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Proposal for a
COUNCIL RECOMMENDATION
on Key Competences for Lifelong Learning

(Text with EEA relevance)

{SWD(2018) 14 final}

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE PROPOSAL

• Reasons for and objectives of the proposal

European societies and economies are experiencing significant digital and technological innovations as well as labour market and demographic changes. Many of today's jobs did not exist a decade ago and many new forms of employment will be created in the future. In the 'White Paper on the Future of Europe' the Commission highlights that it "is likely that most children entering primary school today will end up working in new job types that do not yet exist" and that coping with this "will require a massive investment in skills and a major rethink of education and lifelong learning systems"¹.

Education and training are part of the solution to get more people into decent jobs, respond better to the skills the economy needs and strengthen Europe's resilience. With rapid technological progress and related changes in job profiles and requirements, lifelong learning needs to build on strong collaboration and synergies between industry, education, training and learning settings. At the same time, education and training systems need to adapt to this reality. In particular, it appears no longer sufficient to equip young people with a fixed set of skills or knowledge; they need to develop resilience, a broad set of competences, and the ability to adapt to change². As such, the need for and value of a lifelong learning perspective, where people acquire new and more relevant competences throughout their lives, is more evident than ever.

In the declaration of Rome of 25 March 2017, the leaders of 27 Member States and of the European Council, the European Parliament and the European Commission pledge to working towards a Union "where young people receive the best education and training and can study and find jobs across the continent"³.

Our societies and economies rely heavily on highly educated and competent people. Skills such as creativity, critical thinking, taking initiative and problem solving play an important role in coping with complexity and change in today's society. The 'Reflection Paper on Harnessing Globalisation' recognises that new ways of learning, as well as more flexible training and educational models, are needed for a society which is becoming increasingly mobile and digital, and the 'Reflection Paper on the Social Dimension of Europe' emphasises the importance of possessing the right set of skills and competences to sustain living standards in Europe.⁴ Climate change and the limits of ecological resources, together with economic and social inequalities, mean that sustainable development is a necessary concern for all human activity.⁵

As was clearly outlined in the Commission Communication on Strengthening European identity through education and culture⁶, a European Education Area should facilitate cooperation and mobility of learners, of education and training staff and educational and training institutions This is based on a shared interest of all Member States to harness the full

¹ European Commission (2017), White Paper on the Future of Europe, https://ec.europa.eu/commission/white-paper-future-europe-reflections-and-scenarios-eu27_en

² White Paper on the Future of Europe, see footnote 1

³ The Rome Declaration of 25 March 2017, <http://www.consilium.europa.eu/en/press/press-releases/2017/03/25-rome-declaration/>

⁴ European Commission (2017), The Reflection Paper on Harnessing Globalisation, https://ec.europa.eu/commission/publications/reflection-paper-harnessing-globalisation_en

⁵ EPSC Strategic Notes (13/2016) The Future of Work; Council Conclusions on education for sustainable development from November 2010, https://ec.europa.eu/epsc/file/strategic-note-13-future-work_en

⁶ Commission Communication on Strengthening European Identity through Education and Culture - The European Commission's contribution to the Leaders' meeting in Gothenburg, 17 November 2017, [COM\(2017\)673](COM(2017)673)

potential of education and culture as a driver for jobs, social fairness, active citizenship and European identity in all its diversity. It responds to the increased mobility of European labour markets, the need to increasingly invest in language learning, in digital, entrepreneurial and STEM (science, technology, engineering, mathematics) competences. In its follow-up, the European Council in December 2017 inter alia asked for examining measures to address the skills challenges linked to digitalisation, cybersecurity, media literacy and artificial intelligence and the need for an inclusive, lifelong learning-based and innovation-driven approach to education and training⁷.

In stark contrast to these demands, latest OECD PISA data show that one in five pupils in the European Union (EU) has insufficient proficiency in reading, mathematics or science.⁸ Worryingly, between 2012 and 2015, the trend in underachievement for the EU as a whole has worsened. In the countries involved in the OECD Survey of Adult Skills (PIAAC) 2012, between 4.9% and 27.7% of adults are proficient at only the lowest levels in literacy and 8.1% to 31.7% are proficient at only the lowest levels in numeracy.⁹

In addition, 44% of the EU population have low or no (19%) digital skills,¹⁰ despite the fact that the pace of technological and digital change is having a profound effect on our economies and societies. The rapid digital transformation of the economy means that almost all jobs now require some level of digital skills, as does participation in society at large. Digital skills are now as vital as literacy and numeracy and Europe therefore needs digitally competent people who are not only able to use but also to innovate and lead in using these technologies.

The European Pillar of Social Rights states as its first principle the right to quality and inclusive education, training and life-long learning¹¹. Not having the necessary competences to successfully participate in society and the labour market increases the risk of unemployment, poverty and social exclusion. It hampers inclusive and sustainable growth, in addition to industry competitiveness and innovation capabilities. As research shows, improving basic skills in literacy, numeracy as well as digital competences, goes hand in hand with competence development in a broader range of key competences; it is especially strongly related to personal development, the development of learning competences and civic competences.¹²

In 2006, the European Parliament and the Council adopted the Recommendation on Key Competences for Lifelong Learning¹³. It recommended Member States to develop the provision of key competences for all as part of their lifelong learning strategies. It also defined in the annexed "European Reference Framework of Key Competences" the competences each individual needs for personal fulfilment and development, employment, social inclusion and active citizenship. Member States were asked to use the Reference Framework to ensure that initial education and training offers all young people the means to develop the key competences to a level that equips them for adult life and that adults are able to develop and update their key competences throughout their lives.

⁷ Conclusions of European Council meeting on 14 December 2017, [EUCO 19/17](#)

⁸ OECD (2016), PISA 2015 Results, <https://www.oecd.org/pisa/pisa-2015-results-in-focus.pdf> ; European Commission (2016), PISA 2015: EU performance and initial conclusions regarding education policies in Europe, https://ec.europa.eu/education/sites/education/files/pisa-2015-eu-policy-note_en.pdf

⁹ European Commission (2016), Education and Training Monitor, p. 81 http://ec.europa.eu/education/sites/education/files/monitor2016_en.pdf

¹⁰ European Commission (2017), Digital Scoreboard 2017, <https://ec.europa.eu/digital-single-market/en/digital-scoreboard>

¹¹ Commission Communication on Establishing a European Pillar of Social Rights, [COM\(2017\)250](#)

¹² OECD (2015), Skills for Social Progress: The Power of Social and Emotional Education, <http://www.oecd.org/edu/skills-for-social-progress-9789264226159-en.htm>

¹³ Recommendation of the European Parliament and the Council Recommendation of 18 December 2006 on Key competences for lifelong learning ([2006/962/EC](#))

Since 2006 the ways in which teaching and learning take place have evolved rapidly: greater use of technology, enhanced distance learning and the increase of informal learning through the use of mobile digital devices impacts on the opportunities to acquire competences. Experiences during the last decade have shown that education, training and learning settings need to better use these new opportunities to actively support the development of competences throughout life. Learning experiences for all learners and across subject areas need to be enriched by reinforcing collaboration between formal and non-formal learning settings. This can be achieved by promoting cross-discipline learning, inquiry-based learning, traineeships and work-based learning.

The objective of the proposed Recommendation is to improve the development of key competences for all people throughout life and to promote measures needed to achieve this objective. It encourages Member States to better prepare people for changing labour markets and active citizenship in more diverse, mobile, digital and global societies, and to develop learning at all stages of life. It calls especially for investing in basic skills, in entrepreneurial and digital competences as well as in language competences to enable everyone to participate actively in society and economy. It also calls for investment in STEM competences to nurture scientific understanding and increase the attractiveness to follow a career in STEM. The proposed Recommendation replaces the Recommendation on Key Competences for Lifelong Learning adopted by the European Parliament and the Council in 2006¹⁴. It will:

- Support the implementation of the first principle of the European Pillar of Social Rights - underlining that "(e)veryone has the right to quality and inclusive education, training and lifelong learning in order to maintain and acquire skills that enable them to participate fully in society and manage successfully transitions in the labour market" – as well as the 4th principle – strengthening the right "to timely and tailor-made assistance to improve employment or self-employment prospects", including the right to "support for job search, training and re-qualification."
- Support the development of an European Education Area by agreeing on the key competences needed by all learners, by supporting mobility of learners and educational staff, and by supporting especially the development of language competences to facilitate mobility and cooperation in Europe;
- Support the development of entrepreneurial competences to develop essential skills and attitudes including creativity, initiative taking, teamwork, understanding of risk and a sense of responsibility;
- Respond to changing requirements for competences, including basic skills, digital competences, competences in science, technology, engineering and mathematics (STEM) and highlight measures to support competence development in these areas;
- Highlight the role of active citizenship, shared values and fundamental rights;
- Incorporate the results of the United Nations (UN) Decade of Education for Sustainable Development and the impetus provided by UN Sustainable Development Goal 4 – Education 2030;
- Assist Member States, education, training and learning settings and education staff to better support competence development by setting out good practices to support the development of key competences;

¹⁴ (2006/962/EC), see footnote 13

- Contribute to the design of the future Strategic Framework for European cooperation in Education and Training by promoting a common understanding of key competences;
- Support the use of European funding sources such as Erasmus+, the European Structural and Investment Funds and Horizon 2020;

The accompanying Staff Working Document provides further evidence on previous experiences in the implementation of the 2006 Recommendation on Key Competences for Lifelong Learning, analysis supporting the new Recommendation on Key Competences for lifelong learning, as well as examples of existing policies and projects supporting competence development in a lifelong learning perspective.

Background

Key competences are those competences all individuals need for personal fulfilment and development, employment, social inclusion and active citizenship. They are composed of '*knowledge, skills and attitudes*' and go beyond the notion of only (academic) 'knowledge'.

The 2006 European Reference Framework of Key Competences for lifelong learning (Reference Framework) defined eight key competences:

- Communication in the mother tongue;
- Communication in foreign languages;
- Mathematical competence and basic competences in science and technology;
- Digital competence;
- Learning to learn;
- Social and civic competences;
- Sense of initiative and entrepreneurship; and
- Cultural awareness and expression.

Since its adoption, the Reference Framework and its underlying concept have been used by Member States and stakeholders; a majority of Member States have implemented related reforms. There is great variation in these reforms, and Member States have also adapted the definition of key competences over time. Most reforms have taken place in school education or vocational education and training. Progress has been seen in relation to key competences that easily relate to traditional school "subjects", such as communication in mother tongue and foreign languages or mathematical competence, rather than competences which cut across the boundaries of traditional "subjects" such as learning-to-learn, entrepreneurship or social and civic competence¹⁵.

Education, training and learning settings face challenges in applying competence-oriented approaches to teaching and learning. Moving from a rather static conception of curricular content to a dynamic definition of the knowledge, skills and attitudes a learner needs to develop throughout the learning process requires a paradigm shift in education, training and learning, affecting the way it is organised and assessed.

In addition, competence needs are not static; they change throughout life. The competences acquired at school need to be developed to be adequate throughout life; keeping competences

¹⁵ European Commission (2017) Literature review of reforms related to 2006 European Framework of Key Competences for lifelong learning, https://ec.europa.eu/education/sites/education/files/key-competences-consultation-2017-strategy_en.pdf

up to date, and acquiring new ones in response to changing needs is a lifelong process. Everyone, therefore, needs the opportunity to develop his or her competences throughout life.

This Recommendation presents not only an updated European Reference Framework of Key Competences for Lifelong Learning, but also outlines good practices supporting the development of competence-oriented approaches in education and training, including non-formal learning and in a lifelong perspective.

- **Consistency with existing policy provisions in the policy area**

The 2015 Joint Report of the Council and the Commission on the implementation of the strategic framework for European cooperation in education and training (ET 2020) set clear priorities in developing "relevant and high-quality knowledge, skills and competences developed throughout lifelong learning focusing on learning outcomes for employability, innovation, active citizenship and well-being"¹⁶.

The Commission Communication on Strengthening European identity through education and culture¹⁷ calls for investing in people and their education and to make sure that education and training systems help all learners acquire the knowledge, skills and competences that are deemed essential in today's world. It also makes a strong link between a common understanding of the competences everybody needs and the establishment of a European Education Area.

The review of the 2006 Council Recommendation of Key Competences was announced in the New Skills Agenda for Europe to develop a shared and up-dated understanding of key competences, to foster their introduction in education and training curricula, and to provide support for better developing and assessing them¹⁸.

In the 'Investing in Europe's Youth' initiative, adopted on 7 December 2016¹⁹, and the following Communications on School development and excellent teaching²⁰ as well as Modernising Higher Education²¹ in May 2017, the Commission further underlined the need to invest in competence development and further ambitions in this area.

The Council Recommendation adopted in December 2016 on Upskilling pathways: new opportunities for adults, recommends that adults with a low level of skills, knowledge and competences be offered the opportunity, according to their individual needs, to acquire a minimum level of literacy, numeracy and digital competence; and/or acquire a wider set of skills, knowledge and competences, building on the 2006 Recommendation on Key competences for lifelong learning.

The Council Recommendation of 20 December 2012 on the Validation of non-formal and informal learning²² invited Member States to have in place, no later than 2018, in accordance with national circumstances and specificities, and as they deem appropriate, arrangements for the validation of non-formal and informal learning which enable individuals to have knowledge, skills and competences which have been acquired through non-formal and informal learning validated and to obtain a full qualification, or, where applicable, partial qualification.

¹⁶ 2015 Joint Report of the Council and the Commission on the implementation of the strategic framework for European cooperation in education and training (ET 2020) — New priorities for European cooperation in education and training, [OJ 2015/C417/04](#)

¹⁷ [COM\(2017\)673](#), see footnote 6

¹⁸ Commission Communication on a New Skills Agenda for Europe, [COM\(2016\)381](#)

¹⁹ Commission Communication on Investing in Europe's Youth, [COM\(2016\)940](#); Commission Communication on Improving and modernising education, [COM\(2016\)941](#)

²⁰ Commission Communication on School development and excellent teaching for a great start in life, [COM\(2017\)248](#)

²¹ Commission Communication on a Renewed EU agenda for higher education, [COM\(2017\)247](#)

²² Council Recommendation of 20 December 2012 on the Validation of non-formal and informal learning, [OJ /C398/01](#)

The Council Recommendation of 22 May 2017 on the European Qualifications Framework for lifelong learning repealing the Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning²³ provides a common reference framework to help individuals and organisations compare different qualification systems and the levels of qualifications from these systems.

The Europass Framework²⁴ helps people to better communicate and describe their competences and qualifications.

- **Consistency with other Union policies**

In its Communication on Strengthening European identity through education and culture the Commission underlines that education forms the basis for a productive and creative work force and eventually a resilient economy. It stresses the need to invest in people, in their competences and opportunities. It refers especially to the need to increase efforts in supporting the development of key competences.²⁵

The European Pillar of Social Rights underscores "the right to quality and inclusive education, training and life-long learning in order to maintain and acquire skills that enable [everyone] to participate fully in society and manage successfully transitions in the labour market" as well as "the right to further training and re-qualification"²⁶.

The proposal for Council Recommendation on Common values, inclusive education and the European dimension of teaching²⁷ highlights in particular civic competence, as described in the Annex to this Recommendation. It sets out a number of actions that Member States could take with the support of the Union.

The Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions on the Digital Education Action Plan²⁸ sets out how education and training systems can make better use of innovation and digital technology and support the development of relevant digital competences needed for life and work in an age of rapid digital change. The Digital Education Action Plan has a specific focus on initial education and training systems and covers schools, VET and higher education.

2. LEGAL BASIS, SUBSIDIARITY AND PROPORTIONALITY

- **Legal basis**

The initiative is in conformity with Articles 165 and 166 of the Treaty on the Functioning of the European Union (TFEU). Article 165 states that the Union shall contribute to the development of quality education by encouraging cooperation between Member States and, if necessary, by supporting and supplementing their action, while fully respecting the responsibility of the Member States for the content and organisation of their education systems. Article 166 states that the Union shall implement a vocational training policy which shall support and supplement the action of the Member States, while fully respecting the responsibility of the Member States for the content and organisation of vocational training.

²³ Council Recommendation of 22 May 2017 on the European Qualifications Framework for lifelong learning, [OJ /C 189/15](#)

²⁴ Decision of the European Parliament and of the Council on a single Community framework for the transparency of qualifications and competences ([2004/2241/EC](#))

²⁵ COM(2017)673, see footnote 6

²⁶ COM(2017)250, see footnote 11

²⁷ COM(2018) 23

²⁸ COM(2018) 22

The initiative does not propose any extension of EU regulatory power or binding commitments on Member States. Member States will decide, according to their national circumstances, how they implement this Recommendation.

- **Subsidiarity (for non-exclusive competence)**

While many Member States have their own national competence frameworks to guide education and training, there is currently limited exchange of good practice in further supporting competence oriented teaching and learning.

The added value of this Recommendation at the Union level lies in the ability of the Union to:

- Formulate a common reference framework for the key competences needed;
- Promote a common understanding of lifelong learning;
- Facilitate sharing of knowledge, expertise and good practice;
- Support initiatives at EU level to foster competence development;
- Support the development of competence frameworks that help define learning outcomes and form a basis for assessment and validation practices;
- Support the evaluation of competence development and monitor progress at EU level.

- **Proportionality**

The proposal reinforces a common understanding of key competences for lifelong learning and lays the foundation for Member States and the Commission in sharing good practice and in developing policies at both national and EU levels supporting the acquisition of key competences. The proposal covers all educational and training levels, formal, non-formal and informal learning and all age groups. As the commitments Member States will make are of a voluntary nature and each Member State decides the approach to take, the measure is considered proportionate.

- **Choice of the instrument**

To contribute to the achievement of the objectives referred to in articles 165 and 166 of the Treaty on the Functioning of the European Union, this Treaty authorises the adoption of Recommendations by the Council, on a proposal from the Commission.

A Council Recommendation is an appropriate instrument within the field of education and training, where the EU has a supporting competence, and is an instrument that has been frequently used for European action in the areas of education and training. As a legal instrument, it signals the commitment of Member States to the measures within the text and provides a stronger political basis for cooperation in this area, while fully respecting Member State competence in the field of education and training.

3. RESULTS OF EX-POST EVALUATIONS, STAKEHOLDER CONSULTATIONS AND IMPACT ASSESSMENTS

- **Ex-post evaluations/fitness checks of existing legislation**

Not applicable.

- **Stakeholder consultations**

Starting with the Education, Training and Youth Forum in October 2016, a series of dedicated consultation meetings and expert seminars have been held. The review of the 2006

Recommendation of Key Competences was also broadly discussed with Member States representatives in the ET 2020 High Level Group meetings, the meetings of Director Generals for school education, vocational education and training, and higher education as well as the Advisory Committee for Vocational Education and Training, the Cultural Affairs Committee and the Youthpass Advisory Group meeting.

An online public consultation was open from 22 February till 19 May 2017 resulting in almost 500 responses and the submission of 69 position papers. Contributions show a good coverage of education ministries and non-governmental stakeholders. The consultation process was concluded with a conference in Brussels on 14 June 2017²⁹.

The results of the consultation confirm the relevance of the European Reference Framework of Key Competences. Respondents confirmed that changes are needed to ensure that it reflects political, social, economic, ecological and technological developments of the last decade.

Key findings of the online public consultation are:

- the majority of respondents appreciate the Reference Framework as a relevant tool for
- education, training and learning (77%);
- a majority of contributors see a need to introduce minor changes into the Reference Framework (65%);
- respondents stress the need to further support the use of the Reference Framework and
- support competence-oriented education, training and learning in Europe.

The online consultation, position papers and consultation meetings/conferences underlined the need:

- to respond to competence demands in literacy, languages and communication in today's multilingual and culturally diverse societies;
- to respond to rapidly changing digital and technological environments by updating the definition of digital competence. This update should include the lessons learned in developing and supporting use of the widely used Digital Competence Framework³⁰;
- to further improve the development of competences in mathematics, science and technologies;
- to stress the importance of personal and interpersonal skills, sometimes referred to as 'life', 'socio-emotional', or 'soft' skills, as they help individuals respond to uncertainty and change. Skills such as critical thinking, teamwork, intercultural skills and problem solving are suggested to be further strengthened in the Reference Framework;
- to stress sustainability in the Recommendation, following the UN Decade of Education for Sustainable Development (2005 – 2014) and in view of the global sustainable development goals, including for education, for 2030;

²⁹ European Commission (2017) Report on the results of the stakeholder consultation https://ec.europa.eu/education/sites/education/files/2017-key-competences-consultation-review_en.pdf

³⁰ European Commission (2014), The Digital Competence Framework, <https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>

- to highlight civic competence and the role of citizenship, shared values and human rights. It is increasingly important to empower individuals to act as responsible, active people able to contribute to peaceful, tolerant, inclusive and secure societies. In this context, it is furthermore suggested to strengthen media literacy and intercultural skills;
- to highlight creativity, the ability to plan and manage processes, and deal with risk as part of informed decision-making as essential dimensions of entrepreneurship competence. There was a preference to align the updated definition with the EntreComp Framework;³¹
- to take into account a broader range of contemporary forms of cultural expression and also include the element of developing one's own cultural identity. Positive and open-minded attitudes towards other cultures and cultural differences should be highlighted.

The consultation confirmed that the use of the Reference Framework has been focused on formal learning in primary and secondary levels. A stronger connection with other types of education and training, such as early childhood education and care, VET, higher education, adult education, and non-formal learning is therefore needed.

Finally, to further support the use of the Reference Framework it was suggested to strengthen guidance and support for educational and training staff and to explore ways of supporting approaches to assessment, both as part of teaching and learning processes and for education and training governance.

- **Collection and use of expertise**

The proposal is based on a wide range of reports and studies on the impact of the 2006 Recommendation on Key Competences, related reforms in Member States and relevant EU funded projects. The Joint Progress Report of the Council and the European Commission in 2010 looked at first experiences among Member States in shifting to competence-oriented curricula in education and training.³² The findings of KeyCoNet³³, a European policy network on key competences development in school education, as well as a Eurydice Report from 2012³⁴ provide a good overview of the use of the Reference Framework in school education. CEDEFOP reports³⁵ provide insight on the extent to which the Reference Framework played a role in vocational education and training.

Evidence was also gathered through studies launched for the purpose of the review, including a literature review on the use of the European Reference Framework and a comparative analysis on international and national competence frameworks³⁶.

For specific competences, work relied on studies and reports in these areas such as recent reports on literacy and language learning³⁷, science education³⁸, social and emotional

³¹ European Commission (2017), The Entrepreneurship Competence Framework, <https://ec.europa.eu/jrc/en/publication/euro-scientific-and-technical-research-reports/entrecomp-entrepreneurship-competence-framework>

³² 2010 joint progress report of the Council and the Commission on the implementation of the 'Education and Training 2010 work programme'(2010/C 117/01)

³³ Key Competence Development in Europe. Catalogue of Initiatives, <http://keyconet.eun.org>

³⁴ European Commission (2012), Developing Key Competences at School in Europe: Challenges and Opportunities for Policy, https://www.ddooss.org/informes/School_in_Europe.pdf

³⁵ CEDEFOP (2015), Stronger VET for better lives, <http://www.cedefop.europa.eu/en/publications-and-resources/publications/3067>; CEDEFOP (2016), Key competences in vocational education and training, <http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/key-competences-in-vet>

³⁶ European Commission (2017), Literature review of the reforms related to the 2006 European Framework of Key Competences for Lifelong Learning; European Commission (2017), Support of the stakeholder consultation in the context of the Key Competences Review, Report 1: Comparative Analysis of national and international competence frameworks

education³⁹, citizenship education⁴⁰, entrepreneurship education⁴¹, civic and citizenship competence⁴² and cultural awareness and expression⁴³.

The review also took note of reports and studies from OECD, UNESCO and the Council of Europe which are engaged in defining competence frameworks in the area of education, training and learning⁴⁴. Another relevant source of information was the work of Joint Research Centre (JRC), especially in the area of digital and entrepreneurial competences⁴⁵.

- **Impact assessment**

Given the complementary approach of the activities to Member State initiatives, the voluntary nature of the proposed activities and the scope of the impacts expected, an impact assessment was not carried out. The development of the proposal was informed by previous studies, consultation of Member States and the public consultation.

- **Regulatory fitness and simplification**

Not applicable.

- **Fundamental rights**

Not applicable.

4. BUDGETARY IMPLICATIONS

This initiative will not require additional resources from the EU Budget.

5. OTHER ELEMENTS

- **Implementation plans and monitoring, evaluation and reporting arrangements**

To support the implementation, the Commission proposes to develop in cooperation with Member States supporting guidance material which addresses the weaknesses in implementing competence-oriented teaching and learning.

The Commission intends to report on the use of the Recommendation in the context of European cooperation in the area of education, training and learning.

- **Explanatory documents (for directives)**

Not applicable.

³⁷ European Commission (2017), Rethinking language and linguistic diversity in schools, https://ec.europa.eu/education/sites/education/files/rethinking-language-report_en.pdf

³⁸ European Commission (2015), Science education for responsible citizenship, http://ec.europa.eu/research/swafs/pdf/pub_science_education/KI-NA-26-893-EN-N.pdf, European Commission (2011), Science education in Europe: National policies, practices and research, http://ec.europa.eu/research/science-society/document_library/pdf_06/report-rocard-on-science-education_en.pdf

³⁹ Cefai C.; Bartolo P. A.; Cavioni V.; Downes, P.(2017); Integrating Social and Emotional Education (SEE) in the School Curriculum across the EU, NESET II report, Luxembourg: Publications Office of the European Union, *forthcoming*

⁴⁰ European Commission (2017), Citizenship Education at School in Europe, https://ec.europa.eu/programmes/erasmus-plus/news/20171106-citizenship-education-school-europe-2017_en

⁴¹ European Commission (2016), Entrepreneurship Education at School in Europe, <https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/images/4/45/195EN.pdf>

⁴² IEA (2017) International Civic and Citizenship Study (ICCS), *forthcoming*; JRC (2011) Civic Competence Composite Indicator (CCCI-2): Measuring Young People's Civic Competence across Europe based on the IEA International Citizenship and Civic Education study, <http://publications.jrc.ec.europa.eu/repository/bitstream/JRC68398/lbna25182enn.pdf>

⁴³ European Commission (2016), Cultural Awareness and Expression Handbook, <https://publications.europa.eu/en/publication-detail/-/publication/6066c082-e68a-11e5-8a50-01aa75ed71a1>

⁴⁴ UNESCO Global Citizenship Education, <https://en.unesco.org/gced>; Council of Europe Reference Framework of Competences for Democratic Culture; OECD Education 2030, <https://www.coe.int/en/web/education/competences-for-democratic-culture>

⁴⁵ Digital Competence Framework; Entrepreneurship Competence Framework, see footnotes 30 and 31

- **Detailed explanation of the specific provisions of the proposal**

Member State Provisions

Member States are invited to reinforce the development of the key competences for all learners, in particular learners from disadvantaged backgrounds. They are invited to increase efforts to raise especially levels of achievement in basic skills (literacy, numeracy and basic digital skills), digital and entrepreneurship competences, STEM competences as well as language competences. Member States are asked to reinforce, where necessary, their support for competence-oriented approaches to teaching and learning in all education, training and learning settings.

In addition to an up-dated European Reference Framework of Key Competences, several good practices are suggested to support staff in all education, training and learning settings in competence-oriented learning and on further developing the assessment of key competences. Supporting the development of key competences requires creating and applying a variety of supportive learning approaches and contexts; Member States are encouraged to support their further development.

The Recommendation also underlines the need to support the UN Sustainable Development Goals by mainstreaming them in education, training and non-formal learning.

Member States are invited to report on experiences and progress in the provision of key competences.

Commission provisions

The Commission proposes to further develop guidance material on competence-oriented approaches in education, training and learning and to support initiatives to develop and promote education for sustainable development with regard to the UN Sustainable Development Goal 4 on inclusive and equitable quality education and lifelong learning opportunities for all⁴⁶.

The Commission proposes to develop a scoreboard to monitor the development of key competences and to provide information on the measures implemented to support competence development. It intends to develop a proposal for future European benchmarks in competence development with regard to the next cycle of the strategic framework for European cooperation in education and training.

⁴⁶ UN Sustainable Development Goal 4, <https://sustainabledevelopment.un.org/sdg4>

Proposal for a

COUNCIL RECOMMENDATION

on Key Competences for Lifelong Learning

(Text with EEA relevance)

THE COUNCIL OF THE EUROPEAN UNION

Having regard to the Treaty on the Functioning of the European Union, and in particular Articles 165 and 166 thereof,

Having regard to the proposal from the European Commission,

Whereas:

- (1) The European Pillar of Social Rights⁴⁷ states as its first principle that everyone has the right to quality and inclusive education, training and lifelong learning in order to maintain and acquire skills that allow full participation in society and successful transitions in the labour market. It also states the right of everyone "to timely and tailor-made assistance to improve employment or self-employment prospects, to training and re-qualification, to continued education and to support for job search". Fostering the development of competences is one of the aims of a European Education Area that would be able "to harness the full potential of education and culture as drivers for jobs, social fairness, active citizenship as well as means to experience European identity in all its diversity"⁴⁸.
- (2) People need the right set of skills and competences to sustain current standards of living, support high rates of employment and foster social cohesion in the light of tomorrow's society and world of work.⁴⁹ Supporting people across Europe in gaining the skills and competences needed for personal fulfilment, employability and social inclusion helps to strengthen Europe's resilience in a time of rapid and profound change.
- (3) In 2006, the European Parliament and the Council of the European Union adopted a Recommendation on Key Competences for Lifelong Learning. In that Recommendation the Member States were asked "to develop the provision of key competences for all as part of their lifelong learning strategies, including their strategies for achieving universal literacy, and use the 'Key Competences for Lifelong Learning — A European Reference Framework'⁵⁰. Since its adoption, the Recommendation was a key reference document for the development of competence-oriented education, training and learning.

⁴⁷ COM(2017)250, see footnote 11

⁴⁸ COM(2017)673, see footnote 6

⁴⁹ European Commission (2017) Reflection Paper on the Social Dimension of Europe, https://ec.europa.eu/commission/publications/reflection-paper-social-dimension-europe_en

⁵⁰ (2006/962/EC), see footnote 13

- (4) Nowadays, competence requirements have changed with more jobs being subject to automation, technologies playing a bigger role in all areas of work and life, and entrepreneurial, social and civic competences becoming more relevant in order to ensure resilience and ability to adapt to change.
- (5) At the same time, international surveys such as PISA⁵¹ or PIAAC⁵² indicate a constant high share of teenagers and adults with insufficient basic skills. In 2015 one in five pupils had serious difficulties in developing sufficient reading, mathematic or science skills.⁵³ In some countries up to one third of adults are proficient at only the lowest levels in literacy and numeracy⁵⁴. 44% of the Union population have low or no (19%) digital skills⁵⁵.
- (6) Consequently, investing in basic skills has become more relevant than ever. High quality education, including extra-curricular activities and a broad approach to competence development, improves achievement levels in basic skills.⁵⁶ In addition, new ways of learning need to be explored for a society that is becoming increasingly mobile and digital.⁵⁷ Digital technologies have an impact on education, training and learning by developing more flexible learning environments adapted to the needs of a highly mobile society⁵⁸.
- (7) The New Skills Agenda for Europe announced the review of the 2006 Recommendation on Key Competences for Lifelong Learning acknowledging that investing in skills and competences and in a shared and updated understanding of key competences is a first step for fostering education, training and non-formal learning in Europe⁵⁹.
- (8) Responding to the changes in society and economy, reflecting discussions on the future of work, and following the public consultation on the review of the 2006 Recommendation on Key Competences, both the Recommendation and the European Reference Framework of Key Competences for Lifelong Learning need to be revised and updated with a special focus on promoting entrepreneurial mindsets.
- (9) The development of key competences, their validation and the provision of competence-oriented education, training and learning should be supported by establishing good practices for better support of educational staff in their tasks and improving their education, for updating assessment and validation methods and tools, and for introducing new and innovative forms of teaching and learning⁶⁰. Therefore, basing itself on the experiences of the last decade, this Recommendation should address the challenges in implementing competence-oriented education, training and learning.

⁵¹ OECD Programme for International Student Assessment, <http://www.oecd.org/pisa/>

⁵² OECD Programme for the International Assessment of Adult Competencies, <http://www.oecd.org/skills/piaac/>

⁵³ OECD (2016), PISA 2015 results, see footnote 8

⁵⁴ European Commission (2016), Education and Training Monitor 2016, see footnote 9

⁵⁵ European Commission's Digital Scoreboard 2017

⁵⁶ OECD (2016), PISA 2015 results, see footnote 8

⁵⁷ European Commission (2017) Reflection Paper on Harnessing Globalisation, see footnote 4

⁵⁸ Commission Communication Rethinking Education: Investing in skills for better socio-economic outcomes, [COM\(2012\) 669](#)

⁵⁹ [COM\(2016\) 381](#), see footnote 18

⁶⁰ 2010 joint progress report of the Council and the Commission on the implementation of the 'Education and Training 2010 work programme' (2010/C 117/01), see footnote 32; 2015 Joint Report of the Council and the Commission on the implementation of the strategic framework for European cooperation in education and training (ET 2020) (2015/C 417/04)

- (10) Supporting the validation of competences will enable individuals to have their competences recognised and obtain full or, where applicable, partial qualifications⁶¹. It can build on the existing arrangements for the validation of non-formal and informal learning as well as the European Qualification Framework⁶², which provides a common reference framework to compare levels of qualifications, indicating the competences required to achieve them. In addition, assessment plays an important role in structuring learning processes and in guidance, helping people to improve their competences also with regard to changing requirements on the labour market⁶³.
- (11) The definition of the set of key competences needed for personal fulfilment, employability and social inclusion has been shaped not only by societal and economic developments, but also by various initiatives in Europe during the last decade. Special attention has been given to improving basic skills, investing in language learning, improving digital and entrepreneurial competences, the relevance of common values in the functioning of our societies, and motivating more young people to engage in science related careers. These developments should be reflected in the Reference Framework.
- (12) Target 4.7 of the Sustainable Development Goals highlights the need to "ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development"⁶⁴. This aim is reflected in the revision of the Reference Framework.
- (13) The provision of language learning, which is increasingly important for modern societies, intercultural understanding and cooperation, profits from the Common European Framework of Reference for Languages (CEFR)⁶⁵. This Framework helps to identify the main elements of the competence and supports the learning process. It also lays the foundation of defining language competences in general and is reflected in the update of the Reference Framework.
- (14) The development of the Digital Competence Framework⁶⁶ and the Entrepreneurship Competence Framework⁶⁷ has proven to be valuable for supporting competence development. Likewise, the Council of Europe's Reference Framework of Competences for Democratic Culture⁶⁸ presents a comprehensive set of values, skills and attitudes for an appropriate participation in democratic societies. All of these have been taken into due consideration when updating the Reference Framework.
- (15) In order to motivate more young people to engage in science, technology, engineering and mathematics (STEM) related careers, initiatives across Europe started to link

⁶¹ OJ /C398/01, see footnote 22

⁶² OJ /C 189/15, see footnote 23

⁶³ Council Resolution of 28 May 2004 on strengthening policies, systems and practices in the field of guidance throughout life, http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/educ/104236.pdf ; Council Resolution of 21 November 2008 on better integrating lifelong guidance into lifelong learning strategies.

⁶⁴ United Nations, Resolution adopted by the General Assembly on 25 September 2015, Transforming our world: the 2030 Agenda for Sustainable Development http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

⁶⁵ Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR) <https://www.coe.int/en/web/common-european-framework-reference-languages>

⁶⁶ The Digital Competence Framework, see footnote 30

⁶⁷ The Entrepreneurship Competence Framework, see footnote 31

⁶⁸ Competences for democratic culture - Living together as equals in culturally diverse democratic societies (2016), <https://rm.coe.int/16806ccc07>

science education more closely with the arts and other subjects, using inquiry-based pedagogy, and engaging with a wide range of societal actors and industries⁶⁹. While the definition of those competences has not changed much over the years, the support of competence development in STEM becomes increasingly relevant and should be reflected in this Recommendation.

- (16) The importance and relevance of non-formal learning is evident from the experiences acquired through youth work, voluntary work as well as grassroots sport. Non-formal learning plays an important role in supporting the development of essential interpersonal, communicative and cognitive skills such as: critical thinking, analytical skills, creativity, problem solving and resilience that facilitate young people's transition to adulthood, active citizenship and working life⁷⁰. Establishing better cooperation between different learning settings helps promoting a variety of learning approaches and contexts⁷¹.
- (17) In addressing the development of key competences in a lifelong learning perspective, support should be ensured at all levels of education, training and learning pathways: to develop quality early childhood education and care⁷², to further enhance school education and ensure excellent teaching⁷³, to provide up-skilling pathways to low-skilled adults⁷⁴ as well as to further develop initial and continuing vocational education and training⁷⁵ and modernise higher education⁷⁶.
- (18) This Recommendation should cover a wide range of education, training and learning settings, both formal and non-formal in a lifelong learning perspective. It should seek to establish a shared understanding of competences which can support transitions and co-operation between these different learning settings. It sets out good practices that could address the needs of educational staff which includes teachers, trainers, teacher educators, leaders of education and training institutes, employees in charge of training colleagues, researchers and university lecturers, youth workers and adult educators as well as employers and labour market stakeholders. This Recommendation also addresses institutions and organisations, including social partners and civil society organisations, guiding and supporting people in improving their competences from early age on throughout their lives.
- (19) This Recommendation fully respects the principles of subsidiarity and proportionality.

HAS ADOPTED THIS RECOMMENDATION

Member States should:

1. support the right to quality and inclusive education, training and lifelong learning and ensure opportunities for all to develop key competences by making full use of the

⁶⁹ European Commission (2014) Science education for responsible citizenship, see footnote 38

⁷⁰ Council Conclusions on the role of youth work in supporting young people's development of essential life skills that facilitate their successful transition to adulthood, active citizenship and working life (22 May 2017), <http://data.consilium.europa.eu/doc/document/ST-9547-2017-INIT/en/pdf>

⁷¹ Council conclusions on enhancing cross-sectorial policy cooperation to effectively address socio-economic challenges facing young people (27 May 2015) [2015/C 172/03](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015C172/03)

⁷² Council conclusions on the role of early childhood education and primary education in fostering creativity, innovation and digital competence (27 May 2015) [2015/C 172/05](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015C172/05)

⁷³ COM (2017) 248, see footnote 20

⁷⁴ Council Recommendation of 19 December 2016 on Upskilling Pathways: New Opportunities for Adults, [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016H1224\(01\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016H1224(01)&from=EN)

⁷⁵ [OJ 2015/C 417/04](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015C417/04), Annex II

⁷⁶ COM (2017) 247, see footnote 21

'Key Competences for Lifelong Learning — A European Reference Framework' as set out in the Annex, and

- 1.1. reinforce the development of key competences from an early age, for all individuals, as part of national lifelong learning strategies;
- 1.2. support young people and adults facing disadvantages, or having special needs, to fulfil their potential.
2. support the development of key competences paying special attention to:
 - 2.1. raising the level of achievement of basic skills (literacy, numeracy and basic digital skills) as a basis for further learning and participation in society;
 - 2.2. fostering the acquisition of competences in sciences, technology, engineering and mathematics (STEM) and taking measures to motivate more young people to engage in STEM careers;
 - 2.3. increasing and improving the level of digital competences at all stages of education and training, across all segments of the population;
 - 2.4. nurturing entrepreneurship competence, creativity and the sense of initiative especially among young people, including by promoting opportunities for young learners to undertake at least one entrepreneurial experience during primary or secondary education;
 - 2.5. increasing the level of language competences and supporting learners to learn different languages relevant to their working and living situation.
3. facilitate the acquisition of key competences by making use of the good practices to support the development of the key competences as set out in the Annex, in particular by:
 - 3.1. promoting a variety of learning approaches and contexts, including the adequate use of digital technologies, in education, training and learning settings;
 - 3.2. providing support to educational staff as regards competence-oriented lifelong learning in education, training and learning settings;
 - 3.3. supporting and further developing the assessment and validation of key competences;
 - 3.4. reinforcing collaboration between education, training and learning settings at all levels, and in different fields, to improve the continuity of learner competence development and the development of innovative learning approaches;
 - 3.5. reinforcing tools, resources and guidance in education, training, employment and other learning settings to support people in managing their lifelong learning pathways;
4. mainstream the ambitions of the UN Sustainable Development Goals into education, training and learning;
5. report on experiences and progress in promoting key competences in all education and training sectors, including non-formal learning.

HEREBY WELCOMES THAT THE COMMISSION:

6. supports the implementation of the Recommendation and the use of the European Reference Framework by facilitating mutual learning among Member States and developing in cooperation with Member States reference material and tools such as:

- 6.1. frameworks for specific competences which facilitate development and assessment of competences⁷⁷;
- 6.2. evidence-based guidance material on new forms of learning and supportive approaches;
- 6.3. support tools for educational staff, and other stakeholders, such as massive open on-line courses (MOOCs), self-assessment tools⁷⁸, networks, including eTwinning and the Electronic Platform for Adult Learning in Europe (EPALE);
- 6.4. approaches to the assessment and validation of key competences following up on previous work in the context of Strategic Framework for European Cooperation in Education and Training (ET2020)⁷⁹;
7. supports initiatives to further develop and promote education for sustainable development with regard to the UN Sustainable Development Goal 4 on inclusive and equitable quality education and lifelong learning opportunities for all⁸⁰;
8. considers the possibility to develop a scoreboard on the provision of competence-oriented education, training and learning and on competence development in the Union.

This Recommendation replaces Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning.

Done at Brussels,

*For the Council
The President*

⁷⁷ Based on the experiences and expertise developed in creating the Common European Framework of References for Languages, the Digital Competence Framework and the Entrepreneurship Competence Framework

⁷⁸ Such as the Digital Competence Framework, see footnote 30

⁷⁹ Commission Staff Working Document: Assessment of Key Competences in initial education and training: Policy Guidance, SWD (2012) 371

⁸⁰ UN Sustainable Development Goal 4, see footnote 44



EUROPEAN
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ANNEX

ANNEX

to the

**Proposal for a Council Recommendation
on Key Competences for Lifelong Learning**

{SWD(2018) 14 final}

ANNEX
KEY COMPETENCES FOR LIFELONG LEARNING
A EUROPEAN REFERENCE FRAMEWORK

Background and aims

Everyone has the right to quality and inclusive education, training and life-long learning in order to maintain and acquire skills that enable them to participate fully in society and manage successfully transitions in the labour market.

Everyone has the right to timely and tailor-made assistance to improve employment or self-employment prospects. This includes the right to receive support for job search, training and re-qualification.

These principles are defined in the European 'Pillar of Social Rights'.

In a rapidly changing and highly interconnected world, each person will need a wide range of skills and competences and to develop them continually throughout life. The key competences as defined in this Reference Framework aim to lay the foundation for achieving more equal and more democratic societies. They respond to the need for inclusive and sustainable growth, social cohesion and further development of the democratic culture.

The main aims of the Reference Framework are to:

- a) identify and define the key competences necessary for employability, personal fulfilment, active citizenship and social inclusion;
- b) provide a European reference tool for policy makers, education and training providers, educational staff, employers, and learners themselves;
- c) support efforts at European, national, regional and local level to foster competence development in a lifelong learning perspective.

Key Competences

For the purposes of this Recommendation, competences are defined as a combination of knowledge, skills and attitudes, where:

- a) knowledge is composed of the facts and figures, concepts, ideas and theories which are already established and support the understanding of a certain area or subject;
- b) skills are defined as the ability and capacity to carry out processes and use the existing knowledge to achieve results;
- c) attitudes describe the disposition and mind-sets to act or react to ideas, persons or situations.

Key competences are those which all individuals need for personal fulfilment and development, employability, social inclusion and active citizenship. They are developed in a lifelong learning perspective, from early childhood throughout adult life, and through formal, non-formal and informal learning.

The key competences are all considered equally important; each of them contributes to a successful life in society. Competences can be applied in many different contexts and in a variety of combinations. They overlap and interlock; aspects essential to one domain will support competence in another. Skills such as critical thinking, problem solving, team work, communication and negotiation skills, analytical skills, creativity, and intercultural skills are embedded throughout the key competences.

- The Reference Framework sets out eight key competences:

- Literacy competence;
- Languages competence;
- Mathematical competence and competence in science, technology and engineering and;
- Digital competence;
- Personal, social and learning competence;
- Civic competence;
- Entrepreneurship competence;
- Cultural awareness and expression competence.

1. Literacy competence

Literacy is the ability to identify, understand, express, create, and interpret concepts, feelings, facts and opinions in both oral and written forms, using visual, sound/audio and digital materials across disciplines and contexts. It implies the ability to communicate and connect effectively with others, in an appropriate and creative way.

Development of literacy forms the basis for further learning and further linguistic interaction. Depending on the context, literacy competence can be developed in the mother tongue, the language of schooling and/ or the official language in a country or region.

Essential knowledge, skills and attitudes related to this competence

Literacy involves the knowledge of reading and writing and a sound understanding of written information. Literacy requires an individual to have knowledge of vocabulary, functional grammar and the functions of language. It includes an awareness of the main types of verbal interaction, a range of literary and non-literary texts, and the main features of different styles and registers of language.

Individuals should have the skills to communicate both orally and in writing in a variety of situations and to monitor and adapt their own communication to the requirements of the situation. This competence also includes the abilities to distinguish and use different types of sources, to search for, collect and process information, to use aids, and to formulate and express one's oral and written arguments in a convincing way appropriate to the context.

A positive attitude towards literacy involves a disposition to critical and constructive dialogue, an appreciation of aesthetic qualities and an interest in interaction with others. This implies an awareness of the impact of language on others and a need to understand and use language in a positive and socially responsible manner.

2. Languages competence

This competence defines the ability to use different languages appropriately and effectively for communication. It broadly shares the main skill dimensions of literacy: it is based on the ability to understand, express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing) in an appropriate range of societal and cultural contexts according to one's wants or needs. As appropriate, it can include maintaining and further developing mother tongue competences.

Essential knowledge, skills and attitudes related to this competence

This competence requires knowledge of vocabulary and functional grammar of different languages and an awareness of the main types of verbal interaction and registers of languages.

Knowledge of societal conventions, and the cultural aspect and variability of languages is important.

Essential skills for this competence consist of the ability to understand spoken messages, to initiate, sustain and conclude conversations and to read, understand and draft texts, with different levels of proficiency in different languages, according to the individual's needs. Individuals should be able to use tools appropriately and learn languages formally, non-formally and informally throughout life.

A positive attitude involves the appreciation of cultural diversity, an interest and curiosity about different languages and intercultural communication. It also involves respect for each person's individual linguistic profile, including respect for the mother tongue of persons belonging to minorities and/ or with a migrant background.

3. Mathematical competence and competence in science, technology, engineering

A. Mathematical competence is the ability to develop and apply mathematical thinking in order to solve a range of problems in everyday situations. Building on a sound mastery of numeracy, the emphasis is on process and activity, as well as knowledge. Mathematical competence involves, to different degrees, the ability and willingness to use mathematical modes of thought (logical and spatial thinking) and presentation (formulas, models, constructs, graphs, charts).

B. Competence in science refers to the ability and willingness to use the body of knowledge and methodology employed to explain the natural world, in order to identify questions and to draw evidence-based conclusions. Competences in technology and engineering are applications of that knowledge and methodology in response to perceived human wants or needs. Competence in science, technology and engineering involves an understanding of the changes caused by human activity and responsibility as an individual citizen.

Essential knowledge, skills and attitudes related to this competence

A. Necessary knowledge in mathematics includes a sound knowledge of numbers, measures and structures, basic operations and basic mathematical presentations, an understanding of mathematical terms and concepts, and an awareness of the questions to which mathematics can offer answers.

An individual should have the skills to apply basic mathematical principles and processes in everyday contexts at home and work (e.g. financial skills), and to follow and assess chains of arguments. An individual should be able to reason mathematically, understand mathematical proof and communicate in mathematical language, and to use appropriate aids including statistical data and graphs.

A positive attitude in mathematics is based on the respect for truth and a willingness to look for reasons and to assess their validity.

B. For science, technology and engineering, essential knowledge comprises the basic principles of the natural world, fundamental scientific concepts, theories, principles and methods, technology and technological products and processes, as well as an understanding of the impact of science, technology, engineering and human activity in general on the natural world. These competences should enable individuals to better understand the advances, limitations and risks of scientific theories, applications and technology in societies at large (in relation to decision-making, values, moral questions, culture, etc.).

Skills include the understanding of science as a process for the investigation of nature through controlled experiments, the ability to use and handle technological tools and machines as well as scientific data to achieve a goal or to reach an evidence-based decision or conclusion, and

the readiness to discard one's own convictions when they contradict new experimental findings. Individuals should also be able to recognise the essential features of scientific inquiry and have the ability to communicate the conclusions and reasoning that led to them.

Competence includes an attitude of critical appreciation and curiosity, a concern for ethical issues and support for both safety and environmental sustainability, in particular as regards scientific and technological progress in relation to oneself, family, community, and global issues.

4. Digital competence

Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), and problem solving.

Essential knowledge, skills and attitudes related to this competence

Individuals should understand how digital technologies can support communication, creativity and innovation, and be aware of their opportunities, limitations, effects and risks. They should understand the general principles, mechanisms and logic underlying evolving digital technologies and know the basic function and use of different devices, software, and networks. Individuals should take a critical approach to the validity, reliability and impact of information and data made available by digital means and be aware of the legal and ethical principles involved in engaging with digital technologies.

Individuals should be able to use digital technologies to support their active citizenship and social inclusion, collaboration with others, and creativity towards personal, social or commercial goals. Skills include the ability to use, access, filter, evaluate, create, program and share digital content. Individuals should be able to manage and protect information, content, data, and digital identities, as well as recognise and effectively engage with software, devices, artificial intelligence or robots.

Engagement with digital technologies and content requires a reflective and critical, yet curious, open-minded and forward-looking attitude to their evolution. It also requires an ethical, safe and responsible approach to the use of these tools.

5. Personal, social and learning competence

Personal, social and learning competence is the ability to reflect upon oneself, effectively manage time and information, work with others in a constructive way, remain resilient and manage one's own learning and career. It includes the ability to cope with uncertainty and complexity, learn to learn, support one's physical and emotional well-being, empathize and manage conflict.

Essential knowledge, skills and attitudes related to this competence

For successful interpersonal relations and social participation it is essential to understand the codes of conduct and rules of communication generally accepted in different societies and environments. Personal, social and learning competence requires also knowledge of the components of a healthy mind, body and lifestyle. It involves knowing one's preferred learning strategies, knowing one's competence development needs and various ways to develop competences and search for the education, training and career opportunities and guidance or support available.

Skills include the ability to identify one's capacities, focus, deal with complexity, critically reflect and make decisions. This includes the ability to learn and work both collaboratively and autonomously and to organise and persevere with one's learning, evaluate and share it, seek support when appropriate and effectively manage one's career and social interactions. Individuals should be resilient and able to cope with uncertainty and stress. They should be able to communicate constructively in different environments, collaborate in teams and negotiate. This includes showing tolerance, expressing and understanding different viewpoints, as well as the ability to create confidence and feel empathy.

The competence is based on a positive attitude toward one's personal, social and physical well-being and learning throughout one's life. It is based on an attitude of collaboration, assertiveness and integrity. This includes respecting others and being prepared both to overcome prejudices and to compromise. Individuals should be able to identify and set goals, motivate themselves, and develop resilience and confidence to pursue and succeed at learning throughout their lives. A problem-solving attitude supports both the learning process and the individual's ability to handle obstacles and change. It includes the desire to apply prior learning and life experiences and the curiosity to look for opportunities to learn and develop in a variety of life contexts.

6. Civic competence

Civic competence is the ability to act as responsible citizens and to fully participate in civic and social life, based on understanding of social, economic and political concepts and structures, as well as global developments and sustainability.

Essential knowledge, skills and attitudes related to this competence

Civic competence is based on knowledge of basic concepts relating to individuals, groups, work organisations, society, economy and culture. This involves an understanding of the European common values, as expressed in Article 2 of the Treaty on the European Union and the Charter of Fundamental Rights of the European Union. It includes knowledge of contemporary events, as well as a critical understanding of the main developments in national, European and world history. In addition, it includes an awareness of the aims, values and policies of social and political movements, as well as of sustainable systems, in particular climate and demographic change at the global level and their underlying causes. Knowledge of European integration as well as an awareness of diversity and cultural identities in Europe and the world is essential. This includes an understanding of the multi-cultural and socio-economic dimensions of European societies, and how national cultural identity contributes to the European identity.

Skills for civic competence relate to the ability to engage effectively with others in common or public interest, including the sustainable development of society. This involves critical thinking skills and constructive participation in community activities, as well as in decision-making at all levels, from local and national to the European and international level. This also involves the ability to access, have a critical understanding of, and interact with both traditional and new forms of media.

Respect for human rights as a basis for democracy lays the foundations for a responsible and constructive attitude. Constructive participation involves willingness to participate in democratic decision-making at all levels and civic activities. It includes support for social and cultural diversity, gender equality and social cohesion, a readiness to respect the privacy of others, and to take responsibility for the environment. Interest in political and socio-economic developments and intercultural communication is needed to be prepared both to overcome prejudices and to compromise where necessary and to ensure social justice and fairness.

7. Entrepreneurship competence

Entrepreneurship competence refers to the capacity to act upon opportunities and ideas, and to transform them into values for others. It is founded upon creativity, critical thinking and problem solving, taking initiative and perseverance and the ability to work collaboratively in order to plan and manage projects that are of cultural, social or commercial value.

Essential knowledge, skills and attitudes related to this competence

Entrepreneurship competence requires knowing that there are different contexts and opportunities for turning ideas into action in personal, social and professional activities, and an understanding of how these arise. Individuals should know and understand approaches to planning and management of projects, which include both processes and resources. They should have an understanding of economics and the social and economic opportunities and challenges facing an employer, organisation or society. They should also be aware of ethical principles, and have self-awareness of their own strengths and weaknesses.

Entrepreneurial skills are founded on creativity which includes imagination, strategic thinking and problem-solving, and critical and constructive reflection within evolving creative processes and innovation. They include the ability to work both as an individual and collaboratively in teams, to mobilize resources (people and things) and to sustain activity. This includes the ability to make financial decisions relating to cost and value. The ability to effectively communicate and negotiate with others, and to cope with uncertainty, ambiguity and risk as part of making informed decisions is essential.

An entrepreneurial attitude is characterised by a sense of initiative and agency, pro-activity, being forward-looking, courage and perseverance in achieving objectives. It includes a desire to motivate others and value their ideas, empathy and taking care of people and the world, and accepting responsibility taking ethical approaches throughout the process.

8. Cultural awareness and expression competence

Competence in cultural awareness and expression involves having an understanding of and respect for how ideas and meaning are creatively expressed and communicated in different cultures and through a range of arts and other cultural forms. It involves being engaged in understanding, developing and expressing one's own ideas and sense of place or role in society in a variety of ways and contexts.

Essential knowledge, skills and attitudes related to this competence

This competence requires knowledge of local, national, European and global cultures and expressions, including their languages, heritage and traditions, and cultural products, and an understanding of how these expressions can influence each other as well as the ideas of the individual. It includes understanding the different ways of communicating ideas between creator, participant and audience within written, printed and digital texts, theatre, film, dance, games, art and design, music, rituals, and architecture, as well as hybrid forms. It requires an understanding of one's own developing identity within a world of cultural diversity and how arts and other cultural forms can be a way to both view and shape the world.

Skills include the ability to express and interpret figurative and abstract ideas, experiences and emotions with empathy, and the ability to do so in a range of arts and other cultural forms. Skills also include the ability to identify and realise opportunities for personal, social or commercial value through the arts and other cultural forms and the ability to engage in creative processes, both as an individual and collectively.

It is important to have an open attitude towards, and respect for, diversity of cultural expression together with an ethical and responsible approach to intellectual and cultural

ownership. A positive attitude also includes a curiosity about the world, an openness to imagine new possibilities, and a willingness to participate in cultural experiences.

9. Supporting the development of key competences

Key competences are a dynamic combination of the knowledge, skills and attitudes a learner needs to develop throughout life, starting from early age onwards. High quality and inclusive education, training and lifelong learning provides opportunities for all to develop key competences, therefore competence-oriented approaches can be used in all education, training and learning settings throughout life.

In support of competence-oriented education, training and learning in lifelong learning context, three challenges have been identified: the use of a variety of learning approaches and contexts; support for teachers and other educational staff; and assessment and validation of competence development. In order to address those challenges, certain good practices can be recognized.

a. A variety of learning approaches and contexts

- (a) Cross-discipline learning, partnerships between different education levels, training and learning actors, including from the labour market, as well as concepts such as whole school approaches with its emphasis on collaborative teaching and learning and active participation and decision-making of learners can enrich learning. Cross-sectoral cooperation between education and training institutions and external actors from business, arts, sport and youth community, higher education or research institutes, can be key to effective competence development.
- (b) Acquisition of basic skills as well as broader competence development can be fostered by systematically complementing academic learning with social and emotional learning, arts and sports. Strengthening personal, social and learning competences from early age can provide a foundation for development of basic skills.
- (c) Learning methodologies such as inquiry-based, project-based, blended, arts- and games-based learning can increase learning motivation and engagement. Equally, experimental learning, work-based learning and scientific methods in science, technology, engineering and mathematics (STEM) can foster development of a range of competences.
- (d) Learners, educational staff and learning providers could be encouraged to use digital technologies to improve learning and to support the development of digital competences. For example, by participating in Union initiatives such as "The EU Code Week"¹. The use of self-assessment tools, such as the SELFIE tool², could improve the digital capacity of education, training and learning providers.

¹ The Code Week, <http://codeweek.eu/>

² Self-assessment tool on digital capacity (SELFIE), <https://ec.europa.eu/jrc/en/digcomporg/selfie-tool>, or HEInnovate, <https://heinnovate.eu/>

- (e) Specific opportunities for entrepreneurial experiences, such as mini companies, traineeships in companies or entrepreneurs visiting education and training institutions could be particularly beneficial for young people, but also for adults and for teachers. Young people could be given the opportunity to have at least one entrepreneurial experience during primary or secondary education. School and business partnerships and platforms at local level, notably in rural areas, can be key players in spreading entrepreneurial education. Appropriate training and support for teachers and principals could be crucial to create sustained progress and leadership.
- (f) Languages competence can be developed by close cooperation with education, training and learning settings abroad, the mobility of educational staff and learners or the use of eTwinning, EPALÉ and or similar on-line portals.
- (g) Young people and adults who are disadvantaged, either due to their socio-economic background or to their migrant background, or have special educational needs could be given adequate support in inclusive settings to fulfil their educational potential. Such support could consist of language, academic or emotional support, peer coaching, extra-curricular activity, career guidance or material support.
- (h) The collaboration between education, training and learning settings at all levels can be key to improve the continuity of learner competence development throughout life and for developing innovative learning approaches.
- (i) Cooperation between education and training and non-educational partners in local communities and employers in combination with formal and non-formal learning support competence development and can ease the transition from education to work.

b. Support for educational staff

- (a) Embedding competence-oriented approaches to education, training and learning in initial education and continuing professional development can help educational staff in changing teaching and learning in their settings and to be competent in implementing the approach.
- (b) Educational staff could be supported in developing competence-oriented approaches in their specific contexts by staff exchanges and peer learning allowing for flexibility and autonomy in organising learning, through networks, collaboration and communities of practice.
- (c) Educational staff could be provided assistance in creating innovative practices, taking part in research and make appropriate use of new technologies for competence-oriented approaches in teaching and learning.

- (d) Guidance could be provided for educational staff, access to centres of expertise, appropriate tools and materials can enhance teaching and learning methods and practice.

c. Assessment and validation of competence development

- (a) Key competence descriptions could translate into frameworks of learning outcomes that could be complemented with suitable tools for diagnostic, formative and summative assessment and validation at appropriate levels³.
- (b) Digital technologies, in particular, could contribute to capturing the multiple dimensions of learner progression, including entrepreneurial learning.
- (c) Different approaches to assessment of key competences in non-formal and informal learning settings could be developed, including related activities of employers, guidance practitioners and social partners. These should be available to everyone, and especially to low skilled individuals to support their progression to further learning.
- (d) Validation of learning outcomes acquired through non-formal and informal learning could expand and become more robust, in line with the Council Recommendation on the Validation of prior non-formal and informal learning, including different validation processes and the use of tools such as Europass and Youthpass.

³ E.g. the Common European Framework of References for Languages, the Digital Competence Framework, the Entrepreneurship Competence Framework as well as PISA competence descriptions provide supporting material for assessment of competences.