



Austria

Country Report on ICT in Education

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1. EDUCATIONAL CONTEXT

1.1. Key educational challenges and priorities

a. eEducation Austria: Digital education for all

The new „eEducation Austria” initiative of the Federal Ministry of Education (BMB) is designed to help schools and teachers to use digital media as a didactic tool in all subjects and to increase the ICT competencies of all participants in Austrian schools. The declared goal is to carry digital and informatics skills into all Austrian classrooms.

Today, pupils are growing up with digital media and are using them in a most unaffected and versatile way. „eEducation Austria” aims to promote and expand digital and informatics skills in all schools. In addition to the development of teaching (didactic scenarios for the methodically effective use of digital media in classroom), the focus is on school development, i.e. on a comprehensive view of the entire school community and not just on individual teachers.

Schools benefit from each other

eEducation Austria provides a structure for schools to network and transfer of knowledge and experience from the so-called expert schools. These schools are experienced in digital development to interested member schools and accompany them in their development path towards a more digital environment. They initiate joint projects and offer further training measures. Currently, around 1,800 schools are already involved in the eEducation initiative, 700 of them as Experts. According to the annual target of the MOE, by the end of 2018, a total of 2,000 schools will participate in this initiative.

„eEducation Austria”

All eEducation initiatives are coordinated by the Federal Centre for eEducation at the University College for Teacher Education Upper Austria. There, central coordinators for all school types from primary to secondary schools develops initiatives and coordinate projects. Additionally, about 50 regional coordinators support the expert schools and enable them to pass on their knowledge and experience. The regional coordinators are also connected via networks throughout the country. They collaborate regionally in coordination with the respective school supervisors and the University College. In strategic questions, the BMB is working closely with educational colleges and school supervisors, organising events and projects.

A network for all teachers:

Several Austrian eLearning school networks, such as eLSA („eLearning im Schulalltag” or eLearning at school), eLC (eLearning Cluster) and IT@VS („IT in the Volksschule” or IT at primary school) were brought together under the umbrella of the „eEducation Austria”. More information can be found in section 5- Teacher Education for Digital Learning.

1.2. Education Reforms

a. The New Secondary School

Since September 1, 2012 mainstream schooling in Austria is now “New Secondary School System”. Throughout the reform, all lower secondary schools have been transformed into new secondary schools by 2015/16. Established on a broad legal basis, the New Secondary School provides joint schooling for all 10- to 14-year olds pupils. The New school is open to all students who completed fourth grade in primary school. All [lower-level Academic Secondary](#) Schools are encouraged to become new mainstream schools.

b. The New Curriculum

The new mainstream school curriculum combines traditional methods of teaching and learning in the lower-level secondary academic school with new learning and teaching culture and practices. The focus developing the potential and talent of each pupil. This also includes education counselling and a vocational orientation to provide an optimal basis for students’ subsequent decisions on future educational and vocational development.

Adapting a new learning culture based on individualization and inner differentiation, the new curriculum gives pupils the opportunity to develop their skills and improve their achievements, as they are given sufficient time and assistance to learn the material at their own pace. Furthermore, pupils are provided with additional resources to develop their particular talents. As consequence, contrary to the past, pupils are not streamed to various educational paths too early (such as vocational or academic paths), but are given the space and time to develop their skills and knowledge.

In teaching and learning methods, the new curriculum applies collaborative learning methods that allow pupils to actively participate in the class. Furthermore, the use of new media is also a part of the curriculum. In the new curriculum E- learning is widely practiced, this not only facilitates an interactive knowledge exchange, but also develops pupils’ critical thinking of new media such as the internet. (see also Chapter: eEducation Austria: Digital education for all)

The integration of all students regardless of their origin, as well as gender equality for all children is key element. Engaging children of different cultures and

traditions, enhance their social skills and create a culture of respect, consideration, tolerance and an unprejudiced awareness.

At many new secondary schools, numerous artistic, creative, sporting and scientific activities take place. These activities ensure that pupils have the possibility to absorb and practice what they've learnt during the lessons while also providing them with an opportunity to rest as afternoons also include relaxation time and meaningful recreational activities.

c. Tuition at New Secondary Schools

Instruction at new secondary schools follows the curriculum for new secondary schools, and is organized by teachers from lower secondary schools and academic and technical / vocational secondary schools working together in teams. Individual learning strengths and achievement are recorded in a "supplementary differentiating performance report" that is issued in addition to the certificate.

d. The New Advanced Level- the NOST

The new advanced level represents a modern pedagogical concept aiming to increase individualization and competence orientation. This approach aims to raise the motivation of the pupils by always recognizing pupils' achievements. This approach targets to help pupils to achieve higher success rates and to reduce grade retention.

200 schools already implement the New Advanced Level and provide valuable experience for future developments of the program and to ensure its efficiency and success in the future.

The changes the New Advanced Level (NOST) reform introduces:

- Division of the school in winter and summer semester.
- Every semester must be completed with positive grades
- assessment period takes place once in each semester.
- Negative or non-assessed benefits are stated separately in a supplement to the semester certificate.
- Clearly defined and manageable learning packages are shown in competency- and semester-oriented curricula.

What should be observed when completing a year and when repeating one?

Generally with two insufficient grades or not rated grade a pupil can be promoted to the next high school level.

- The structure of classes/groups is preserved.
- Each negative assessment / non-assessment must be completed in the two successive semesters, with a semester examination (including two possibilities to retake the examination).

- A third repetition of the semester examination may be possible at the end of the semester.

A repetition of a school year is either:

- Voluntarily upon request (with the consent of the school management) or
- If at the end of the school year more than 2 (or 3) subjects are inadequate or not assessed.

In the case of a class rehearsal, all the services provided positively are received - only negatively assessed performances have to be improved.

How are pupils encouraged?

Additional measures are offered for the individualisation of the teaching as well as for strengthening the self-responsibility and motivation of the pupils.

Individual learning support (ILB)

- Pupils with learning deficits are supported multi-dimensionally in order to improve their entire learning situation.
- The prime goal is to raise awareness of one's own strengths.
- The ILB is independent of the subject matter.

Expansion of the promotion of the gifted:

- There is a possibility of semester examinations and:
- To participate at the lesson in a higher semester
- To be exempted of compulsory topics.

Objectives and key data of the new advanced level

What does the NOST want to achieve?

- support students' individual learning paths
- Promoting pupils' performance through motivation and support
- Manageable learning packages and areas of competence per semester
- Development of learning support to promote lifelong learning
- Increase success rates and reduce the number of drop outs

When does the NOST start?

- Scope: From the 10th school year for at least three-year middle and high schools
- Date: from 2017/2018 school year

Links:

https://www.bmb.gv.at/schulen/unterricht/ba/nost/grundstruktur_folder.pdf?61edw9
and also
<https://www.bmb.gv.at/schulen/unterricht/ba/nost/nostkompakt.pdf?61edtz>

2. DIGITAL EDUCATION POLICY

2.1. National/ regional digital education policies

a. Digitisation Strategy School 4.0. – It's getting digital

The digitization strategy „School 4.0. – it's getting digital” of the Austrian Federal Ministry of Education presents a comprehensive concept covering the entire school career. With the implementation of the strategy, all pupils in Austria acquire digital competences and learn to deal critically with digital content. This involves a broad portfolio of competencies: from media competency to the critical handling of information and data, network security, knowledge of technology, coding and problem solving.

The strategy consists of four pillars that support each other:

Pillar 1: Digital basic education from primary level onwards („Volksschule”)

Primary education focuses on media education as well as on using technology and developing problem solving skills in a playful way. The emphasis is on the third and fourth school years (3rd and 4th grade). All students should have first digital basic competences and apply them after completing primary school.

Activities:

In addition to media education, digital basic education is gradually included in the curricula. Particularly innovative schools are already beginning to implement the model during the school year 2017/18. Experience is passed on to all other schools in the form of best practice examples and transfer of know-how. Pupils collect stickers as a proof of their digital basic education.

Secondary level I

At the end of the eighth grade, students should be able to master basic skills in informatics as well as deal with standard programs. The second focus is on the critical handling of social networks, information and media. „Digi.komp 8” defines the competences that students should have at the end of the eighth school year.

Activities:

From the fifth to the eighth grade, the compulsory subject „Digital Basic Education” covering 2 to 4 lessons per week will be introduced. The school decides autonomously about the specific design of the content of the lesson. The implementation is carried out either integrated in the existing school subjects or through specific lessons. In order to assess the students' success, the students' digital competencies („digi.check”) are measured at the eighth grade.

Pillar 2: Digital Competent Educators

The prerequisites for achieving these goals are well-educated pedagogues (teachers) who use digital media effectively in their classes. They must have digital competencies and media competency in order to be able to pass them on to the pupils.

These competencies were defined in the „digikomp” model.

Activities:

a. Digital competences training during teachers' initial training

From autumn 2017 onwards all new teachers will acquire standardized digital skills during the first three years in the job. While in their training the teachers will demonstrate their digital competencies, including using technology in learning scenarios. The teachers are requested to present their digital skills in a compulsory portfolio within their first three years in the job.

The digital portfolio consists of the following components:

- Digital competency check (digi.check) at the beginning of their training (first 3 years in the position)
- Completion of a modular course of 6 ECTS for digital didactics in the subject („Fachdidaktik”) within 3 years
- Reflecting one's own teaching activity in a digital portfolio through compilation of a collection of artefacts that document teachers' development

b. In service teachers' training

In order to be able to expand their digital competences in professional life, the course is also offered to in-service teachers. Principals will be given the opportunity to obtain this training at the University Colleges of Teacher Education and offer it at their schools.

In addition, the programme of the Virtual University College of Teacher Education („Virtuelle Pädagogische Hochschule”) is expanded.

c. Establishment of digital learning centre

To promote digital learning and to support the nationwide networking of schools, the Ministry of Education set up a federal center at the University College of Teacher Education in Burgenland. It is called “Virtual Teacher Training College”.

d. Education Innovation Studios (EIS)

Established at University Colleges of Teacher Education in all federal states. They pursue the goal of increasing the competences of teachers regarding child-friendly programming environments, robotics and creative digital design.

e. Future learning lab

In addition, the first Austrian Future Learning Lab was set up in cooperation with the Federal Ministry of Families and Youth (BMFJ) at the Pädagogische Hochschule Vienna. There, teachers can now experiment with digital tools and are trained to use them.

Pillar 3: Infrastructure and IT equipment

In Austria, secondary schools maintained by the Federal Ministry (so-called “federal schools”) and primary and secondary schools maintained by regional authorities (so-called “compulsory schools”). Modern infrastructure is also an important requirement for digital education. Wi-Fi is available in all rooms at around 50 per cent of the Federal Schools, while 96 per cent of all classrooms are connected to the Internet. At compulsory schools, 31 per cent of all classes have WiFi, while 78 per cent of the classrooms have Internet access.

Activities:

The BMB has launched a broadband initiative for compulsory schools in cooperation with the Austrian Ministry for Transport, Innovation and Technology (BMVIT). The „Connect” funding program of BMVIT pursues the goal of achieving a sustainable improvement in the connection of compulsory schools to the glass fiber network.

Together with local school authorities, the BMB has developed recommendations for a basic IT infrastructure in schools. They provide the basis for a development plan for the improvement of technical infrastructure in schools.

The BMB has also negotiated framework agreements with internet providers. They offer special conditions for educational institutions, which means that the running costs are kept as low as possible.

Especially for compulsory schools, counseling and service is essential for establishing and expanding school infrastructure. Therefore, in cooperation with the Austrian Internet Offensive, the BMVIT and the Austrian Association of Communities, are developing a concept to provide appropriate support to schools and local school authorities.

It is a medium-term goal of the Ministry of Education to equip all 86,000 pupils in the fifth grade with tablets and all 84,000 pupils in the ninth grade with laptops. Initially, the „Bring Your Own Device” concept is being promoted, which is already implemented in 35 per cent of the Federal Schools.

Pillar 4: Digital learning tools

In order to be able to communicate digital content, teachers need easy and free access to teaching and learning materials.

Through OER (Open Educational Resources) content is made available and the active use of digital media is encouraged.

Activities:

Eduthek is a portal for digital teaching and learning materials. It pools a wide range of content and media and makes them accessible via a central entry point. The content will include teaching and learning materials, recommended educational apps and games as well as innovative tools for modern

methodology. Model-driven deployment scenarios show teachers how to effectively integrate digital media into their lessons.

Schedule:

The rollout of the digital strategy starts in 2017/18. The gradual implementation of digital basic education in primary and lower secondary education starts with a pilot at innovative schools of the eEducation network.

2.2. Responsibilities

The Federal authorities have an exclusive responsibility over legislation and implementation in the entire field of general upper secondary education, intermediate and upper secondary technical and vocational education and in training for kindergarten teaching staff and non-teaching supervisory staff, as well as with regard to the conditions of service and staff representation rights of teachers at these schools/colleges.

The Federal Parliament is responsible for basic legislation, and the Länder, the regional authorities, are responsible for issuing and implementing laws with regard to the organisational structure of federal education authorities in the Länder and the external organisation of public sector schools within compulsory education. External organisation includes the development, construction, maintenance and approval of schools, but also the establishment of student numbers per class and teaching periods. All basic legislation has a framework character and is expressed through the implementation of laws decreed by the Landtage (the legislative bodies at Länder level). The Länder are responsible for the

Legislation and implementation regarding, for example, kindergartens.

In general, the Federal Government introduces draft laws, known as government bills, in the National Council. The draft produced by BMBF is first submitted to a number of relevant authorities (Collegiate Councils in the District and Provincial School Boards, provincial governments, various interest groups, etc.) for an expert opinion.

Basic laws enacted by the Federal Parliament will normally prescribe a deadline by which the Länder must issue the relevant implementing laws (within six months to one year). Implemented laws are passed by the Landtage. More detailed provisions are drafted in the individual constitutions of the Länder.

2.3. Specific initiatives

- a. *1:1 mobile learning initiatives (including the use of netbooks, laptops, tablets, mobile phones or other mobile devices)*

See also 1.1. eEducation

b. Broadband for Schools

The BMB has launched a broadband offensive for compulsory schools in cooperation with the Austrian Ministry for Transport, Innovation and Technology (BMVIT). The „Connect“ funding program of BMVIT pursues the goal of achieving a sustainable improvement in the connection of compulsory schools to the glass fiber network.

Together with local school authorities, the BMB has developed recommendations for a basic IT infrastructure in schools. They provide the basis for a development plan for the improvement of technical infrastructure in schools.

The BMB has also negotiated framework agreements with the providers. They offer special conditions for educational institutions, which means that the running costs are kept as low as possible.

c. Schoolbook + E-Book

The "e-book" is offered as well for the lower secondary school as for the upper secondary level, what is listed in the school book database under "book & e-book". The "e-book" contains the approved textbook in printed and digital form and can be ordered with its own book number via the application SBA-Online. The e-book can be ordered free of charge for the printed textbook.

When the combined product is ordered, an access code is included with the printed textbook, which allows access to the "e-book" via the platform [digi4school](https://digi4school.at) for teachers and pupils. With the registration on this platform a separate digital book shelf can be created, which is also available offline and via apps.

d. Mobile Learning - cross-school peer learning with tablets

Digital education should be as wide as possible in Austrian schools. The "Mobile Learning" project launched in the autumn of 2015 in cooperation between the Ministry of Education and the Ministry for Transport, Innovation and Technology (BMVIT) is based on a cross-school peer-learning approach and shows how much pupils benefit from the use of digital media.

The project is based on the know-how and experience in the eEducation network. Two or three schools with little use of technology in the classroom are now mentored by an experienced school to form a regional cluster. Together, they develop an educational concept for the didactic use of tablets in the classroom. The school of excellence supports and accompanies its partnerships continuously through the one-year project duration in their way into the digital teaching and learning.

In cooperation with the Federal Chancellery, "Mobile Learning" has been

continued with a second extension of the project since February 2017. It has been expanded from currently 94 locations in 31 clusters to 171 schools in 55 clusters.

Each branch of the regional cluster participating in Route 2 will receive a set of 20 tablets and a tablet trolley on loan from February 2017 to January 2018. If required, a mobile Internet connection based on LTE is also available.

The accompanying evaluation of the first round lead to the following results: Individual learning is promoted, pupils with different learning progress work on common tasks and in teams, different learning speeds can be dealt with well. The teachers of the participating schools see the profits through the participation in the quality increase for their lessons as well as the better networking and cooperation with the colleagues within their own school and with other schools.

In order to support the schools as best they can, various accompanying measures are taken:

- Teacher training in the regional cluster
- Networking via the Virtual Pedagogical College
- Safer Internet workshops in schools for teachers as well as for students to create awareness for a reflected use of technologies and digital media

e. Digital game design with students of upper secondary schools

The department “Science & School” of the Federal ministry of Education has launched an initiative to get a new approach to game based learning in education. Teachers of 25 schools of the upper secondary are invited to follow a workshop on how to do game design with students. In a second step of this project the students with the best game drafts will get support by professional game designers that help them to realise their projects. The project runs under the financial support of the digital initiative of the Austrian Federal Austrian Federal Chancellery. The aim of this initiative is to check out the potential of serious game based learning in class room situations.

2.3. Specific digital education initiatives

Please describe digital education initiatives, currently implemented or planned according to the table below:

Area	Short description (objective, timeframe, target audience, key actors, number of schools, teachers involved, level of implementation (national, regional local))
Student identity management and School management systems	<p>From Untis to WebUntis</p> <p>Educational institutions in Austria use the hour scheduler Untis to create or manage the timetable. The data stored in Untis can be evaluated in many ways and used for statistical purposes. Untis has been the basic software over decades that provides the basic element for all modules and extensions of the package. The user can determine how many days a week the system shows as teaching days. In addition, the user also specify which teachers, classes, rooms, and subjects are available at the school. WebUntis opens up entirely new possibilities because it is a tool that is not only reserved for a few persons in the school administration, but can be used by all teachers, pupils, parents and other persons involved.</p> <p>See https://www.untis.at/</p>
New learning spaces	<p>Project EIS - "Education Innovation Studios"</p> <p>1. basis:</p> <p>Algorithmic thinking is the basis of understanding and solving complex problems from school and everyday life as well as the pioneer for the development of one's own creative power (making). Combined with play-based learning (Game Based Learning), high motivation and sustainable learning outcomes for girls and boys can be achieved at the primary level.</p> <p>2. Objective:</p> <p>With a didactic introduction to the use of digital media in the primary school with special consideration of the aspects of problem solving and dealing with new tasks, digital media is described in its social meaning and tested in everyday situations of the lessons and used to generate value added.</p> <p>Projector-oriented teaching in an Education Innovation Studio (EIS)</p>

The Education Innovation Studio (EIS) is based on the pedagogical and didactic concepts of the Future Classroom Lab (<http://fcl.eun.org/>) of the European Schoolnet (EUN) in Brussels, in which the BMB is involved. The didactic concept of learning in an EIS provides six learning areas (see <http://fcl.eun.org/learning-zones>) and is oriented towards independent doing, co-operation, presentation, research, sharing and development by pupils, Supported by teachers

3. Equipment:

An **EIS configuration** can be used by one or more people (in the team) and consists of:

- **BeeBot**: a small game robot with a bee design, 7 keys to control the movement, 40 commands are programmable
- **Lego Education WeDo 2.0 Robotics Kit**: developed with the MIT, 150 Lego bricks, motor, tilt sensor, distance sensor, child-friendly programming language, control through Bluetooth via a tablet; Example of a program:
- **10 inch tablet**: Apple iPad
- **Software for Apple iPad**: Programming of BeeBots via app and control of Lego WeDo

- **9 EIS at public PHs for teacher education and training:**

Equipping public educational colleges with an "Education Innovation Studio" (EIS) consisting of 20 BeeBots, Lego Education WeDo 2.0 Robotic kits and iPad tablets for educating teachers.

- **20 borrowed mobile EIS for primary schools throughout the federal territory:**

PHs provide to primary schools an "Education Innovation Studio" on a loan basis to supplement the project "Thinking Learning, Problem Solving" of the BMB, which serves as a qualification measure for pedagogues within the framework of the overall IT strategy of the BMB. This model is spreading across the entire federal territory. The EIS equipment remains the property of the BMB.

Game based education	<i>See 2.3 Specific ICT Initiatives: Digital game design with students of upper secondary school</i>
Implementation of computing, coding, computational thinking initiatives	<p>Project "Learning to think – solving problems" – A measure of strategy school 4.0</p> <p>Objective</p> <p>The project "Learning to think – Solving problems" is intended to provide a didactic introduction to the use of digital media in primary school, with particular attention to aspects of problem solving and dealing with new tasks. The playful approach stimulates students' curiosity, and is a basis for successful learning.</p> <p>The learning of "programming" takes place step by step from "grasping" building blocks to tablet use, from the three-dimensional to the two-dimensional, from the concrete to the abstract. Step by step, difficulty and challenges are increased. This increases the likelihood of success. The feedback of even small successes is immediately "literally" in the truest sense of the word and also promotes efficient learning via the reward system of the brain.</p> <p>Digital Competencies in Primary (digi.komp 4)</p> <p>The reference frame digi.komp 4 (http://digikomp.at/praxis/portale/digitale-kompetenzen/digikomp4-volksschule/kompetenzmodell.html) serves for primary school literacy, schools, parents, teachers and students Austria as an orientation aid and should ultimately help pupils at the fourth school level to obtain digital skills. Digi.komp 4 is divided into four areas:</p> <ol style="list-style-type: none"> 1. Information technology, people and society 2. computer science systems 3. applications 4. concepts <p>The installed EIS at the University Colleges for Teacher Education are used to promote the digital competences of teachers. pupils / students are expected to develop their digital skills under the guidance of teachers after the</p>

	<p>teachers have completed the further training programs: Target groups addressed by the project:</p> <ul style="list-style-type: none"> • Educational Colleges, teachers at PH • Specialist coordinators, multipliers, school developers • Teachers • Students from the second to fourth grade <p>Compulsory exercise „Digital basic education“ at secondary level I</p> <p>The compulsory exercise „Digital basic education“ is introduced within the framework of the Austrian Federal Ministry of Education (BMB) initiative „School 4.0“ at the lower secondary level. Within the scope of this subject, pupils are given all the necessary competences to use technologies consciously, productively and in a reflective manner for their own further development and in addition to take a foothold in corresponding future-oriented occupational fields. Digital skills, media competency and informatics are complementing each other.</p> <p>The compulsory exercise „Digital Basic Education“ will be introduced at the lower secondary level. 169 schools will pilot the new course in 2017/18. From 2018/19 onwards, the nationwide implementation will follow.</p> <p>Overview of the teaching content</p> <ul style="list-style-type: none"> • Social aspects of media change and digitization: Digitization in everyday life, opportunities and limitations of digitization, historical development, health and wellbeing • Information literacy, data handling and media competency: Search and find, compare and evaluate, organize, share • Office applications: Basics of the operating system, word processing, presentation software, spreadsheets • Media Design: Understand, produce and develop digital media and content • Digital communication and social media: Interact and communicate, participate in society,
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	<p>shape digital identities, work together</p> <ul style="list-style-type: none"> • Safety: Devices and content, personal data and privacy • Technical problem solving: Identify technical needs and opportunities, use digital devices, solve technical problems • Computational Thinking: Work with algorithms, create simple programs, use creative programming languages <p>At school levels 5-8, the hourly schedule for „basic digital education” will be provided for 2-4 hours. The implementation of the compulsory exercise at the school location is carried out autonomously by students at least 2 x 32 hours per year, either interactively in the subjects or with defined hours, which should be provided by a school-autonomous decision. A mixing mold is also possible. The 120 hours per week remains unchanged.</p> <p>As an accompanying measure for the implementation of the compulsory exercise, multi-stage competence checks (digi.check 8) are available for self-examination for pupils as well as for the examination of the objectives of the course. In addition to this, there are also offers of teaching material (textbook), sample collections as freely available teaching and learning material, in-service training for teachers as well as virtual online teaching events.</p>
<p>Self- or peer assessment tools/frameworks for teachers and students digital competence including certification</p>	<p>The competence model and the corresponding check</p> <p>The competency model digi.komp defines the goals of the digital and informal competences that students and teachers should have acquired at specific times during their school or professional career.</p> <p>At each digi.komp level, the appropriate digi.check is offered to reflect the acquired competences and to be able to plan further educational steps on the basis of the results.</p>

	<p>Digi.check4: Playful collecting of competences Already at the end of elementary school, pupils should have acquired first digital and informal skills. The competence model digi.komp4 defines the relevant areas. The digi.check4 encourages students to map their own step-by-step development with embroiderers in a collective collection and thus playfully document their own learning growth.</p> <p>Digi.check8: reflection, knowledge check and competence measurement The next step in the acquisition of digital and informal competences is defined by the competence model digi.komp8, which is aimed at the 8th school year. The accompanying digi.check8 is processed online or via the In-Application test environment Sophia. Students, as well as pedagogues, can carry out all parts of the digi.check8 at any time without registration for themselves. If teachers wish to get an impression of their students' digital and informal competencies, they can generate TAN codes, pass them on to their students, and collect the results collected.</p> <p>Digi.check12: Reflection and knowledge check The digi.check12 is based on the competencies of the grid digi.komp12. It works just like the digi.check8 (see above), but does not contain in-application testing with specific tasks, but consists of reflection and knowledge questions.</p> <p>Digi.checkP: Conscious planning of one's own development The digi.checkP is aimed at educators and is based on the competency model digi.kompP. It presents the range of digital competences that are indispensable for pedagogues of all scholars and teaching subjects for their work in the sense of a contemporary understanding of the profession. The digi.checkP can support the further development of pedagogues, especially in two scenarios:</p> <ul style="list-style-type: none"> • as a self-reflection instrument to raise awareness of one's own competences, but also in areas where further development is recommended • within the context of a school development process in which the school management or the coordinating person for digital education at the school location would like to
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get an overview of the digital competences of the college, in order to, for example, specifically coordinate training offers or take reasonable steps in school development.

Digital Competences for Educators (digi.kompP)

The „certificate digi.kompP” model is basically available to all pedagogues as part of their professional development. It is compulsory during the career phase to be completed by all those teachers who, after the completion of a „Lehramtstudium” according to the new curriculum, will start with teaching. The path to the certificate consists of three steps:

- First of all, the teachers use the competence assessment digi.checkP to reflect how pronounced their digital competencies are and in which areas of the competency model digi.kompP they could develop even further.
- They then complete 6 EC education courses at educational colleges and reflect the implementation of the lessons learned in an electronic portfolio on the platform of their educational college.
- Finally, the teachers once again complete the digi.checkP and document their progress.

Together with the school management, the teachers reflect their development and the increase in competence. Then the school management issues the „certificate digi.kompP”, which documents the acquisition of competencies.

2.4. Digital education priorities

Area	High priority	Medium priority	Low priority	Reference to policy action measure (if any)
A: Digital Competence Development				<i>Digichck.p;Co mpulsory portfolio</i>
Developing measures to support digital competence of future teachers	x			<i>Digichck.p;Co mpulsory portfolio</i>
Developing measures to support digital competence of in service teachers	x			<i>Digichck.p;Co mpulsory portfolio</i>
Developing measures to boost youth employability and entrepreneurship		x		
ICT for accessibility and inclusion : early school leavers, migrants, special educational needs etc.		x		
B: Curricula and Assessment				
Developing digital competence/media literacy of students	x			<i>Basic digital education starting in primary school</i>
Developing computer/programming skills/ computational thinking skills	x			<i>“Learning to think-solving problems (Algorithmic Thinking)”</i>
Developing key competences ¹		x		<i>Initiatives regarding STEM-Education</i>
Developing 21st century skills (critical thinking, problem solving, communication, collaboration, creativity and innovation)	x			<i>See above! “Education-Innovation studios”</i>
Assessing with ICT/ICT based exams		x		<i>See first steps to digitalize the final exam</i>
C: System-wide innovation				
Developing measures to support school		x		<i>Federal center for eEducation</i>

¹ See EC Key competences for lifelong learning: digital competence, math science technology, communication in mother tongue, communication in foreign languages, learning to learn, social and civic competences, sense of initiative and entrepreneurship, cultural awareness and expression.

http://europa.eu/legislation_summaries/education_training_youth/lifelong_learning/c11090_en.htm

leaders in the integration of ICT				<i>Austria</i>
Piloting and validating innovative uses of ICT	x			<i>Federal center for eEducation Austria</i>
Mainstreaming ICT in schools	x			<i>eEducation Austria; curriculum for digital education</i>
Monitor and research digital learning in schools	x			<i>Federal center for eEducation Austria, Center for Educational Technology and Innovation Vienna (ZLI)</i>
Learning analytics (using digital technologies and data to support learning)		x		
D: Mobile Devices				
Use of tablets	x			<i>Peer learning Project “mobile learning”</i>
Use of mobile phones		x		
Bring Your Own Device		x		
Cloud computing/services		x		<i>See 4.5 Learning Platforms</i>
E: Use of digital learning resources				
Developing educational content repositories/metadata		x		<i>EduThek; eTapas</i>
Supporting the development of open educational content and resources		x		<i>Initiatives for OER-schoolbooks since 2016</i>
Supporting the development of educational content/resources provided by publishers		x		<i>Digi4school</i>
Promoting teachers’ use, creation and sharing of educational resources	x			<i>eTapas</i>
F: Learning environments				
Developing/adapting flexible learning spaces	x			<i>Education innovations Studios; Future Learning Lab Vienna</i>
Linking formal, non-formal and informal learning using ICT			x	
Providing equitable access to ICT (infrastructure, devices and content)	x			<i>Broadband Initiative by ministries</i>
Providing a safe learning environment to students and teachers		x		<i>See Learning Platforms</i>

3. INTEGRATION OF DIGITAL TECHNOLOGIES IN THE CURRICULUM

3.1. Digital technology based assessment

a. Digi.komp competency grid

The competence development of the pupils is carried out from primary school to maturity and diploma examination. The framework of the „digi.komp” competency grid, which is available for the school levels 4, 8, 12 as well as the pedagogical education, serves as a guide. At the same time, the competence measuring instrument „digi.check” helps to assess the own digital competencies and to test them by means of a knowledge test. With the exception of the digi.check4 for elementary school, where pupils are able to document the competence increase by means of collective passports, the digi.checks are processed via an online platform. There, interested persons can not only pass the checks to their own orientation, but also allow teachers to complete the classes via TAN codes, in order to get an impression of the average class performance.

b. General computer-based graduation exam (“Zentralmatura”)

In the last years, a major key challenge for Austria has been the introduction of a general computer-based graduation exam (“Zentralmatura”). In 2014/15, the “Zentralmatura” was implemented in Academic Secondary Schools (AHS) and the following year (2015/16) at Higher Vocational Schools. This is a major step towards a more modern education system in Austria. The overall aim of the reform is a sustainable increase of quality in education, offering transparency, objectivity and comparability of results.

The evaluation process is based on three pillars:

1. Pre-scientific paper („vorwissenschaftliche Arbeit“, VWA) including presentation in front of the examination board
2. Three or four written exams
3. Two or three oral exams

In 2015/16, for the first time, all AHS and BHS have been carried out (partially) standardized competence-oriented new maturity examinations or maturity and diploma examinations.

The (partially) standardized competence-oriented exams provide equal conditions and opportunities for all students, they are fairer and are easily comparable with admission requirements for higher education institutions.

First steps to digitalize final exams:

The department of “Science & School” in the Federal ministry of Education has launched a pilot project to conduct final exams in regular IT classrooms in schools, supported by a special digital and secure examination environment. The pilot project should achieve equal and fair exam conditions for all students while securing the integrity and avoiding loss of data. By 2019, the aim is to achieve 10% of all final exams to be digitalised. This is possible thanks to the support and close cooperation with the Austrian Matriculation Examination Agency (former BIFIE, now department II/9 of the Federal ministry of Education).

See also 1.1. First steps to digitalize the final exam
See 2.3 Digi.check:Proof of digital competences

3.2 The curriculum framework

Please describe the general curriculum framework in which schools act (open, goal oriented curriculum, centralized/ decentralized curriculum?). At what level (national/regional/local) the curriculum is defined/ to what extent?

The BMBF promulgates curricula on the basis of the School Organisation Act. The preparatory work for curricular development is entrusted to working groups of teachers which have been set up and cover most subject areas. All curricula provide for areas of school autonomy, which schools are allowed but not required to use:

1. Learning autonomy: Within a specific context (partial autonomy) schools are allowed to modify the number of lessons for specific subjects, introduce new mandatory subjects, nonbinding exercises or complimentary subjects and support classes.
2. Other issues which schools might, depending on their type, be able to decide themselves are the size of classes and groups, the budget, their partial legal capacity and autonomy regarding time and free days.
3. As in the case of all other provisions of the school law, any draft curricula must be submitted to the provincial governments, provincial school boards, social partners, parents’ associations or other public institutions for their respective opinions, in order to include them in the decision-making process. Curricula come into force by decree of the BMB(F).

3.3. Digital technologies in the curriculum

- a. *Compulsory exercise „Digital basic education“ at secondary level I*

Overview of the teaching content

- Social aspects of media change and digitization: Digitization in everyday life, opportunities and limitations of digitization, historical development, health and wellbeing

- Information literacy, data handling and media competency: Search and find, compare and evaluate, organize, share
- Office applications: Basics of the operating system, word processing, presentation software, spreadsheets
- Media Design: Understand, produce and develop digital media and content
- Digital communication and social media: Interact and communicate, participate in society, shape digital identities, work together
- Safety: Devices and content, personal data and privacy
- Technical problem solving: Identify technical needs and opportunities, use digital devices, and solve technical problems
- Computational Thinking: Work with algorithms, create simple programs, use creative programming languages

At school levels 5-8, the hourly schedule for „basic digital education” will be provided for 2-4 hours. The implementation of the compulsory exercise at the school location is carried out autonomously by students at least 2 x 32 hours per year, either interactively in the subjects or with defined hours, which should be provided by a school-autonomous decision. A mixing mold is also possible. The number of 120 hours per week remains unchanged.

Compulsory subjects	Classes and hours per week				Total of hours in lower secondary	Teaching contract section
	1. grade	2. grade.	3. grade.	4. grade		
Compulsory exercises						
Digital basic education	0-1	1-2	1-2	0-2	2-4⁵⁾	III ⁶⁾

5) Can also be blocked or integrated into the teaching of the compulsory subjects.

Subsidiary: In the first class 0 or 32, 2.-3. Class 32 or 64 and 4. Class 0 or 32 or 64 year hours integrated into the teaching of compulsory subjects.

6) In the case of integrative use, such as the respective compulsory subject.

As an accompanying measure for the implementation of the compulsory exercise, multi-stage competence checks (digi.check 8) are available for self-examination for pupils as well as for the examination of the objectives of the course. In addition to this, there are also offers of teaching material (textbook), sample collections as freely available teaching and learning material, in-service training for teachers as well as virtual online teaching events.

b. Vocational Schools:

Lower Secondary Schools:

If specific school curricula are in force, media teaching can take place in all subjects, as it is rather an educational principle than a separate subject. As media teaching competes with other educational principles, the way it is taught depends on the focal point of the individual school. At some schools, students are prepared for the challenge of living in an information society in a comprehensive way. A working group developed a reference framework for (desirable) digital competences for the 8th grade.

Upper Secondary Schools:

In upper Secondary School, IT is taught at least two hours a week. Digital devices are provided in specific classes such as notebook classes. The topic media competence is touched upon as an educational principle in a number of subjects. This interdisciplinary approach focuses on the respective subject taught, e.g. basics of e-commerce, business models and political education. Furthermore, a variety of specializations exist depending on the school type:

- Communication and network technology (HTL);
- Database systems (HTL);
- Digital business (HAK);
- Web-design and publishing (HUM).

c. Secondary Academic Schools:

The recommendation to use ICT to motivate and individualize the students' learning is part of all curricula, e.g. for foreign language subjects. A specific subject IT is taught in the 9th grade and as a complimentary subject in the 10th to 12th grade. The educational principle of media education also applies to this school type.

3.4. Students' digital competence

Since 2013, a special ECDL (European Computer Driving License) is offered to schools; students can earn different certificates. The compact ECDL Base profile consists of four base modules to provide digital literacy for students.

1. Computer essentials

- PC, mobile devices, storage media and software
- Operating system and office programs
- Create and organize files and folders
- Internet and wireless networks
- Computer viruses and handling threats

2. Online Essentials

- E-government, e-banking, e-learning
- Search for information critically
- Download, save and print web content
- Data protection and copyright
- E-mail and online communication

3. Word Processing

- Write and save letters and documents
- Automatic spell check

- Format documents efficiently
- Use tables, images and charts
- Print documents

4. Spreadsheets

- Use worksheets for numbers and text
 - Work with formulas and functions
 - Create column, pie and line charts
- Move, copy, sort and arrange data Print tables, charts and lists

3.6. Assessment of digital competence

a. Overview

Since 1998, the ECDL is offered to different types of schools, supported by the BMBF. ECDL in Education in Austria allows to earn different certificates especially catering to young people's needs. Since 2013, Students can have their ICT competences verified by doing a special ECDL (European Computer Driving License). This additional qualification for students is offered on a voluntary basis. Many schools have already integrated the learning contents of the ECDL into their IT curricula.

Students can study for their tests in any way they like. There is approved learning material available (in German). The Austrian association "Verein ECDL an Schulen" is responsible for the administration of the assessment. As partner of the OCG (Österreichische Computer Gesellschaft) and authorised ECDL Test Center, it works on behalf of and is supported by the BMB. For more info click [here](#).

In addition, the association "[Competence Centers for Information Technology](#)", that includes also representatives of the BMB, offers the possibility to get specific IT certificates to teachers and students.

b. IT Certificates for School 4.0

One goal of the initiative "IT Certifications for School 4.0" is the introduction of cost-effective certifications of Microsoft Office Specialist (MOS) and Microsoft Technology Associate (MTA) in Austrian schools.

The Enterprise Training Center (ETC) is the implementation partner on behalf of the BMB. Pupils are enabled to document their IT skills by means of an internationally recognised and standardised certificate and thus gain a decisive advantage when entering the world of work.

In line with the digitisation strategy "School 4.0. - now it's digital", in particular the pillar "Digitally competent pedagogues", teachers are offered an opportunity to attend qualification seminars for MOS at pedagogical universities all over Austria

and to obtain the certificates. The costs for examinations of teachers' certificates will be covered if the school is a member of eEducation Austria network.

In line with the digitisation strategy "School 4.0. - Now it's digital", teachers are offered an opportunity to attend qualification seminars for MOS and to obtain the certificates. Seminars are offered at pedagogical universities in Austria and will take place for the first time in the summer semester 2018.

The PH seminars optimally prepare students for the Microsoft Office Specialist Word 2016 Core, Excel 2016 Core and Power Point 2016 examinations. In these seminars, all examination-relevant contents are treated for experienced users in accordance with the official syllabus. At the end of the seminar the certification exams can be taken in German. The costs for examinations of teachers' certificates will be covered if the school is a member of eEducation Austria network.

4. DIGITAL LEARNING RESOURCES AND SERVICES

4.1. Digital content development

Eduthek

One goal for the next years will be to bring together under one roof the range of teaching and learning materials for the classroom as well as the learning platforms currently available in the school sector. (Moodle, LMS)

The Eduthek is a portal for digital teaching and learning materials. It bundles a large number of content and media offerings and makes them accessible via a central access point.

The content includes teaching and learning materials, pedagogically recommended apps and games as well as innovative tools for modern teaching formats. Model application scenarios show pedagogues examples of how they can effectively integrate digital media into their lessons.

4.2. Content sharing and creation

a. eTapas

The eTapas concept of providing an eDidactic approach to various digital tools has proven itself in recent years: digital content developed by teachers for teachers.

eTapas are short, concrete learning sequences with a didactically digital-inclusive scenario. They are created by teachers for teachers and shared with others under a Creative Commons license. To ensure that the didactically valuable content is at the forefront and that teachers who are not yet so well

versed in the subject can also be consulted and supported by a technically advanced colleague within the framework of an eBuddy concept. eTapas bring your knowledge into the breadth: as a quality assurance measure, participating teachers receive a peer review procedure feedback on their submission. eEducation Austria honors the accredited eTapas by allocating budgetary resources.

Further information is available through [this link](#)

b. digi4school

The initiative „digi4school“launched on February 2016, providing digital versions of educational resources such as school books and teacher’s training material. This initiative is seen as an important step for the improvement of schools in terms of useful integration of ICT and is fostered by the Federal Ministry of Education (BMB) as well as the Ministry for Family and Youth (BMFJ).

4.3. Accessibility for learners with disabilities and social inclusion

In order to provide students who are blind or visually impaired with lasting digital competences and to ensure their accessibility to digital tools, the Austrian Federal Ministry of Education has been supporting the organisation of the "Österreichische Computer Camp" (Austrian Computer Camp), the "OCC". The target audience are blind and visually impaired pupils from the ages nine to fourteen. The main goals of the OCC are the following:

1. efficient handling of the computer system (software and hardware)
2. introduction to and training with special computer applications in the areas school and leisure time
3. help to self-help in regards to minor technical problems

4.5. Learning Platforms

In 2007, the Ministry of Education launched the initiative Futur(e)Learning to support new forms of teaching and learning using ICT in education. Futur(e)Learning supports modern approaches to learning, moving away from the traditional teacher-centred classroom and promoting individual learning pathways. In order to allow schools to concentrate on pedagogy rather than technology, central services were provided, such as education portals, central services for learning platforms (moodle, dotLRN, Ilias) and the collation and distribution of resources and software (both commercial and open source). The development of the programme “Edumoodle”, the central service to provide a Moodle-instance for all school locations for free has shown that such offers are eminently requested by the school locations.

Furthermore, the LMS “Lernen mit System” (Learning with System) is a highly

visible project with more than 10 million hits to the page each month. LMS offers learning modules for teachers that are compatible with competence-orientated teaching. <http://www.bildungsserver.com>

5. TEACHER EDUCATION FOR DIGITAL LEARNING

5.1. Assessment Schemes

See digi.check section 2.3 Information regarding the digi.check is available [here](#)

5.2. School leader support

See digikomp for educators section 2.1

5.3. Digital technologies in initial teacher education

Planning and implementation of a compulsory basics curriculum for the career phase (entry level), to be completed within the first three years of professional life.

Several Austrian eLearning school networks, such as eLSA („eLearning im Schulalltag“ or eLearning at school), eLC (eLearning Cluster) and IT@VS („IT in the Volksschule“ or IT at primary school) were brought together under the umbrella of the „eEducation Austria“. This was done in order to increase the dissemination of digital and informatics skills. Teachers in Experts' Schools have the opportunity to work together on e-education and international projects, to take part in relevant meetings, and to share knowledge and learn from each other.

The Schools that want to actively participate in the programme and enhance the digital skills of their pupils and teachers are invited to become members of „eEducation Austria“. The new Federal Center will accompany the school development process with further training measures, individual development consulting and suitable materials in future.

More information on the eEducation platform in Austria is available [here](#)

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