DIGITALEUROPE

ACCELERATING
EDUCATION TRANSFORMATION
THROUGH TECHNOLOGY

Accelerating Education Transformation through Technology

○ ◥ ♈ ◢ Executive Summary

Every day the world creates more than 2.5 quintillion bytes of data.[1] That data has no value without someone to interpret it or use it for innovation. New job occupations have been emerging over the past years as the data economy surges. Many more will follow. 85% of jobs that today's students will do in 2030 haven't been invented yet.[2] The future tells us 9 out of 10 jobs will require digital skills. However, 44% of EU's citizens still do not have even basic digital skills.[3] It is clear why ''tackling the skills gap'' is the one phrase on everyone's lips.

Europe urgently needs education systems fit for the digital age. This is the only avenue to plug the skills gap in the long-term. The European Commission has successfully set the framework to meet this goal through the Digital Education Action Plan. Its update is an opportunity to commit further to the cause and accelerate education's digital transformation. DIGITALEUROPE calls on the European Commission, EU Education and Skills Ministers and European Parliament to strongly consider the recommendations below in any effort to update the Plan and upgrade our educational systems:

Technology as an enabler in schools

▶▶ Get children familiar with how technology works at an early stage and relentlessly raise awareness in schools on cyber hygiene and safe internet use

▶▶ Encourage schools to set out minimum Bring Your Own Device (BYOD) standards to truly benefit from technology in education

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[1] DOMO Report, Data never sleeps, 2018
[2] Institute for the Future, Emerging Technologies' Impact on Society & Work in 2030, 2017.
[3] European Commission, Shaping Europe's digital future, 2017

▶▶ Promote accessibility standards to support public procurement of accessible ICT in schools, such as EN 301 549

▶▶ Deploy EU and national funding to digitally modernise schools to reduce teacher administrative workload and free up time for student engagement

Curriculum for a digital age

▶▶ Develop school curricula that include must-have 21st Century Skills like computational thinking and dynamic communication

▶▶ Prioritising active engagement in learning communities over standard professional development courses will improve a teacher's understanding of the digital curriculum

▶▶ Reduce gender inequality in ICT jobs by introducing successful female role models into the curriculum

Partnerships with digital actors in the ecosystem

▶▶ Ensure existing EU initiatives such as the EU Code Week, the Digital Skills and Jobs Coalition and the European Robotics Week firmly involve technology providers and deployers

▶▶ Simplify the structure of EU funding programmes to widen the pool of participating stakeholders and expand industry-academia partnerships

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Introduction

More than 90% of the world's data has been created in the last couple of years.[4] App Developers, Cloud Specialists and vloggers are just some of the jobs that did not exist in the past 10 years. Yet, today there is not only a huge demand for the skills to fill these roles, but also a huge discrepancy between the number of jobs available and the people to fill them. By the end of 2020, there could be as many as 756,000 unfilled jobs in the European ICT sector.[5]

DIGITALEUROPE strongly supports the Digital Education Action Plan, where the European Commission recognised that new technologies drive education innovation, equity and efficiency. The Action Plan was articulated around the important goals of better use of digital technology for teaching and learning, digital competences and skills for the digital transformation of education, and data analysis for overall education systems' performance.[6] We believe the update to the Action Plan gives a tremendous opportunity to double down on Europe's leadership commitment to make education, vocational training and life-long learning programmes fit for the digital age.

The European Commission, Member States and European Parliament must turn our ambitions for future-proof schools into reality. This will require driving software and hardware use in education with solid investments and standard-lifting policies in areas like accessibility. It will also mean accelerating curriculum modernisation and getting curriculum implementation right. It will be important to engage industry, which is at the centre of much of digital technology development and deployment, to be part in EU-wide initiatives as well as academic and vocational ones.

Critically, governmental efforts should embrace higher education and existing workforce too. Building digital acumen and skills in professional sectors such as healthcare and manufacturing is key to accelerate technology uptake and contribute to a trustworthy digital ecosystem.

Policy-makers must readily craft ambitious re-skilling programmes for today's workforce, while preparing tomorrow's talent with digital-ready university curricula.

If we aim to accelerate the digitalisation of hospitals, for example, healthcare professionals must have data science skills to integrate technology in their daily work. This will also build trust in the use of digital solutions, particularly among patients.

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[4] MediaPost, 90% Of Today's Data Created In Two Years, 2016
[5] World Economic Forum, The digital skills gap is widening fast. Here's how to bridge it, 2019
[6] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Digital Education Action Plan, 2018

Similarly, in manufacturing, new production techniques and cyber-physical production systems are reshaping the industry. If companies aim to remain competitive, they must adapt and leverage technology. All this hinges on workforce know-how and competences, which will need to adapt to an unprecedent extent.

We can't navigate these transformational changes without key investments to adjust training systems.

These should be coupled with measures that promote and standardise innovative ways of delivering professional education in various sectors, more focused on practice, knowledge transfer and use of new educational tools (e.g. simulators, virtual reality, personalised education software). Defining gaps and working with multiple stakeholders (e.g. science community, student groups, universities) would help, just as building digital skills exchange platforms among universities. Clearly, funding streams like the Digital Europe Programme, Erasmus+ and the European Social Fund will need to play a big role on workforce upskilling and be strongly focused on digital skills in professional contexts, all while ensuring inclusiveness and cohesion across EU regions.

In this paper, we have defined the focus areas of basic and advanced skills, accessibility, teaching, student well-being and data as instrumental to the education system to deliver the right skills for the digital age. Below, we articulate each of them in detail and provide recommendations to policy-makers on the way forward.

Basic digital skills

Today's understanding of literacy firmly includes digital skills and media competences. However, despite their relevance, these competencies are far from common. Only 13% of EU youngsters aged 16-24 wrote a computer programme in 2016.[7]

For a start, authorities should incentivise the use of digital equipment in classrooms and the instructional practice. Short illustrative videos are a valid alternative to reading books or listening to a teacher. Experienced educators must get children familiar with how technology works at an early stage, teach them how to use the internet and smart devices safely, and improve connectivity to the internet. EU schools often rely on 1 single connection or subscription to serve all students. About one fifth of them do not have reliable broadband connections.[8]

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[7] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Digital Education Action Plan, 2018

[8] European Commission, Digital Education Action Plan - Action 1 Connectivity in Schools

Governments should also make education a key driver for promoting gender equality. Typically, girls do as well as or outperform boys in STEM classwork, but their interest in STEM subjects starts waning by the age of 15. This later translates into women holding less than two in ten ICT specialists' jobs in Europe.[9] To boost these numbers, educators should combine learning technology with female role models. An education system that is focused on diversity will help to ensure less biased and more inclusive future technology solutions.

Indeed, with 44% of Europeans aged 16-74 lacking basic digital skills, governments' attention should not limit to children.[10] A few actions could be done already in the short-term to bring down this figure. First, the EU should bolster the role of the European network of Public Employment Services in identifying and sharing the best unemployment-tackling practices. Second, no vocational training or adult learning system is modern today without offering prospective students ICT curricula. Digital technology must always be present in the teaching offer. Third, the European Commission should expand initiatives like the EU Code Week, the Digital Skills and Jobs Coalition and the European Robotics Week. They help to draw attention to in-demand competences like programming and computational thinking. Fourth, the structure for applying to EU funding must be simplified to appeal to a wider audience of stakeholders and generate potential new partnerships such as those between industry and academia.

Advanced digital skills

Basic digital skills are a must for everyone to be an active citizen of society. However, being employable in the era of digital transformation requires going beyond that. Educators should craft policies that encourage every learner to develop a core set of skills that will help in career development. DIGITALEUROPE identifies a set of must-have 21st century skills for individuals to thrive in the workplace:

- **Computational thinking combined with soft skills**: coding is a basic literacy in our digital age. But developing a successful app does end with great coding skills. As students grow, it is essential to combine it with soft competences such as problems solving, critical thinking, communication, collaboration and entrepreneurship abilities. Artificial intelligence and analytics are taking off across the world. Students must acquire vital skills in understanding algorithms and data science, vital in the fourth industrial revolution.

[9] Women in the Digital Age, Study carried out for the European Commission, 2018
[10] EPALE, Nearly half of Europeans don't have basic digital skills, 2017

▶▶ **Multifaceted Collaboration**: in today's global society, students need to know how to use a full set of available technology tools to connect with others, build relationships, share responsibility, and take leadership.

▶▶ **Dynamic Communication**: the possibilities for communicating today continue to grow. Students who know how to communicate using a wide range of media will be able to speak to a wider and more diverse audience and tailor their communication approaches according to the specific circumstance.

▶▶ **Digital Agility**: it is about picking the right technology based on the goal to achieve. This requires students to regularly evaluate new tools and determine whether they will help them more.

▶▶ **Media Literacy**: technology allows to access a wide range of new formats of information, from video to podcasts and apps. Students also need to be able to differentiate good quality from bad and dig into the messaging behind. Moreover, they need to be able to use that learning to create their own content.

▶▶ **Global Citizenship**: technology gives a greater understanding of different cultures by connects classrooms and learners across the world. Students should be good citizens in the way they represent themselves, communicate and act in the world and protect their information.

▶▶ **Creativity**: ever-more sophisticated technology solutions are opening up huge opportunities for creativity. Students should have the potential to contribute to the world and create content that will make a difference.

Educators must promote these 21st century skills in all learning settings, including lifelong learning programmes, and combine them with in-demand technical competences such as computer programming, coding, and app development. Whenever possible, governments across the EU should introduce certifications as part of dual accreditation pathways for both academic and vocational skills at the secondary level. The European Commission should play its role by encouraging alternatives to traditional learning paths. Short-term programmes to upskill or reskill individuals can provide digital-oriented, job-ready skills. lifelong learning, upskilling and reskilling programmes can provide job-ready skills.

⬤ ◣ ⬥ ◢ **Accessibility**

In education, access means bringing learning resources to geographically or economically isolated learners, and offering affordable learning solutions like MOOCs to vast audiences. It also means supporting the way people learn through their own styles. Where one student might learn a concept by reading a chapter of a textbook, another might learn by watching a video, playing a game or utilising an app simulation.

Importantly, accessibility is also needed to ensure students with special needs are on an equal footing to their peers. In England, 14.4% of students[11] have special educational needs. Technology is a formidable tool to help them.

Technology provides for multimodal learning—visual (seeing), auditory (hearing), kinaesthetic (moving), and tactile (touching). Videos with captions support foreign language learners. Mixed-reality and gamification lead to active student engagement. Embodied learning enables students to immerse themselves in an experiential learning context, which increases mastery and retention.[12]

Technology provides accessibility features not just for students with different abilities, but for all learners (and adults, too). For example, mobile phone features can aid someone who is blind to use a piece of technology, can facilitate the learning for someone through a second language, or change the lives of students who struggle with reading.

From a compliance standpoint, public procurement markets tend to guarantee high levels of accessibility. EU standard EN 301 549,[13] for instance, addresses challenges preventing people with disabilities from accessing ICT in the public sector. However, few head teachers and others responsible for technology procurement are aware of such standards, despite the availability of e.g. G3ICT Guide for Procurement of Inclusive Technologies.[14] To drive accessibility in education, governments across the EU must better promote their existence to educational authorities.

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[11] UK Department for Education, Special Educational Needs in England, 2017

[12] Microsoft, Immersive Experiences in Education: New Places and Spaces for Learning, 2019

[13] CEN/CENELEC/ETSI Standard EN 301 549, Accessibility requirements for ICT products and services, 2018

[14] Procurement of ICTs for Inclusive Education, Guide for Engaging ICT Vendors. G3ICT, 2018

Online safety, data privacy & security and environmental consciousness

As one out of three internet users world-wide is a child,[15] online safety is key. All primary schools across Europe should teach it. Alongside it, educators must be fully aware of the importance of security in student work and personal information. Europe's education institutions should guarantee all their products have in-built cybersecurity and privacy features and controls. Any information gathered from students should only be used for education purposes. It should not be sold, shared with third parties to use for marketing or advertising, or used to build student profiles based on their email use or web browsing.

Authorities should keep high on their agenda cyber hygiene school education policies. It is fundamental to teach students and teachers about simple, nontechnical, everyday habits to improve cybersecurity. These include choosing complex, unique passphrases; not reusing the same passphrases across multiple accounts; thinking critically about which links to click, especially in an e-mail (which could be phishing); being smart about connecting to potentially insecure wireless/WiFi networks, particularly when in public; and thinking carefully about whether to provide personal information to websites.

Embedding all this into modernised, digital-oriented school curricula is also a tenet for the digital citizenship skills that youngsters need to master. To strengthen effective cyber hygiene education in schools, policies must embrace parents to help reinforce these skills with their children.

In addition, access to devices for learning remains unequal. Bring Your Own Device (BYOD) is often unmanaged, with some students using brand new equipment while others using older devices, unable to receive the latest security patches or run the latest applications for learning. Schools need to be mindful of setting clearer requirements in BYOD scenarios. For those schools looking to a standardised procurement model, they also need to be aware of what makes a device appropriate for education. A learner device typically needs to have rugged protection, an appropriate screen size, be capable of use with a keyboard, inking/pencil and touch, and be highly mobile to facilitate deeper learning and engagement. Most systems that have deployed simple, low cost tablets have been dogged by breakage, theft and low usage as they are not appropriate to learning scenarios.

Finally, educators should also be mindful about the increasing importance of environmental consciousness. There are greater volumes of technology hardware

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[15] European Commission, Creating a Better Internet for Kids, 2019

and data circulating today than just a few years ago. Schools should educate students about the environmental benefits of technology as well as the environmental impact of technology equipment and data usage.

○ ◣ ⬥ ◿ The role of teachers

Teacher development

Teachers are crucial to enable digital-native students to transfer their knowledge into learning and working.

However, many of them struggle today with curriculum implementation as a result of scarce training. Authorities need to put more emphasis on oft-overlooked aspects like teacher recruitment, retention and development. Digital skills must be an integral part of teachers' initial training and their introduction to the profession. To support that, the European Commission should drive efforts for a more common understanding of digital skills based on the European Framework for the Digital Competence of Educators. It is also fundamental to involve in-service teachers in capacity-building activities and technology development plans of school authorities.

Most of all, fast-evolving digital technology urges us to move away from an emphasis on traditional teacher professional development. Research shows active teacher engagement in professional learning communities, grounded on aspects like teacher collaboration, involvement in decision-making and joint responsibility for teaching outcomes, helps in using technology in teaching.[16] OECD PISA tests' results confirm it. Many high-performing countries are associated with a strong focus on in-service workshops for specific groups of teachers, which cater in turn for better peer-learning opportunities.[17] Active teacher engagement in professional learning communities is fundamental and the EU should promote it to Member States as much as possible.

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[16] Harris et al., Teachers Leading Educational Reform: The Power of Professional Learning Communities, 2017
[17] OECD, Are there qualities unique to teachers in high-performing countries and schools?, 2018

Teacher Workload

Teachers' workload is on the rise in Europe due to factors like greater demand for back office administrative tasks. This is exerting a negative impact on teacher retention, hiring of experienced educators and indeed students' learning outcomes. Technology can play a role in reducing teacher administrative workload in tasks like planning lessons and writing assessments and marking, thereby increasing time spent on teacher-student interactions.

EU institutions and national governments should invest in campaigns to raise awareness of technology's benefits to shed the administrative workload of teachers. Digital tools can serve as a home base for teachers and students by collecting assignments and student work in a single space. They also facilitate visual and audio feedback and, thanks to data, offer insights into student progress. Teachers can use data to understand better how students are doing and thus personalise instructions based on needs. Studies showed that regularly using technology in class projects reduced by 4.6 hours the weekly workload of teachers, in comparison to occasionally using it.[18]

Data-Driven Decision Making for social well-being

Teachers and institutions have been using data about students to inform their instructional decision making and intervention strategies for years. It's nothing new. But as data growth transforms the world, traditional methods of instructional decisions are changing too. Data collection and analysis give incredible opportunities for teaching and learning assessment. Emerging applications of data and AI are showing promise in supporting student decisions about learning behaviour, e.g. using student virtual assistants to coach students on their learning behaviours during homework time.

Data collection also allows institutions to allocate resources more effectively: IoT sensors and other tools can give insight into how often resources are used and offer predictive analytics supporting decision making. Data can also play a valuable role in boosting early warning systems to identify students at risk of dropping out or requiring the intervention of a social worker.

It is important Europe's education systems properly recognised the value of technology in promoting student wellbeing. The European Commission should support them by mapping national and international practices to make learning more relevant, creative, collaborative and challenging.

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[18] Education Policy Institute, Teacher Workload and Professional Development in England's Secondary, 2016

People are rightfully concerned about technology-induced phenomena like cyber-bullying. But technology first and foremost helps students achieve academically and reduces their frustration by improving their ability to learn, communicate their learning, and express themselves in ways aligned with their learning styles and preferences. Digital tools and subjects like coding games and activities can bring students and classrooms closer together.

Built-in controls for screen time provide for a balanced set of interactions with technology and in traditional social environments. Plus, it provides the ability to control internet access, so to align a student's growing understanding of digital citizenship with its behaviour in the virtual world.

Annex

This section gives an overview of existing educational and training courses on cutting-edge digital technologies.

Apple

Today at Apple

Today at Apple is an educational initiative offered in Apple's retail stores around the world with the goal of educating and inspiring people to go further with their interests. The hands-on, group sessions focus on coding, app-development, design, video, photography, music and more. The sessions are free at every Apple Store worldwide and allow learners to find the right session for their skill level in order to unlock their creativity, learning and encourage connection. Apple supported EU Code Week by organising and offering thousands of coding sessions across all stores in Europe.

Read more: https://www.apple.com/uk/today/?afid=p238%7CshSaOzO1C-dc_mtid_187079nc38483_pcrid_387923677113_pgrid_45284404231_&cid=aos-uk-kwgo-brand--slid--bran-product-

Everyone can Code

In 2016, Apple launched the Everyone Can Code programme because we believe that every student should have the opportunity to learn to read and write code. Coding is an essential skill to help students understand today's world driven by technology. However, many schools don't offer computer science to students, and many teachers lack the training and experience to teach coding.

The Everyone Can Code program from Apple offers a range of free resources to help teachers introduce all students to coding as a core literacy, and to develop a skilled coding workforce around the world. Classroom curriculum, coding kits for after-school programs, and certification for college and career readiness are all built based on the Swift programming language, designed by Apple to make writing code simple and intuitive. Teacher Guides and lessons help educators introduce Swift and coding concepts using the Swift Playgrounds app. And they support students in high school and beyond in building iOS apps on Mac using Xcode. Students can even earn App Development with Swift certification to showcase their knowledge. So whether students are first- time coders or aspiring app developers, teachers have all the tools they need for their students to create and innovate in Swift. The App Development with Swift certification recognizes students 'foundational knowledge of Swift, Xcode, and app development tools. Students who pass the certification exam will earn a digital badge they can place in a resume, a portfolio, or an email, or share on social media.
Read more: www.apple.com/everyone-can-code and certiport.com/apple.

Apple Teacher

Professional learning is required of educators at all levels so they continue to evolve their professional skills. Apple Teacher is a free professional learning programme that supports the successful integration and use of iPad, Mac and built-in apps for learning. One of the biggest challenges schools face in the effective use of new technology is building teacher confidence and empowering them to use the new tools in creative ways. Apple Teacher supports teachers in continuing their professional learning journey with products that help them create engaging learning experiences for their students.

To learn more about the programme, visit www.apple.com/uk/education/apple-teacher.

Apple Developer Academy

The Apple Developer Academy was opened in October 2016 in partnership with the University of Federico II. The one-year course focusses on students learning practical skills and training on how to develop apps. The curriculum has been specially designed by Apple's education and software experts with students getting extensive hands-on experience, learning coding and software development skills, as well as gaining knowledge on how to create and run a startup.
The centre is equipped with labs and collaboration areas encouraging to work in teams, teaching from design concept to delivery. There is a strong emphasis

on collaboration, a key component of working in any startup or developer team. Up to 400 places are available and it is totally free for every successful applicant. All students provided with the hardware and software they need for their studies, including an iPhone and Mac.

In addition to the Academy, we teamed up with six more universities in the Campania region in Italy as part of our Foundation Program. This led to more students being given the crucial skills and support to get into app development. The Program offers four week course in app development and give students an introduction to the fundamentals of developing on iOS.

Amazon Web Services

Initiatives to advance Cloud skills and knowledge

re/Start - Helping People Launch Careers in the AWS Cloud. A full-time, classroom-based skills development and training program that prepares individuals for careers in the cloud and connects them to potential employers. A technology background is not required to apply and the program is focused on unemployed or underemployed individuals, including military veterans and their families, and young people.

Through real-world, scenario-based learning, labs, and coursework, learners gain the skills they need for an entry-level cloud role. AWS re/Start also provides learners with resume and interview coaching to prepare for employer meetings and interviews.

Read more: https://aws.amazon.com/training/restart/

AWS Educate provides an academic gateway for the next generation of IT and cloud professionals. The program offers a robust set of free tools, resources, and AWS Promotional Credits for students (aged 14+*) and educators to skill up on the cloud and accelerate cloud-related learning endeavors.

Read more: www.awseducate.com

AWS Training and Certification platform. AWS delivers free digital training platform with 500+ learning modules available to anyone at anytime. We run classroom trainings both directly by the team of AWS experts and through our network of Authorized Training Partners operating in many countries. To date we have trained hundreds of thousands individuals and awarded more than 200,000 of certifications globally.

Read more: https://www.aws.training/

AWS Academy. Empowering higher education institutions to prepare students for industry-recognized certifications and careers in the cloud. AWS Academy provides higher education institutions with a free, ready-to-teach cloud computing curriculum that prepares students to pursue industry-recognized certifications and in-demand cloud jobs. Our curriculum helps educators stay at the forefront of AWS Cloud innovation so that they can equip students with the skills they need to get hired in one of the fastest-growing industries.

Read more: https://aws.amazon.com/training/awsacademy/

Cisco

Cisco Networking Academy

Since its inception in 1997, Cisco Networking Academy has had over 9 million students in 188 countries; with about 2.2 million in Europe alone. Of these, 424,300 stepped into the labour market as Cisco-certified career ready students (IT-Professionals)

To help meet the need for skilled IT talent and to ensure a more inclusive future for all people, Cisco Networking Academy has advanced its Cisco Certificated Network Associate (CCNA) curriculum to prepare job seekers, from anywhere and from any background, with the skills they need for a successful career in the ever-changing IT field.

Strategic partnerships at the heart of the operational model

Conscious that concrete and effective solutions to today and tomorrow's challenges can only be built through strong and diverse partnership models, the Cisco Networking Academy has designed its eco-system to revolve around an implementation through strategic partners In the European Union, Cisco Networking Academy works hand in hand with over 150 partners to support the more than 4,300 academies to deliver courses that will prepare Europe's workforce for the challenges and opportunities the digital revolution will bring.. Lastly, it is by recognizing that policy makers, educators, employers, trade unions and educational providers all have a pivotal role to play that Cisco Networking Academy continues to provide relevant certified training to over 144, 000 students in the EU as of 2019.

Innovating to meet the demands of the industry:

Whether through the constant evolution of the offering of its core programs, such as CCNA 7, or through budding collaborations such as the new relationship with

DevNet (and the upcoming DevNet Associate courses) Cisco Networking Academy's core philosophy is based on responding as quickly and effectively to change. The changes to the Cisco Networking Academy CCNA curriculum support the evolution of Cisco's professional certification program to combine both the network professional and the software developer into one community to create the IT team of the future – helping to grow the workforce for Cisco's partners, customers, and businesses worldwide.

Read more: www.netacad.com

Digital Thematic Week (Digitális Témahét- DTH)

The objective of the initiative is to catalyse the digital transformation in schools through technology enriched, project-based learning, to increase the digital competencies of young people and to reach the educational objectives of the subjects defined in the national framework curriculum by the effective use of digital technologies. DTH widens the use of digital pedagogy and ensures thereby that digital skills are developed also beyond the IT classes. In the long term it is expected that the methodology used during the DTH becomes a standard educational method in the Hungarian schools. DTH contributes to the implementation of the National Digital Education Strategy, which is one of the pillars of the Digital Success Programme of Hungary.

Schools can join DTH on a voluntary base by organising an educational project, lasting at least one whole day on a chosen topic. The central team supports teachers who wish to develop their own projects with useful methodological guidelines and templates. The content and the methods available for the schools are platform independent so every participating school could use its own devices for the projects. In addition to the classroom activities, schools could choose from more than 100 interesting programmes offered by IT companies and other partners. They include IT office visits, robots, 3D printer, VR and ethical hacking presentations. The portal facilitates the matchmaking between the schools and the partner organisations.

Read more: https://ec.europa.eu/digital-single-market/en/digital-skills-initiatives/digital-thematic-week-digitalis-temahet-dth

Microsoft

Microsoft Certified Educator program

The Microsoft Certified Educator (MCE) certification validates that educators have the global educator technology literacy competencies needed to provide a rich, custom learning experience for students.

Through this single exam, educators will demonstrate that they are able to incorporate the 21st Century Learning Design (21st CLD) skills identified in the Innovative Teaching and Learning (ITL) Research project into learning activities using Microsoft tools for education.

- Facilitate student collaboration

- Facilitate skilled communication

- Facilitate self-regulation

- Facilitate real-world problem solving and innovation

- Facilitate student use of Information and Communication Tools (ICT)

- Use ICT to be an effective educator

MCE certification is ideal for educators-in-training, faculty of teacher training colleges, and in-service educators.

Microsoft offers a comprehensive e-learning curriculum, 21CLD available online through the Microsoft Educator Community to help educators prepare for this rigorous exam.

Read more: https://www.microsoft.com/en-us/learning/mce-certification.aspx

Azure for Education

The developer tools and learning resources students and educators need to build cloud-based skills are made available to education institutions. Build, deploy, and manage applications with comprehensive Azure cloud services. Whether a student getting started, an educator teaching advanced workloads, or building cloud-based skills in your community, Azure for Education offers the cloud development resources needed. Students jump-start their careers and innovation with free access to Azure, developer tools, and learning resources. Professors, teaching assistants, and faculty get access to open source content for classes and $200 in Azure credits, plus free services. Institutions can provide professional developer tools, software, services, and educational content to your faculty and students with a low-cost subscription to Azure Dev Tools for Teaching.

Microsoft Azure for Students Starter

Microsoft Azure for Students Starter gives students (ages 16+ WW and 13+ in the US) access to limited free Azure services for building their first app or web site. Now, it also gives students access to Dev Tools in one convenient place – the Azure Education Hub. Azure for Student Starter is accessed after student validation and doesn't require any credit card for access

Microsoft Fundamentals Certifications

With the evolution of technology, students are becoming increasingly interested how the cloud will impact organizations and society. To nurture and encourage this learning Microsoft has developed entry level Fundamental certifications. The Microsoft Fundamentals portfolio is the first step is taking certification for the technical skills needed to be successful across a variety of careers. These exams are regularly updated to reflect the pace of change and set the path for continuous learning opportunities once certified. The three Microsoft Fundamentals exams include Azure Fundamentals, Microsoft 365 Fundamentals, and Dynamics 365 Fundamentals. All of the courses are available for free as self-paced online learning modules at Microsoft Learn. Once students have mastered these fundamental skills, they can continue to use the Microsoft Learn resources for free training in professional level digital skills (e.g. data science, business analysis, solutions architecture).

Read more: https://www.microsoft.com/en-us/learning/browse-all-certifications.aspx?certificationlevel=fundamentals

NVIDIA

NVIDIA Deep Learning Institute (DLI) – Hands-on Training on AI, Data Science and HPC

DLI offers hands-on training in AI, data science and accelerated computing to solve real-world problems. Developers, data scientists, researchers, and students can get practical experience powered by GPUs in the cloud and earn a certificate of competency to support professional growth. We offer self-paced, online training for individuals, and instructor-led workshops for teams. DLI also offers downloadable course materials for university educators and free self-paced, online training to students through the DLI Teaching Kits. Educators can also get certified to deliver DLI workshops on campus through the University Ambassador Program.

DLI includes both industry-agnostic and industry-specific courses. Industry-agnostic courses provide fundamental knowledge on AI/Deep Learning, Data Science and Accelerated Computing that's relevant across sectors. Examples of the AI/Deep Learning courses include Fundamentals of Deep Learning for Computer Vision, Fundamentals of Deep Learning for Multiple Data Types, Fundamentals of Deep Learning for Natural Language Processing, Fundamentals of Accelerated Computing with CUDA C++, Fundamentals of Accelerating Data Science with RAPIDS and Fundamentals of Deep Learning for Multi-GPUs. Industry-specific courses teach how to use AI for tasks relevant to that industry. These include Deep Learning for Autonomous Vehicles—Perception, Deep Learning for Digital Content Creation with Autoencoders, Deep Learning for Healthcare Image Analysis, Deep Learning for Industrial Inspection, Deep Learning for Intelligent Video Analytics, Deep Learning for Robotics, Applications of AI for Anomaly Detection and Applications of AI for Predictive Maintenance.

For those interested in more comprehensive enterprise training, the DLI Enterprise Solution offers a package of training and lectures to meet each organization's unique needs. From hands-on online and onsite training to executive briefings and enterprise-level reporting, DLI can help companies transform into AI organizations.

Read more: www.nvidia.co.uk/dli

Palo Alto Networks

Cybersecurity skills and awareness initiatives for schools and students

Palo Alto Networks offers a range of cybersecurity education, skills, and awareness initiatives for children, students, and adults. These initiatives are targeted at various ages and abilities. Two key ones are profiled below.

Cyber A.C.E.S. (students aged 5-15): The Activities in Cybersecurity Education for Students (A.C.E.S.) program aims to demystify cybersecurity through interactive learning, equipping kids ages 5 to 15 with an understanding of how to protect their digital future. Cyber A.C.E.S. provides the cybersecurity basics students need to have safer online experiences and become good digital citizens. Lessons are designed so they can be facilitated by anyone, regardless of their knowledge level, with each module tailored to a specific age group. The free lessons are ideal to share with schools or community programmes.

Cybersecurity Academy Programme (STEM high schools and higher education): Palo Alto Networks offers faculty training, hands-on labs, virtual firewalls, and modularized curriculum (aligning to the NIST/NICE Cybersecurity Workforce Framework) at no cost to qualified academic institutions. This program helps to deliver world-class preparation for careers in cybersecurity. As of autumn 2019 approximately 600 academic institutions globally were members of the Palo Alto Network Cybersecurity Academy Programme, including more than 100 institutions in EU countries**.**

Read more: https://start.paloaltonetworks.com/cyberaces and https://www.paloaltonetworks.com/academy

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SAP

SAP Learning for Life

SAP Learning for LIfe supports inclusive education, training, and workforce-readiness. SAP aims at ensuring that everyone, regardless of age or background, has the relevant skills to thrive, innovate, and secure meaningful work in a digital world.
SAP's Learning for Life educational proposition is built around three main interconnected pillars.

Today's workforce: *to c*reate engaging and continuous learning experiences for both current and future employees, SAP launched openSAP, a massive open online course (MOOC) platform. One of the first MOOC providers, openSAP has offered hundreds of free online courses, with more than 2.5 million enrollments, since 2013. SAP's People to Work initiative supports job seekers in developing digital skills to increase their employability and ensure the availability of highly qualified IT experts: 6000 people trained quarterly with an 80% employment rate. SAP Learning Hub supports SAP professionals to acquire the necessary SAP skills and keep them up-to-date through a blended approach which includes expert-led live webinars, social learning and hands-on practice.

Tomorrow's workforce*'s success will depend on b*reaking down the barriers between governments, educators, civil society, and businesses to build direct lines of communication and open feedback between sectors will be key. One way SAP leads the charge is through SAP University Alliances, a global network helping more than 3,500 educational institutions in over 113 countries integrate the latest SAP technologies into their educational efforts.

Access for all is the foundation to Learning for Life and cornerstone to SAP's innovation strategy. In 2018, digital skills and coding programs from SAP trained 34,000 teachers, engaged 2.8m young people, and spanned 93 countries. 55% of all SAP employee volunteer projects were skills-based in alignment with these programs.

Read more: https://www.sap.com/corporate/en/purpose/learning-for-life.html

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Siemens

SITRAIN access – the digital learning platform for industry

SITRAIN facilitates digital, innovative learning and professional education in all sectors. It's online, flexible, continuous, and personalized. SITRAIN's knowledge offerings are curated by Siemens's experts, arranged in modular form, and can be accessed to suit the learner's own requirements. SITRAIN is more than just a video platform: Constant additions to its content, together with the ability to monitor your progress and complete practical exercises, fulfill all the requirements for sustainable, scalable learning.

Read more: https://siemens-learning-sitrainaccess.sabacloud.com/Saba/Web_spf/EU2PRD0112/guest/guestlearningcatalog/

<u>Texas Instruments</u>

Professional Development for math, science and STEM educators

Texas Instruments offers a wide range of hardware and software and app solutions dedicated on math, science and STEM education. To ensure classroom success of educators and students Texas Instruments invests in teacher education and online and offline professional development programs by supporting a network of teacher practioners under the umbrella of T³ - Teachers Teaching with Technology. This educator network is permanently publishing series of curriculum aligned educational content developed out of classroom experience.

T³ Europe educator network
T³ - Teachers Teaching with Technology is a network of around 250 educators across Europe. Its members are willing to share their classroom experience with peers and generally interested public. They do it in various formats of professional development be it in-school trainings, Webinars or conference speeches. Every year 10.000+ educators are trained on the proper and effective use of technology in math, science and STEM classes to the benefit of student success.

Educational Content
Workload for classroom teachers is high, leaving little space for developing teaching concepts and methods alone. Texas Instruments supports classroom teachers by making the content available developed by T³ educators. This content is available in classical activity and textbook format and also in video tutorials and interactive websites.

TI STEM Lab Schools
While curriculum alignment is critical for classroom teachers and for exam preparation, it is equally important to advance state-of-the-art teaching styles. Incubators for STEM-pedagogy developments are the TI STEM Lab Schools, where teachers are exploring new ways of teaching and learning STEM concepts and STEM content by breaking traditional subject-silos and taking full advantage of up-to-date classroom technologies.

Read more:
T³ Europe: https://www.t3europe.eu and https://education.ti.com/

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About DIGITALEUROPE

DIGITALEUROPE represents the digital technology industry in Europe. Our members include some of the world's largest IT, telecoms and consumer electronics companies and national associations from every part of Europe. DIGITALEUROPE wants European businesses and citizens to benefit fully from digital technologies and for Europe to grow, attract and sustain the world's best digital technology companies. DIGITALEUROPE ensures industry participation in the development and implementation of EU policies.

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National Trade Associations

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Finland: TIF
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Spain: AMETIC
Sweden: Teknikföretagen, IT&Telekomföretagen
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Turkey: Digital Turkey Platform, ECID
Ukraine: IT UKRAINE
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