10 The Flemish Community of Belgium

This note provides an overview of the Flemish Community of Belgium's digital education ecosystem, including the digital tools for system and institutional management and digital resources for teaching and learning that are publicly provided to schools and educational stakeholders. The note outlines how public responsibilities for the governance of digital education are divided and examines how the Flemish Community of Belgium supports the equitable and effective access to and use of digital technology and data in education. This includes through practices and policies on procurement, interoperability, data privacy and regulation, and digital competencies. Finally, the note discusses how the Flemish Community of Belgium engages in any initiatives, including with the EdTech sector, to drive innovation and research and development towards an effective digital ecosystem.

Key features

- In the Flemish Community of Belgium, the government publicly provides some of the digital tools for system management (e.g. student information system) and for teaching and learning (e.g. an Open Educational Resources (OER) network, a digital media bank). Schools and school boards are incentivised to use system management tools, but not strictly required to, as long as they use other digital tool that complies with the ministry's standards (in particular in terms of data transfers); teachers and students are free to use the digital resources provided by the government or to acquire on their own.
- The government's digital strategy for education is aimed at establishing a digital ecosystem that covers both hardware and software infrastructure, at cultivating education stakeholders' digital literacy, and at promoting collaboration with the academic and EdTech sectors. The ministry and its agencies have deployed monetary and non-monetary mechanisms to ensure equal access to digital tools, support their use, and promote research and development for innovation.

General policy context

Division of responsibility

In Belgium, the public responsibility for providing education is split across the country's three linguistic communities: Flemish, French, and German. The Flemish Ministry of Education and Training (hereinafter "the ministry") is responsible for determining the policies and direction of the Flemish education system. The ministry is also responsible for providing access to, supporting the uptake of, and regulating the use of, digital technology in the Flemish education system. The Agency for Educational Services (*Agentschap voor Onderwijsdiensten* – hereinafter "AGODI") supports the ministry by developing and providing Flemish schools with a selection of publicly owned digital tools. However, schools (and school boards) in the Flemish Community of Belgium have a large degree of autonomy, and they are free to use those tools or not. Although the ministry provides schools with system and institutional management tools – which schools are incentivised to use, but not required to – it is mostly at their discretion to acquire (partly with governmental funds) and manage their digital infrastructure for teaching and learning.

While the Flemish government leaves a large room of manoeuvre to schools in terms of the acquisition of digital tools, it sets the rules and guidelines that govern the access to, and use of, data and digital technology in education. This central regulation applies equally across all educational levels in the Flemish Community.

Digital education strategy

Digisprong ("Digital Jump"), the Flemish Community of Belgium's digital education strategy, was initiated during the COVID-19 crisis as part of the *Vlaamse Resilience* ("Flemish Resilience") recovery plan.[1] *Digisprong* represents a EUR 375 million budget to advance digitalisation in education along four "spearheads": (1) establishing a future-oriented and secure ICT infrastructure in schools (which covers hardware as well as software infrastructure), and equipping students from grade 5 and over with a digital device on a *one-to-one* basis; (2) setting up a supportive and effective ICT school policy and supporting school ICT coordinators in their role and autonomy; (3) equipping teachers and teacher trainers with a relevant set of digital skills by giving them access to learning resources (see below section for further details), and; (4) establishing a *Digisprong Kenniscentrum* ("Knowledge Centre") whose role is to facilitate peer-learning and co-operation between schools and external actors.[2]

In 2021, the Flemish government established the *Digitaal Vlaanderen* ("Digital Flanders") agency to support the digital transformation of the Flemish and local government authorities. Born from the merger

between the Flemish Departments of Information, of ICT Facilities and of Services, the Digital Flanders agency supervises all sorts of digital transformation projects at the community and local levels. Finally, at the level of Belgium as a whole, the Federal government has appointed an assistant secretary of state in charge of digitalisation to coordinate policy efforts between the Flemish, French and German-speaking Communities.

The public digital education infrastructure

In the Flemish Community of Belgium, schools (and teachers) have a large degree of autonomy to acquire digital tools in addition to (or in lieu of) the public digital ecosystem set up by the Flemish government. Education stakeholders can acquire those tools directly from private companies or use materials that are made available for free by other stakeholders, such as philanthropy, universities, and teachers. This section reviews two aspects of the public digital infrastructure in the Flemish Community of Belgium: digital tools for system and school management, and digital learning resources for teaching and learning.

Digital ecosystem for system and school management

Student information system and learning management systems

To support system and school management, collect data and generate education statistics, on behalf of the ministry the Agency for Educational Services (AGODI) has developed two main digital tools for system management: *Discimus* and *Edison*.

Discimus is a student information system that allows primary and secondary schools to exchange student data with AGODI in a seamless way. Through *Discimus*, the Flemish government has access to data on students' school and pre-school attendance. The government also uses *Discimus* to allocate funding to schools as per its funding formula, to verify if students meet certain admission requirements before enrolment, to deliver secondary education diplomas, to issue study records and, since 2018, it transfers those records to the Flemish Employment Agency. With this information, the Flemish Employment Agency can identify young people between 15 and 24 years old who are not in education, employment, or training (NEET) and provide them with specific support and assistance. Students are registered in the databases with unique and longitudinal IDs (which are also used to generate their single sign-on (SSO) identifier and access other tools within the digital ecosystem for education). The data transfers take place in real-time: as soon as schools enter student data into *Discimus*, the ministry's databases are updated. Administrators and school staff can then navigate part of those databases through analytics dashboards built in the system's interface. The ministry allows schools that prefer not to use *Discimus* to contract commercial agreements with private software providers to transfer their student data to AGODI, as long as the chosen tool complies with certain standard of quality established by a circular letter.[3] Whichever means they choose, AGODI organises training courses to help school staffs send quality and actionable data.

Next to *Discimus*, *Edison* – Dutch acronym for "Electronic Transmission of Information between Schools and the ministry" – is another system management tool publicly owned and provided by the ministry. Compared with *Discimus*, *Edison* is more of an administrative function system whose role is primarily to facilitate the exchange of data about school staffs, although it also integrates features that relate to student administration in secondary education (e.g. data on internships). *Edison* does not operate in real-time as *Discimus* does, but the processing of data updates hardly takes more than one business day. Here again, schools are free to switch to a different digital tool if they wish to, provided that their chosen tool can also transfer key pieces of information to AGODI.

As far as school management tools are concerned, the Flemish government does not own or provide a specific learning management system (LMS) to schools. Most secondary schools, and a sizeable share of

primary schools, use *Smartschool*, a private provider's tool that incorporates all typical LMS functionalities, from school-level student management to content sharing, scheduling, communication with students and parents.[4] *Smartschool a*lso displays analytics dashboards available to both school staffs and parents and is interoperable with other system-level and institution-level administrative and learning systems. For instance, students can log into *Smartschool* through their *Leer ID*, the single sign-on tool generated through *Discimus*.

Other tools for system and institutional management

Besides *Discimus* and *Edison*, the ministry publicly provides a platform for digital credentials called *LED*.[5] It collects data from student credentials (e.g. diplomas, proofs of experience) and makes them easily accessible online – even automatically when the credential is issued by a Flemish school. People can log in to the platform with their electronic identity card (*eID*), retrieve their own credentials, and demonstrate their authenticity, for instance as a proof of eligibility for a study grant, or to their (future) employers when they apply for a position. The platform integrates data from, and connects with, other services of the Flemish government: AGODI for primary and secondary education credentials, the Agency for Higher Education, Adult Education, Qualifications and Study Allowances (AHOVOKS) for higher education credentials, and the Flemish Service for Employment and Vocational Training (VDAB) for employment and training certificates; as well as from services in non-education sectors (e.g. environment, social affairs). *LED* credentials are aligned with Europass' "European Qualification Framework".[6]

Finally, the ministry offers a knowledge management system (an iLibrary) and hosts a platform for study and career guidance for students called *Colombus*, which is powered partially by non-AI-based algorithms.[7]

By 2024, the ministry plans on developing and implementing a digital student assessment at the system level. This standardised assessment will support the monitoring of learning outcomes, generate data for research, and help improve the quality and accountability of the whole education system. It will initially focus on Dutch language (reading, writing, grammar) and mathematics (OECD, 2023[1]).

Digital ecosystem for teaching and learning

The ministry plays a less prominent role in terms of providing digital resources for teaching and learning. Schools and teachers operate and teach with a high degree of pedagogical autonomy that leads them to use a variety of teaching and learning resources. Still, the ministry provides some digital resources, sometimes openly, that teachers, students, or the general population, are free to take up.

For instance, in 2013 the ministry's Agency for Educational Communication took over the management of *KlasCement*, an open educational resources network initiated in 1998 as a teacher-led initiative. Before the COVID-19 pandemic, more than 200 000 members were using the network to share their teaching resources and ideas for free, covering all student ages and class subjects.[8] *KlasCement* is now part of the *Kenniscentrum* ("Knowledge Centre") instituted as part of the *Digisprong* action plan.

Het Archief voor Onderwijs ("The Archive for Education"), a digital media bank, is another example of a teaching resource repository that is offered by the government. Access to this repository is restricted to teachers enrolled in the education system, contrary to *KlasCement.*[9] This bank helps teachers enrich their lessons with video and audio contents aligned with curriculum objectives.

Schools in the Flemish Community of Belgium have also access to a range of centrally provided static and interactive digital learning resources, including tools for students with special needs. Among them, *ADIBIB*, *Bednet* and *WAI-NOT* are three platforms developed or publicly procured by the government to suit the needs of students, who cannot attend classes or suffer from different kinds of learning impairments.

Finally, the Ministry has developed an online platform for teacher development called *Digisnap*.[10] Based on the EU's *SELFIE* tool, the platform gives teachers insights on their digital competences and allow school leaders to set up tailored development plans.

Access, use and governance of digital technologies and data in education

Providing a public digital education infrastructure or funding to use digital resources does not necessarily imply that stakeholders will use them. Different rules and policies can therefore ensure access to digital technologies in education, as well as support and govern their use.

Ensuring access and supporting use

Equity of access

The *Digisprong* action plan is aimed at reaching everyone in the education sector, but specific attention is given to students with special needs (through the provision of the three special-needs teaching and learning platforms mentioned above) and students from lower socio-economic background. Other than those equity mechanisms, the Flemish Community of Belgium, as many other countries in the OECD, aims to provide equal access to digital infrastructure. This is notably enforced through *Digisprong*'s one-to-one policy on digital devices, whether those devices are student- or school-property. *Digisprong* treats different types of institutions equally: whether public or private, urban or rural, located in rich or poor areas, all schools receive the same kind and level of attention from the ministry, can access and use the same publicly provided digital tools, and acquire their own digital infrastructure through the same mechanisms.

Following *Digisprong*, the ministry has passed decrees and circulars that guarantee equitable access to, and use of, digital technologies in education.[11] A number of rules and guidelines, some of which translated into the official curriculum framework, further determine, for instance, what are compulsory (and prohibited) uses of digital technologies in class, as a way to enforce a minimal access to such tools for everyone.

In terms of hardware infrastructure, the *Digisprong* action plan has led to increased investments in broadband connectivity, Wi-Fi and mobile connectivity, devices in schools and devices for students (including specific devices for students with special needs); as well as some other changes in expenditures geared towards fostering innovation in digital learning resources, augmented reality, and in-service professional development.[12] As of September 2022, the plan's priorities in improving schools' hardware infrastructure remain focused on the provision of digital devices to students and teachers, digital equipment in classrooms, and Internet access and connectivity in schools.

Having equitable access to hardware infrastructure does not necessarily lead to equity in its use. Sections below describe what efforts the Flemish Community of Belgium deploys to measure and bridge the gap between the availability and uptake of digital tools and resources.

Supporting the use of digital tools and resources

For the ministry, direct and indirect means are meant to support the use of digital tools at the system, school, and classroom levels. Financially, the ministry provides schools with a mix of earmarked and non-earmarked subsidies. Earmarked subsidies are channelled through the *Digisprong* action plan and are meant to cover the acquisition of digital resources for teaching and learning, while non-earmarked subsidies (i.e. schools operational budget) can be spent on any type of resources. With those subsidies, schools have autonomy to procure digital resources on their own. Nonetheless, the ministry and its Knowledge Centre for Digital Education support them by negotiating prices with certain EdTech suppliers (such as *Microsoft*) and providing guidance on procurement practices. The ministry has also circulated non-binding criteria on schools' purchases: one with regard to equity of access; one with regard to security

and safe management; and one with regard to sustainability, in the sense that procurement guidelines generally encourage to buy socially and environmentally responsible solutions.[13]

Outside of (financial) support for procurement, the ministry also supports the *use* of digital infrastructure by delivering central guidance and professional learning opportunities. For instance, AGODI organises training courses for school staffs to learn how to transfer data to student information systems; and the implementation of the *Digisprong* action plan has been accompanied by a portfolio of in-service training sessions offered to education stakeholders (e.g. bootcamps, digital classes).[14]

Finally, the ministry monitors and evaluates the use of digital tools and resources in schools through the ICT Monitor report.[15] Since 2006, the ministry has developed a set of key indicators concerning the use of ICT in education in a systematic, quantitative, and representative manner. Researchers from KU Leuven and Ghent University developed the first model of indicators clustered around four components: infrastructure and policy, usage, competences, and perceptions. The mapping of ICT integration across educational levels, fed from large-scale surveys of principals, teachers, and students, has evolved over years to account for changing policy priorities and include new forms of integrations of ICT in education such as digital games, social media, and media literacy. This comprehensive and longitudinal mapping allows policy makers to identify shortages (or inadequacies) as well as efficient uses of digital tools and resources in education across the Flemish Community.

Cultivating the digital literacy of education stakeholders

Cultivating the digital literacy of education stakeholders is integral to the digital transformation of the education system. Developing teachers' digital competences is one way to achieve this. However, in the Flemish Community of Belgium, the ministry does not require teachers to acquire, as part of their pre-service training, specific competencies related to the use of digital technology in their teaching; nor does it make in-service training compulsory – although it is strongly encouraged. In 2017, 45% of teachers reported that they took part in professional development in ICT skills, below the OECD average (60%).

The central government uses another lever to foster students' and, indirectly, teachers' digital literacy: updating the Flemish curriculum. The ministry has integrated the development of student digital skills into the most recent curriculum reform, hence reinforcing the need for teachers to meet certain standards in their ability to use and teach with digital technologies.[16] To further anchor the importance of such skills in education, the ministry also plans to integrate them into the upcoming system-wide standardised student evaluation, and has tasked the Flemish inspectorate with the mission of proactively enforcing their development in schools, as part of the General Reference Framework for Quality of Education.[17,18] A ministry's Working Group in charge of supporting schools and controlling that schools comply with the EU GDPR supports the inspectorate in its mission.

Finally, the ministry communicates with students and parents about the use of data and digital technology in education. This fits in a broader effort to introduce people to different aspects of digitalisation and media literacy. Examples of this are the *Amai!* Project that aims to bring citizens and experts together to work on projects around the themes of artificial intelligence; the *Scivil* (short for CitizenScience) initiative where scientists and non-scientists collaborate on research projects; *VeiligOnline* ("SafeOnline"), which provides information to parents about issues related to digitalisation in the classroom, social media, privacy, gaming, cyberbullying, and online relationships, and; the *Datawijsheid* ("Data Wisdom") webpage developed by *Mediawijs* ("Media Wise"), the Flemish Knowledge Centre for Digital and Media Literacy, that informs people on data literacy.[19]

Governance of data and digital technology in education

As is the case across European Union countries, the EU General Data Protection Regulation (EU GDPR) defines the largest part of the Flemish Community of Belgium's regulation around the protection of data

and privacy, in education as well as in other sectors. In education specifically, the Flemish government has produced specific rules and guidelines about the protection of personal data and privacy of students, teachers and school staffs. The *Intentieverklaring Privacy in Digitale Onderwijsmiddelen* ("Statement of Intent on Privacy in Digital Education"), which education providers as well as suppliers of digital educational resources must sign, is an example of such data protection rule specific to education.[20]

The Flemish regulation of digital education places a strong emphasis on interoperability with a view to connecting the different tools that compose the Flemish digital education infrastructure, whether they are publicly provided or not. The ministry has put in place rules and guidelines about the use of open standards on educational technologies and data, some of which are technical standards (e.g. on formats), to improve interoperability.[21] In practice, schools must meet certain requirements, for instance when they transfer their student data to AGODI – if done through a digital tool different from the publicly provided *Discimus.* To further promote interoperability, *LeerID*, a single sign-on (SSO) identifier, will soon be implemented to access to all ministry-provided digital tools.[22]

Supporting innovation and research and development (R-D) in digital education

Developing a national education technology ecosystem presents challenges both to developing appropriate local tools and to incentivising relevant innovation by external stakeholders. Providing incentives, supporting R-D, and funding education technology start-ups are part of the typical innovation portfolio countries could consider.

The ministry supports the use of education data for academic research on digital technology in education. It has notably set up specific funding programmes for academic research on digital education and education data use (see the ICT Monitor for instance), which helps communicate clear research and development priorities in this area.[23] In the last five years, the ministry has also commissioned academic research on the use of digital technologies to improve learning outcomes, to support teaching, to improve school management functions, to help students with special needs, to improve assessment, and to evaluate blended learning.[24]

As EdTech companies provide many blocks of the Flemish digital infrastructure in education, the ministry and its agencies have engaged strong public-private relationships that aim to guide, incentivise, and mobilise innovations in education. For instance, the ministry provides monetary incentives to organisations for the development of digital learning resources or educational software. In practice, the *KlasCement* network and the *Het Archief voor Onderwijs* digital media bank are two examples where the ministry subsidises the platform (though not the content). Another example is the *Smart Education @ Schools* programme where teachers can submit a project to partner with research institutions, companies, and other partners to develop smart technology in education.[25] Best projects can receive up to EUR 75 000 through an annual open call organised by IMEC, the Ministry of Economy, Science and Innovation's main research and development centre.[26]

Through IMEC, the Ministry of Economy, Science and Innovation also invests in start-up companies, subsidises R-D to encourage digital innovation in education through competitive educational grants, incentivises R-D on EdTech through tax credit, and develops EdTech tools on its own. IMEC's iStart programme, for instance, helps start-up companies grow by injecting between EUR 50 000 and 250 000 to support their early development, and by providing them with coaching and support.[27] Together with Ministry of Education, it supports the collaboration between EdTech companies and schools through monetary and non-monetary incentives, for instance by setting up a dialogue on good procurement practices.

In the next five years, the ministry's priorities are to develop and improve its provision of online educational platforms and digital resources, to upgrade and generalise the use of *Discimus* (the student information

system), and to provide a tool for digital assessment administration which will first serve the administration of the national student evaluation.

References

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Notes

[1] *Digisprong*: https://onderwijs.vlaanderen.be/nl/directies-en-administraties/organisatie-en-beheer/ict/digisprong ; https://www.vlaanderen.be/kenniscentrum-digisprong/over-ons/speerpunten-van-digisprong

[2] The Digisprong Knowledge Centre: https://www.vlaanderen.be/kenniscentrum-digisprong/over-ons

[3] *Discimus* circular letter: https://data-onderwijs.vlaanderen.be/edulex/document.aspx?docid=14347

[4] *Smartschool*: https://www.smartschool.be/

[5] *LED*: http://leerenervaringsbewijzendatabank.be/

[6] European Qualification Framework: https://www.cedefop.europa.eu/en/projects/european-qualifications-framework-eqf

[7] *Colombus*: https://columbus.onderwijskiezer.be/

[8] When a member's account is not used for a year, it is deleted from the network. Approximately 14% of the users are teachers from the Netherlands. For more details, see: (Minea-Pic, 2022[2]).

[9] *Het Archief voor Onderwijs*: https://onderwijs.hetarchief.be/

[10] *Digisnap*: https://www.vlaanderen.be/kenniscentrum-digisprong/tools/digisnap/wat-is-digisnap

[11] "What is careful governance?": https://onderwijs.vlaanderen.be/nl/directies-en-administraties/organisatie-en-beheer/zorgvuldig-bestuur/wat-is-zorgvuldig-bestuur

[12] Objectives towards augmented reality are part of the XR-Action Plan that focuses on the professionalisation and further development of XR to support learning effects in technical and vocational secondary education.

[13] Security criterion on procurement: https://onderwijs.vlaanderen.be/nl/directies-en-administraties/organisatie-en-beheer/zorgvuldig-bestuur/wat-is-zorgvuldig-bestuur / Sustainability criterion on procurement: https://onderwijs.vlaanderen.be/nl/duurzaam-aankopen-digitale-toestellen-digisprong & https://www.vlaanderen.be/kenniscentrum-digisprong/themas/ict-infrastructuur-van-je-school/circulair-gebruik-ict-toestellen-op-school-wat-te-doen

[14] In-service training sessions: https://www.vlaanderen.be/kenniscentrum-digisprong/themas/professionalisering

[15] ICT Monitor report: https://onderwijs.vlaanderen.be/sites/default/files/2021-07/Eindrapport_MICTIVO3_12_2018.pdf

[16] Curriculum reform: www.einddoelen.be

[17] In 2017, the National Assessment Programme ("Peilingen") also assessed a sample of secondary students in technology: https://peilingsonderzoek.be/en/knowledge-sharing/polls/

[18] General Reference Framework for Quality of Education: https://www.onderwijsinspectie.be/en/homepage-inspectorate-of-education.

[19] *Amai!*: https://amai.vlaanderen/traject; *Scivil*: https://www.scivil.be/en/frequently-asked-questions-faq; VeiligOnline: https://www.veiligonline.be/thema-overzicht

[20] For more details, see: https://www.privacyinonderwijs.be/

[21] For instance, *LeerID* relies on *openIDconnect*, *SAML 2.0* and *OAuth2.0*; while learning resources are aligned on *Learning Object Metadata* (*LOM*).

[22] LeerID: https://leerling-leerid.vlaanderen.be/p/aanmelden

[23] ICT Monitor (MICTIVO): https://onderwijs.vlaanderen.be/nl/monitor-voor-ict-integratie-in-het-vlaams-onderwijs-mictivo-2018

[24] See the full list here: https://onderwijs.vlaanderen.be/nl/nieuws/onderwijsonderzoek

[25] Smart Education @ Schools: https://www.imec.be/nl/vlaamse-innovatiemotor/impactdomeinen/smart-education/smart-education-schools

[26] Ministry of Innovation: https://www.ewi-vlaanderen.be/

[27] IMEC's iStart programme : https://www.imec-int.com/en/istart