurs agréés (OPCA) and the Italian Fondi Interprofessionali per la Formazione Continua to be examples of best practices in terms of **financing training courses in the workplace**, and believes that they contribute significantly to updating workers' digital skills.

5.5. Similarly, **individual schemes for training** can also be useful: for example, in **France** there are: the Personal Training Account (CPF), the Individual Training Leave (CIF), the Leave for Skills Assessment (CBC) and the Leave for Validation of Acquired Experience (CVAE).

5.6. In **Italy**, there are two kinds of training leave: the first is for completing school and/or university education and training activities other than those of the employers. The second is for both employed and unemployed and is meant to guarantee the **right to lifelong learning** of workers; the way in which workers are identified, the time they are allowed to dedicate and the income they receive have been defined by **collective bargaining**. Finally, again in Italy, there is the **training voucher** (*voucher formativo*): this is a kind of individual fund for training activities to strengthen the employability of people by means of professional and innovative training courses.

5.7. **Germany** is one of the countries with the highest percentage of workforce in the world and the lowest unemployment rate: according to an OECD survey, the employment percentage is not affected by the high level of automation, as workers are trained to use robots and are **accompanied to other jobs** if their jobs are replaced by robotisation. However, in some areas there is less demand for employment and people entering the labour market may lack the necessary digital skills training to find work. The German social partners decided to take up the **challenge of innovation** and started negotiating on how to tackle this challenge in the labour market.

5.8. In **France**, a law on the **right to disconnect** was approved last year and in Italy, the debate on this issue is open and recognised in some collective agreements.

5.9. The EESC considers that young people in the first stages of school education and training must be educated not only on the needs of the labour market, but also on **full active citizenship**⁽³⁴⁾. Finally, another best practice is the inclusion in many Estonian elementary schools of a **basic programming course**.

5.10. The recent publication by the European Commission this year on *Business cooperating with vocational education and training providers for quality skills and attractive future*⁽³⁵⁾, reports many interesting best practices implemented in several Member States which, with the necessary adaptations, could be usefully replicated elsewhere:

- the Austrian AQUA project, for matching the skills of unemployed people with the needs of employers, in particular SMEs;
- the Danish Coop Food School, for solving the increasing shortage of workers in the food industry;

⁽³³⁾ OJ C 13, 15.1.2016, p. 57, OJ C 143, 22.5.2012, p. 94.

⁽³⁴⁾ See the EESC opinion on the *New EU education strategy*, point 1.2 (OJ C 81, 2.3.2018, p. 167).

⁽³⁵⁾ European Commission (2017). *Business cooperating with vocational education and training providers for quality skills and attractive future*. Luxembourg, Publications Office of the European Union.

- the UK Tech Partnership, for stimulating the supply of workers in digital sectors;
 - the German Dual Study Programmes, to fill skill shortages in a bottom-up way;
 - the Italian Higher Technical Institutes, to ensure a stable pipeline of skills at local level in strategic sectors;
 - the Netherlands Techwise Twente, which targets VET institutes to ensure that skills taught are those needed by the high-tech materials sector;
 - the Serbian and German Cooperative Education, to improve the supply of workers in some sectors that suffer from skills shortages;
 - the Lithuanian and Latvian Educate for Business, through which curricula of VET programmes have been updated to align with the labour market;
 - the Finnish Valkeakoski Campus which, thanks to close dialogue with local companies, allows VET students to obtain the right digital skills within the automation and robotics fields;
 - the Slovakian, Czech Republic and UK project Step Ahead, which targets VET teachers to ensure that the skills taught are those needed by the labour market;
 - the Spanish Labour Foundation of the Construction sector, for upgrading the skills of workers in the construction sector and providing up-to-date curricula for initial training;
- and finally,
- the global Nestlé YOUth Initiative, which develops dual learning opportunities and creates curricula together with VET schools.

Each one of these initiatives is focused on one or more aspects, such as matching supply and demand, work-based learning, digital and entrepreneurial skills, mobility and social inclusion.

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The President
of the European Economic and Social Committee
Georges DASSIS
