UDENRIGSMINISTERIET
The Trade Council

AUGUST 2021

SECTOR ANALYSIS

EdTech in Germany, Poland, Portugal and Spain

INDHOLD

1 EDTECH IN LIGHT OF THE EU RECOVERY FUND

To rebuild Europe following the COVID-19 pandemic, the EU is currently investing approx. EUR 750 billion in the EU Member States through its recovery fund. 20 percent equivalent of approx. EUR 150 billion has been earmarked for the digital transition across the EU. A substantial part of these funds will go to improve the digitalisation of public services, an area where a strong public-private collaboration has helped get Denmark to the top of the European Digital Scoreboard.

Undoubtedly, the EU recovery fund represents an unprecedented export opportunity for Danish businesses with innovative education technology solutions, including tech companies and publishers. Therefore, in collaboration with Danish business organisations, The Trade Council will be facilitating a number of export promotion activities to help Danish companies seize the unique opportunities across the EU.

As part of the initiatives, this report offers an overview of the current state and plans to further the digitalisation of the educational system in selected EU countries where we see special opportunities for Danish providers of digital solutions: Germany, Poland, Portugal and Spain.

To learn more about the concrete market activities, please contact us at eugen-start@um.dk or contact the Danish missions directly, using the contact details provided in the markets descriptions below.

Figure 1. Human capital measured by a) internet user skills and b) advanced skills and development

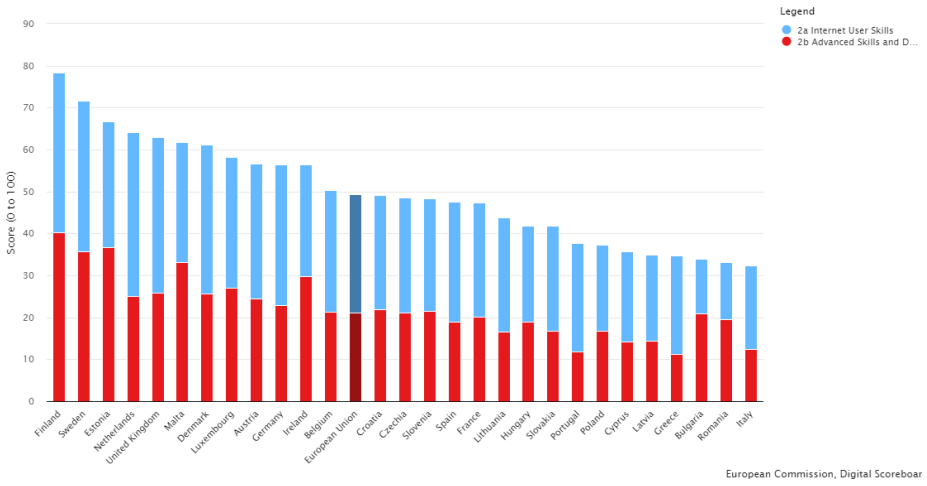
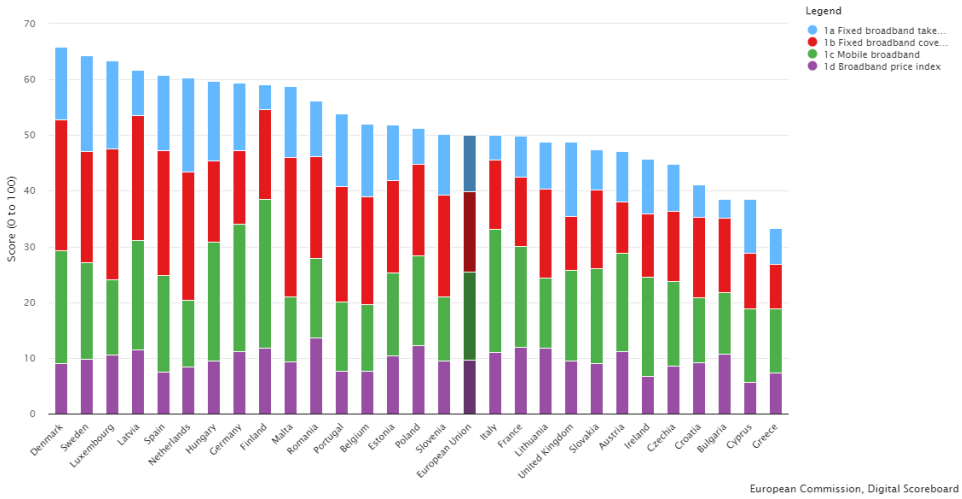


Figure 2. Connectivity measured by a) Fixed broadband take-up, b) Fixed broadband coverage, c) Mobile broadband and d) Broadband price index



European Commission, Digital Scoreboard

2 EDTECH IN GERMANY

GERMAN PRIORITIES

The German Recovery and Resilience Plan foresees major investments in the area of digitalisation including investments of approx. EUR 1.3 billion in digitalisation of the education system.

From 2019 to 2024, different schemes are under implementation. On a national level, the Digital Compact for Schools (*DigitalPakt Schule*) has been initiated amounting to approx. EUR 5.5 billion, allocating EUR 500 for every German student. The aims of the Digital Compact for Schools are:

- the acquisition of hardware
- improvement of the digital infrastructure
- learning programs, platforms and school-clouds
- interactive whiteboards, end-devices
- VR/AR and other types of terminal equipment

In order to receive funding the schools have to elaborate a media concept.

Besides the Digital Compact, the national government provides COVID-19 related funding for schools that amount to approx. EUR 500 million. The funding allows for the acquisition of hardware and software such as end devices and software solutions that enable distance teaching as well as learning. In addition, the federal states have initiated their own investment programs, which differ from state to state.

THE EDUCATIONAL SYSTEM IN GERMANY

The German education system is decentralized and characterised by the federal structure of the country. Each of the 16 federal states are self-governing and therefore able to act independently when forming their educational systems. Regional ministries of education are primarily responsible for the pedagogical and legal framework and for determining the curriculum plans and educational goals of the schools. Part of these tasks

are often delegated to other institutions, which are supporting the ministry. When it comes to purchasing products at the schools, the real power lies within the municipalities and the school operators, as they are the ones signing off on the budget and equipment plans from the schools. In other words, they handle the budget allocation locally, which is made available by the federal government, the state or the municipality. The key function of the school operator is to coordinate the local requirements across the schools and develop plans for the service solutions.

Since the public school system may vary between states, it is always necessary to examine the system in the given state. For more information on the competitive situation in Germany regarding EdTech providers, you may contact the Trade Council in Germany.

Table 1. Number of students and schools

Type of education	Public / Private[1]	
	No. of students	No. of schools
Primary	2,820,000	15,431 (~5% private)
Secondary	5,430,000	14,948 (~9% private)
Higher education	2,948,000	423 (~27% private)
Total	11,198,000	30,802

Table 2. Overview of the German school system

Primary school	Compulsory schooling begins from the age of 6. Primary school (*grundschule*) is compulsory for everyone and lasts 4 years (1st-4th grade). However, in Berlin primary school lasts 6 years.
Secondary stage II	At the beginning of the 5th grade, children start attending either *Hauptschule* *Realschule* (does not exist in all states), *Werkrealschule* (BaWü) or *Gymnasium* Placement of the individual student in the school forms depends on their results obtained in the 4th grade. In most states, compulsory schooling is 9 years - in Berlin, Brandenburg, Bremen and North Rhine-

[1] Statistisches Bundesamt: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Schulen/_inhalt.html

	Westphalia compulsory schooling is 10 years.
Hauptschule/Mittelschule	Usually lasts 5 years (from 5th to 9th grade - in some states up to 10th grade). *Hauptschule/Mittelschule* gives access to vocational education.
Secondary school	Usually lasts 6 years (from 5th-10th grade). Abolished in Berlin and replaced by a general secondary school. If students plan to receive a higher education entrance certificate after *Realschule*, they can enter a *Fachoberschule* (which it is called in Bavaria for example) and attend 2 or 3 years.
Gymnasium	The only form of school that covers both secondary levels I and II. The *Gymnasium* normally lasts 8 or 9 years (from 5th-12th grade or 13th grade) and leads to a to higher education access certification (*Allgemeine Hochschulreife* or more commonly *Abitur*).
Unit schools (Gesamtschulen)	Provides teaching from 5th – 10th grade level, or from 7th – 10th grade. The unit school accommodates children from *Hauptschule*, *Realschule*, and *Gymnasium*, who, depending on their qualifications, will have the opportunity to go to secondary level II at the *Gymnasium*. In some states, the unitary school is a regular school system, while it in others it is implemented as an experiment at the moment.
Special schools	For disabled students and students with special needs. It exists in all states, and at all levels. Students will receive a respective examination.
Secondary stage II	The last 2 or 3 years of gymnasium (*Oberstufe*), can be considered secondary stage II which leads to a higher education entrance certificate.
Universities	To study at a university, you must graduate from *Gymnasium* or a similar institution (such as *Fachoberschule*). Most university studies are standardized to take 4 years,

but the actual study time is on average 6 years. The German universities are reorganizing their study programs according to the bachelor/master model.

In Germany, there is a distinction between universities (*Universität*) and universities of applied sciences (*Fachhochschule*). The universities are traditional universities that have a strong focus on research, whilst *Fachhoschulen* focus on practical application of research and knowledge.

There are two types of school operators in Germany:

- the public school operators (öffentliche Schulträger)
- the independent/private school operators (freie Schulträger)

Interestingly, the amount of private schools has risen in Germany by 80 percent since 1992/93. Parents pay EUR 2,000 on average per year for their child to attend a private school. 14 percent of German schools are privately operated including elementary and secondary (11 percent) as well as vocational schools (25 percent)[2].

AREAS OF IMPROVEMENT IN THE EDUCATIONAL SYSTEM

In the PISA tests, Germany scores above average in all three main categories.

Table 3. German average scores in PISA tests compared to PISA average score

	READING	MATHEMATICS	SCIENCE
Germany	498	500	503
PISA average	487	489	489
Difference	+11	+11	+14

There is a recognition in Germany of the need for a swift digital transformation, which has resulted in investments in digital transformation of the education system. However, there are various challenges that need to be tackled, such as the installation of broadband, data protection issues, training employees etc. The pandemic has fueled this process, which has simultaneously brought up new difficulties that teachers and other stakeholders are currently dealing with. Nevertheless, there is an ongoing flux and there are market potentials for EdTech companies to engage in the German market.

[2] Source: Statistisches Bundesamt, Privatschulen in Deutschland, 2020: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Schulen/Publikationen/Downloads-Schulen/privatschulen-deutschland-dossier-2020.pdf?__blob=publicationFile#:~:text=Im%20Schuljahr%202018%2F19%20gab,25%20%25%20der%20beruflichen%20Schulen).

According to the OECD Skills Strategy from 2019[3] there are three main recommendations for improving the performance of skills in Germany. These involve the development of skills over the life course. Which includes among others a support system for continuous learning in adulthood, as well as harnessing relevant technology as an instrument for lifelong learning. As a response to that, the German government has launched an initiative in 2021 that aims at promoting digital competences among all age groups run under the name "Netzwerk Bildung Digital"[4].

Next to that, the OECD report mentions improvement points regarding the effective use of skills specifically at the workplace and in society, as well as the need to strengthen the governance of skill systems. This means to ensure that existent skills are to be made full use of as well as there is a need of a comprehensive strategy on how to tackle the increased complexity of today's fast global development. The OECD report states:

"*Still, Germany could benefit from a renewal of its strategic vision for the future to ensure that all of its people have the skills to respond to the challenges and opportunities of a complex and rapidly changing world, and to secure its position on global value chains. A whole-of government approach is needed to achieve this aim."*[5]

THE PROCUREMENT SYSTEM AND KEY PARTNERS AND COMPETITORS

School operators have a crucial role when it comes to purchasing power and are important stakeholders to turn to for companies interested in selling EdTech products and solutions. As they receive many inquiries from different companies, it is important to consider how to approach them from a strategical point of view.

Firstly, it is necessary to know where they get their information. Secondly, it is also an advantage to know how the budget plans work in order to define the right timing of a given activity or outreach. Currently, there are two ways frequently used to tap into the pool of funding:

- "Per single request" – a school reaches out to the relevant school operator to have them sign off on the official application to receive funding for digital equipment, and
- "Public tendering contracts (Rahmenverträge)" – many municipalities are increasingly using public tendering offers at municipality level for the purchase of both hardware and software. Firstly, this is to make it simpler for the schools to purchase products and solutions. Secondly, it means that schools in a particular district or municipality will have a more standardized set-up.

The different actors should be considered from subcategory to subcategory. For example, as regards Learning Management Systems (LMS), the federal states have introduced and established their own individual systems.

[3] https://www.oecd.org/germany/Skills-Strategy-Germany-EN.pdf

[4] https://www.bmbf.de/bmbf/de/bildung/alle-informationen-zum-digitalen-lehren-und-lernen/alle-informationen-zum-digitalen-lehren-und-lernen-bmbf.html

[5] https://www.oecd.org/germany/Skills-Strategy-Germany-EN.pdf

MATURITY OF EDTECH IN THE EDUCATIONAL SYSTEM

Due to the Digital Compact for Schools (*DigitalPakt Schule*) many schools have been able to acquire different sorts of digital equipment. Since the funding scheme mainly involves hardware, the first step has been to equip schools with various devices such as tablets, laptops as well as smart boards. The goal is to transform the classrooms into a digital classroom that includes functioning digital tools as well as the incorporation of a traditional chalk board or similar (see Votum report for Bavaria for example[6]).

Since the school system is decentralized in Germany, it is rather difficult to draw a clear picture of the status quo in general terms. Therefore, the different federal states and even the different municipalities should be approached individually. The state of Bavaria, for example, is considered as rather digitally advanced. However, in Bavaria there are still some municipalities struggling with a proper internet connection. Since private schools are usually not bound to the municipal and state government, the purchasing procedure is considered less complex as they are acting more independently compared to public schools. Nevertheless, private schools are bound to their regional circumstances, such as the availability of a broadband connection.

In the current situation, different schools have introduced iPad classes for example, and thereby signalled that they have understood the necessity to provide devices such as laptops or tablets for students. Some schools include a BYOD policy (Bring Your Own Device), whereas in Berlin for example BYOD is neglected for reasons of fairmindedness.

In general, Germany is investing in both hardware and software. However, the following is in high demand:

- development of digital teaching tools and material,
- management systems to support administrative and educational processes – e.g. digital programs, with a team focused approach to teaching scenarios plus the overall communication at schools/universities,
- Learning Management Systems (LMS), and
- hardware units facilitating digital learning (e.g. notebooks, tablets, VR-equipment, interactive boards and systems –compatible with older systems)

LEARN MORE

If you are interested in knowing more about concrete activities and specific counselling, please contact the Trade Council in Germany.

[6] Votum Report 2020: https://www.km.bayern.de/download/21465_Votum_2020.pdf

3 EDTECH IN POLAND

POLISH PRIORITIES

With the Polish Recovery and Resilience Plan, the Polish Government will invest in digital infrastructure by:

- increasing the use of IT solutions in education
- providing primary and secondary schools with computer equipment, software and multimedia laboratories corresponding to the needs of a modern school
- improving digital competencies of teachers
- improving access to the internet (including development of 5G and addressing cybersecurity issues related to the use of the Internet by children)

During the pandemic, the government has invested in the provision of digital hardware for schools and children. School Multimedia Packages are one of many government measures aimed at providing schools with computer equipment**.**

Contact information for the Trade Council in Poland can be found here.

THE EDUCATIONAL SYSTEM IN POLAND

In the years 2016-2017, Poland introduced a reform of the educational system aimed at phasing out 3-year gymnasia (middle secondary school) between the primary school and secondary school. The current system is as follows:

Table 4. Overview of the Polish school system

Primary school (szkoła podstawowa)	This level is compulsory for everyone and lasts 8 years.
Different types of Secondary schools (secondary and post-secondary)	4-year general secondary school (liceum ogólnokształcące) 5-year technical secondary school (technikum) 3-year 1st degree industry school (szkoła branżowa I stopnia) 3-year special school preparing for work (szkoła specjalna przysposabiająca do pracy) 2-year second-cycle industry school (szkoła policealna) - continua-tion of education in a 3-year first-cycle industry school A maximum of 2.5 years of post-secondary school (szkoła po-licealna) for people with

	secondary education or secondary industry education.
Bachelor studies	A duration of 3 years or 5-year-long Master studies in specific fields
PhD or postgraduate studies	

In the current educational system, there are two external exams: the eighth grade exam (end of primary education) and the final examination at the end of general secondary school or technical secondary school[7].

ADMINISTRATIVE AND BUDGETARY POWERS WITHIN EDUCATION

Poland is divided into regions (voivodeships), counties (powiat), and municipalities (gmina).

The tasks of the municipalities include establishing and running kindergarten and primary schools. Pedagogical supervision over these institutions is the responsibility of the education superintendents elected at the regional level.

The tasks of the counties include establishing and running secondary schools, sports schools and sports championships schools, and institutions, except for schools and institutions of regional and supra-regional importance. Pedagogical supervision is exercised by the school superintendent at the regional level. Nevertheless, the county authorities have numerous powers in terms of filling management positions in schools and establishing local rules in matters relating to schools and teachers.

Since January 2021, the Ministry of Education and Science has been responsible for matters related to the development of science in Poland, education of students and doctoral students, and the functioning of universities. Medical universities are administered by the Ministry of Health and military universities by the Ministry of Defence.

The list of universities administered by the Ministry of Education and Science can be found via this link:

Wykaz uczelni publicznych nadzorowanych przez Ministra właściwego ds. szkolnictwa wyższego - publiczne uczelnie akademickie - Ministerstwo Edukacji i Nauki - Portal Gov.pl (www.gov.pl)

Education in Poland is primarily financed by public funds. It is estimated that the share of public funds is around 89 percent in the case of primary and secondary education and around 81-82 percent in the case of universities and early childhood care and education (OECD, 2020). The most important public sources of funding for education in Poland include:

- a general subsidy transferred from the state budget to local government units

[7] To learn more about the structure of the school system please see: The Structure of the European Education Systems 2019/20: Schematic Diagrams (eurydice.org.pl)

- subsidies for specific purposes from the state budget transferred to local government units (including for pre-school education, for the purchase of textbooks and educational materials, for financial assistance of a social nature etc.)
- subsidies for a specific purpose and subsidies from the state budget provided to universities (e.g. for the maintenance and development of teaching and research, benefits for students, co-financing of investment implementation costs, tasks related to creating conditions for full participation in the education process for people with disabilities)
- own funds of local government units (e.g. from fees, taxes)
- European funds
- other public funds (e.g. the Labour Fund)

After meeting the requirements specified in the regulations, these funds can also support non-public childcare institutions, kindergartens, schools and universities.

CONCENTRATION OF THE PRIVATE SECTOR

84.5 percent of the public schools are run by local government units, whereas 15.5 percent are non-public schools. As regards secondary schools, 80-85 percent are public schools, whereas 15-20 percent are non-public schools. 82.3 percent of the 2-year second-cycle industry school are private schools. 83.3 percent of the universities are public universities.

As for the concentration of the private education sector, private primary, secondary, and university education are rather fragmented. There are many single players and non-chain schools. School chains can be observed in the area of 2-year second-cycle industry schools and adult education where Cosinus chain, Żak chain are operating.

Table 5. Number of students in public and private schools[8]

Type of education			Public		Private
	Total number of students	No. of students	No. of schools	No. of students	No. of schools
Primary	approx. 3.1 m		12186		2288
Secondary (general, technical, branch schools)	approx. 1.5 m		6441		2232
Higher education (without PhD studies)		approx. 1 m	131	314000	301

[8] Sources: Baza szkół w Polsce, szkoły podstawowe,, przedszkola, licea, technika, gimnazja, uczelnie wyższe (coig.com.pl);
Liczba uczniów w Polsce na 2020 rok. Sprawdź najnowsze dane u nas (zadluzenia.com);
Stan polskich uczelni. Raport NIK wskazuje, że jest coraz gorzej. (bezprawnik.pl)

AREAS OF IMPROVEMENT IN THE EDUCATIONAL SYSTEM

Polish students are ahead of everyone, except young Estonians in mathematical literacy in the European Union. In terms of reading literacy, Polish youths occupy the 4th place among EU countries, and in science literacy, they are third. In all three areas included in the study, the results of Polish students are above the average for OECD countries, which places them among the world's best.

Areas of improvement based on the OECD's skills strategy[9]:

- Increasing the effectiveness of the education system's response to labour market needs.
- Supporting greater participation in all forms of adult learning.
- Strengthening the use of skills in Polish enterprises.
- Strengthening the management of the skills system in Poland.

At the end of 2020, Poland adopted the Integrated Skills Strategy 2030 including[10]:

1. Basic, cross-sectional and vocational skills of children, adolescents and adults.
2. Developing skills in formal education - management staff.
3. Developing skills in formal education - teaching staff.
4. Developing skills beyond formal education.
5. Developing and using skills in the workplace.
6. Professional counselling.
7. Cooperation of employers with formal and non-formal education.
8. Planning of lifelong learning and validation of skills.

THE PROCUREMENT SYSTEM AND KEY PARTNERS AND COMPETITORS

For companies wishing to participate in public school tenders, it is necessary to access schools' websites or local government units administering the area of a given school where tenders are announced. In the case of private schools, it is necessary to build relations with the school management.

Table 6. Key editorials and distributors of EdTech

		Coverage
Type	Type of ed tech	Geography (national vs. regional (which))
Editorial		
Nowa Era	Publisher of textbooks and digital solutions	National
WSiP	Publisher of textbooks and digital solutions	National
Distributor		

[9] Source: Instytut Badań Edukacyjnych - Polish students among the best in the world. Results of the international PISA 2018 survey are out. (ibe.edu.pl)

[10] Source: : Zintegrowana Strategia Umiejętności 2030 (część szczegółowa) – dokument przyjęty przez Radę Ministrów - Ministerstwo Edukacji i Nauki - Portal Gov.pl (www.gov.pl)

Librus	EdTech company	National

MATURITY OF EDTECH IN THE EDUCATIONAL SYSTEM

According to data from the 2018 Household Budget Survey, almost 330,000 students in Poland do not have a computer with internet access in their household. For another 1.3 million pupils, the number of such devices is less than the number of pupils in the household and may therefore be insufficient to meet the needs of parallel remote education for all students in the household. This means that for as many as 7.1 percent of households with pupils do not have access to remote education at all due to a lack of appropriate equipment, while in further 17.3 percent of households the lack of appropriate equipment may significantly hinder the students from studying remotely.

Problems in using remote learning in particular apply to students living in rural areas. Although the percentage of households without a computer with Internet in the household is similar in rural and urban areas (regardless of the size of the city), differences in the availability of sufficient computer equipment is significant between different categories of place of residence. While in rural areas in every fifth household the number of computers is lower than the number of students, in large cities (more than 100,000 inhabitants) this problem concerns 9.7 percent of households.

Under such conditions, regular remote learning necessitated by the COVID-19 outbreak is either completely impossible or severely hampered. Due to equipment limitations, remote learning is particularly difficult for students from rural households (30 percent of households with students), but these limitations also apply to students living in large cities (17.1 percent of households). Importantly, computer equipment deficiencies are more often experienced by families of single parents than by married couples (11.2 percent vs. 6.4 percent), and these deficiencies vary greatly in relation to household income. While among households in the lowest decile group, which include students, as many as 33.9 percent have no access to a computer or have to share this access with school-age siblings, in households in the highest decile group this percentage is almost three times lower. An additional impediment to remote learning are the housing conditions in which Polish students have been carrying out their educational programme during the pandemic.

LEARN MORE

If you are interested in knowing more about concrete activities and specific counselling, please contact the Trade Council in Poland.

4 EDTECH IN PORTUGAL

PORTUGUESE PRIORITIES

With the Portuguese Recovery and Resilience Plan, the Government is investing approx. EUR 559 million in digital transition of the educational system in Portugal. With this reform, the Portuguese government is aiming at meeting the overall objectives of:

- ensuring access to digital technologies for all students, teachers and management support workers
- modernizing the Portuguese educational system with the technological infrastructure necessary to integrate skills and digital content in pedagogical processes;
- guaranteeing safe and quality access to the internet in the school environment, providing schools with connectivity conditions that allow the permanent and widespread use of digital didactic and educational resources throughout the school space
- producing quality digital educational content on a large scale and expand its use, supported by certified platforms
- promoting the progressive dematerialization of educational resources and assessment processes

These overall objectives will be backed up by the following concrete initiatives:

- the acquisition of 15,000 pieces of equipment for administrative and management needs of school clusters
- the expansion of internet connectivity of the Extended Education Network to 300 Gbps
- procuring projection equipment in 43,000 classrooms;
- the acquisition of 260,000 individual computers for both teacher and student;
- in Madeira, reinforcing internet connectivity and equipment for teaching
- in the Azores, acquiring 20.000 pieces of digital equipment, interactive whiteboards, and 20 massive open online courses (MOOC) for teachers and parents

Furthermore, in the Recovery and Resilience Plan, approx. EUR 150 million is allocated to digital training of employees in the private sector with the aim of:

- modernizing the companies' business models as well as their production processes
- creating new digital channels for the sale of products and services
- incorporation of disruptive technologies in companies' value propositions
- stimulating digitally based entrepreneurship

Finally, the Government is investing approx. EUR 98 million in the training of employees of the public administration to enhance their digital skills.

Contact information for the Trade Council in Portugal can be found here.

THE EDUCATIONAL SYSTEM IN PORTUGAL

Portugal has a mixed public-private school system. Public education is free with the exception of universities, for which there is a relatively small fee. Education is mandatory from age 6-18.

State primary schools all over the country follow the same common curriculum as set out by the central government. The curriculum for students at private schools is based on relevant courses for exams of SAT/PSA, GCSE and the International Baccalaureate equivalent to the courses in the US, UK, and other countries.

Portugal has made great efforts to improve the population's level of qualifications. Portuguese students have improved their performance significantly resulting in substantial progress in education by achieving the goals set by the EU in 2016. The efforts are reflected in the evolution of the results in the PISA tests since 2000.

In Portugal, multiple ministries are responsible for education:

- The Ministry of Education (MoE) defines the curriculum, guidelines for national examinations, teacher recruitment as well as the budget for compulsory school education (primary to upper secondary).
- The Ministry of Labour, Solidarity and Social Security (MTSSS) and the MoE are jointly responsible for vocational and further education and training.
- The Ministry of Science Technology and Higher Education (MCTES) is in charge of higher education.

However, in the autonomous regions of Azores and Madeira, it is the responsibility of Regional Secretariats for Education to develop regional plans for national education policy and manage human and financial resources.

ADMINISTRATIVE AND BUDGETARY POWERS WITHIN THE EDUCATIONAL SYSTEM

Historically, the Ministry of Education (MoE) has been managing, subsidising and financing its central and regional departments, as well as public education institutions (primary to upper secondary education) and a part of the private system from the state budget.

Other ministries, the autonomous regions, the municipal governments and local authorities are all involved in funding the state school system in various ways. However, a major part of the funds are allocated from central level, i.e. 82 percent of the funds for primary, secondary and post-secondary (non-tertiary) education were allocated from central level in 2016.

Public schools do not have financial independence since they are obliged to report their annual activity plan and budget to the MoE. The allocation of the resources for the running costs are accorded with the level of education and outcome of negotiations between the schools, the MoE and the municipalities. With the public schools' budget being managed by the central educational administration services, the public schools' financial management system involves budget management, management and implementation of revenues assigned to them.

Regarding the policies and funding of the higher education system, it is the responsibility of the Ministry of Science, Technology and Higher Education. The Science, Technology and Higher Education Budget Programme (Programa Orçamental Ciência, Tecnologia e Ensino Superior) is mainly funded by a combination of resources from the state budget (57.5 percent) as well as from its own revenues. The revenues (42.5 percent) include student fees, European funds that stem from co-financed projects, donations and services provided.

Public higher education institutions (HEI) enjoy autonomy in relation to the state in the areas of administration, finance and assets. Supervisors are controlling the management of each HEI's finances and assets. In addition to this control, the Institute for Financial Management of Education (Instituto de Gestão Financeira da Educação - IGeFE, I.P.) is responsible for coordinating the budget programme and monitoring the implementation of the HEIs budget, as well as ensuring the correct management of the financial resources.

Table 7. Division into primary secondary and higher education

Pre-school education	Optional for children between 3 – 6 years
Basic education	Consists of three sequential cycles: • The first cycle of four years (age 6 – 10). • The second cycle of two years corresponding to ISCED1 (age 10 – 12) • The third cycle of three years (lower secondary education) corresponding to ISCED 2 (age 12-15)
Upper secondary education	A three-year cycle corresponding to ISCED 3 (15 -18 years)
Higher education	For students who have successfully completed an upper secondary education course or who have obtained a legally equivalent qualification. Higher Education follows the principles of the Bologna Model and is available at universities and polytechnic institutions.

CONCENTRATION OF THE PRIVATE SECTOR

Approximately one-third of Portuguese schools are private, serving around one-fifth of students. Private independent schools serve all levels but especially the first cycle of primary and upper secondary education.

There are a few "chains of schools" or associated private schools in Portugal; the majority of these schools are from religious groups and foundations or foreign groups e.g. French and German Schools.

Table 8. Top private schools in Portugal

LISBON	PORTO	REST OF PORTUGAL
British School of Lisbon	International College of Porto (CLIP)	International Preparatory School (IPS)

Lycée Français Charles Lepierre	Lycée Français Internatio-nal	St. Julian's School
Deutsche Schule Lissabon	Deutsche Schule zu Porto	Nobel International School
Redbridge School	Colégio Luso-Francês	Vale Verde International School
Astoria International School	Salesians of Porto – College	International School of Madeira

Table 9. Number of students in public and private schools

Type of education (2018/19)	Public		Private	
	No. of students	No. of schools	No. of students	No. of schools
Primary (1st & 2nd)	848,710 (87.5)	1st: 3,623 2nd: 918	121,519 (12.5)	1st: 517 2nd: 266
Secondary (3rd & upper secondary (U.S.))	314,703 (78.8)	3rd: 1,142 U.S.: 580	84,683 (21.2)	3rd: 320 U.S.: 379
Higher education	323,754 (82.1)	184	73,155 (17.9)	100
Total	1,487,167		279,357	

AREAS OF IMPROVEMENT IN THE EDUCATIONAL SYSTEM

In PISA 2018, Portugal scored around the OECD average in reading, mathematics and science, maintaining considerable improvements in student performance across cycles. Portugal has experienced ongoing improvement in reading since 2000.

Between 2008 and 2018, Portugal saw some of the largest increases in the educational achievements for younger adults in the OECD countries. However, the pace of this gain has slowed in recent years with, for example, no significant improvements in reading performance in the last three PISA cycles.

The adult population (age 25-64) remains below the OECD average and low adult skill levels pose potential future challenges. Engaging the adult population in education and training is therefore crucial. Almost half of the population either have an upper-secondary qualification or higher, compared to the OECD average of four out of five persons.

In the context of the developments related to COVID-19, the European Council issued the following recommendation to Portugal[11]:

"Portuguese schools and training centres have closed and traditional, in-person learning has been disrupted. Around 6 percent of households still have no access to the internet,

[11] Spurce: https://ec.europa.eu/info/sites/default/files/2020-european-semester-csr-comm-recommendation-portugal_en.pdf

affecting an estimated 50,000 pupils, and internet access and telecommunications network coverage vary widely between urban and rural areas. Students from socio economically advantaged families are better placed to manage the challenges posed by distance learning. In addition, Portugal has a large digital skills deficit. In 2019, 48 percent of the population lacked basic digital skills, including about 26 percent with no digital skills at all and the proportion of those having never used the internet is twice the EU average.

Current circumstances call for intensive implementation of e-training courses and efforts to help people suffering from digital exclusion to overcome the obstacles in accessing distance learning".

THE PROCUREMENT SYSTEM AND KEY PARTNERS AND COMPETITORS

The Ministry of Education coordinates the purchase of EdTech solutions. The Ministry is also responsible for creating a list of approved reading and textbooks in accordance with the given curriculum.

When it comes to the purchase of other kinds of school materials, it is expected to be organized via public tenders within the Ministry. The EdTech solutions (software) used for the books is (presumably) organized by the individual editors for their respective books.

Table 10. Editorials and distributors of EdTech

	Coverage	
Type	Type of EdTech	Geography (national vs. regional (which))
Editorial		
Grupo Porto Editora	Online learning platform for public students: https://www.escolavirtual.pt/) Known as Portugal's largest and most famous editor of textbooks.	National
Grupo Leya (Texto Editores)	Digital school platform. https://auladigital.leya.com/ One of Portugal's 3 largest editors.	National
Areal Editores	E-learning: https://www.arealeditores.pt/pesquisa?q=manual+digital Known Portuguese editor.	National
Raiz Editora	https://www.raizeditora.pt/ Portuguese editor participating in the State's virtual programme.	National
Distributor		
Servensino Lda	https://www.servensino.pt/ Knowledge and experience in the national and international distribution sector,, make Servensino the choice of those looking for these	National/International

	services: Oxford University Press, Pearson Group, Cengage Group, Macmillan, Edinumen, Penguin Group, LeYa Group, Cengage.	
Europress Editora Lda	https://europresseditora.pt/ Publishing and distribution of books.	National

Portuguese editors of school textbooks are specialized within different tuition areas such as maths, science etc. The majority of the key Portuguese publishing houses have their own 'in house' distributor, as very few distributors of books are available.

During the pandemic, it has been emphasised by the Portuguese government that schools have access to publishing platforms to support the implementation of distance learning. The Portuguese state has been offering all students in public schools on the continental Portugal, from the 1st to the 12th year, school textbooks on paper, as well as access to digital resources developed in conjunction with the textbooks – as part of the virtual school. The editors associated with the online public school are Porto, Editora, Areal Editores or Raiz Editora. Access to the digital platforms can also be obtained via the editor's webpages.

MATURITY OF EDTECH IN THE EDUCATIONAL SYSTEM

Several initiatives pre-COVID-19 were taken to increase digital competences in Portugal. Hence, the country benefits from good technological infrastructure and qualified (although in limited numbers) human resources.

The digital agenda has been a priority for Portugal since March 2020, where the National Action Plan for Digital Transition was introduced in parallel with other initiatives such as the Economic and Social Stabilization Program (PEES) for 2020. The pandemic highlighted the already identified need to equip schools, teachers and students to develop further digital skills; measures implemented via the PEES to increase this strategy, through different phases where investments in the digital school programme, worth approx. EUR 400 million was planned to be invested in the current school year.

Furthermore, the digital strategy for the academic year 2020/2021 was implemented with the purpose of ensuring Portuguese schools, teachers and students both digital skills and access to virtual educational tools and resources. As part of the digitalisation, computers will be available for all students. Students from vulnerable, socioeconomic backgrounds will have priority access to hardware.

According to the Digital Economy and Society Index (DESI) 2020 report, Portugal ranks 21st out of 28 when it comes to human capital. About 25 percent of the Portuguese population have no digital skills mainly because a major part of the population have never used the internet. This high percentage is expected to be a potential challenge when it comes to distant learning as digital illiterate parents are not expected to be able to help their children in matters related to online education.

A virtual school textbooks pilot programme and the creation of "Digital Ambassadors" at Training Centres (Centros de Formação - CFAE) was initiated in order to facilitate the implementation of local digital transition plans and to assist children with less digital abilities not having digitally literate parents to guide them.

In 2019, 80.9 percent of the households in Portugal had internet access at home, but for households with children up to 15 years old, the percentage increased to 94.5 percent. For households without children, 73.2 percent have internet access.

According to the OECD, there has not been any significant development in the number of laptops in use in schools from 2005 to 2018.

Table 11. Average number of student per computer in the Portuguese educational system 2018/2019[12]

AVERAGE NUMBER OF STUDENTS PER COMPUTER IN 2018/19		
Basic 1st circle	Public	6,0
	Private	4,9
Basic 2nd circle	Public	4,4
	Private	5,1
Basic 3rd circle	Public	4,3
	Private	4,6
Secondary	Public	4,1
	Private	3,1
Higher Education	Public	N/A
	Private	N/A

CORPORATE LEARNING

Digital competency development amongst Portuguese SME's as well as general digital literacy is a big priority of the Portuguese Recovery and Resilience Fund. EUR 650 million is allocated to Digital Transition for Enterprises, among these EUR 150 million in digital training. Furthermore, EUR 98 million is allocated for training and qualification of the public administration.

The last couple of years, the Ministry of Labour and Social Security has launched a large national digital school for the common labour force in order to re-qualify Portuguese workers with e.g. low level of education or workers with digital illiteracy. The program is widely popular with waiting lists.

LEARN MORE

If you are interested in knowing more about concrete activities and specific counselling, please contact the Trade Council in Portugal.

[12] Source: http://estatisticas-educacao.dgeec.mec.pt/indicadores/index.asp

5 EDTECH IN SPAIN

SPANISH PRIORITIES

The Spanish Recovery and Resilience Plan allocates approx. EUR 1.648 billion to the modernisation and digitalisation of the educational system and another approx. EUR 3.593 billion to a national plan for *digital skills* within education.

There is a potential for Danish companies providing solutions aiming to improve the quality, usability and the overall user experience of the online learning platforms and materials (content), as well as evaluation tools for students and schools. Solutions should be applicable for computers as well as tablets and mobile devices, since the use of smartphones in Spain is very high.

THE EDUCATIONAL SYSTEM IN SPAIN

Primary and secondary school in Spain is compulsory and free for all children between the ages of 6 to 16. The education system in Spain is divided into four stages. Preschool and upper secondary education are optional, whereas primary and secondary education are obligatory. After finishing secondary education, students are awarded with a graduation certificate, and are able to proceed to higher education if they wish.

The Spanish educational system has a decentralised management and administration model. Educational powers are shared between:

- the State General Administration (Ministry of Education and Vocational Training, Ministry of Universities, and Ministry of Employment and Social Economy)
- the Autonomous Communities (Departments for Education)

The general system for funding for each Autonomous Community is decided by multilateral agreements between regional governments and the State, which guarantees solidarity between territories and a certain level of expenditure for the provision of the basic public service of education throughout the country. The Autonomous Communities have a high degree of management autonomy and they are therefore entitled to approve their own annual budget and to decide the distribution of their resources.

In 2017, most of the spending on education was invested in public education.

Table 12. Overview of expenditure on education (2017)[13]

EXPENDITURE ON EDUCATION 2017	PUBLIC EXPENDITURE	PRIVATE EXPENDITURE: HOUSEHOLDS	PRIVATE EXPENDITURE: OTHERS
Lower than higher education	87 percent	12 percent	1 percent
Higher Education	66 percent	29 percent	3 percent

[13] Source: Drawn up by Eurydice Spain-Spanish Network for Information on Education (National Institute for Educational Evaluation, Ministry of Education and Vocational Training) on the basis of Education at a Glance 2019: OECD Indicators

Table 13. Distribution of public expenditure on education according to educational activity 2018 (you may also see the table per Autonomous Community)[14].

	AMOUNT (IN EUR THOUSAND)	PERCENTAGE
Pre-primary and primary education	15,543,940	31
Secondary education and vocational training	14,154,177	28

Table 14. Number of students in public and private schools

	Public		Private	
Type of education	No. of students	No. of schools	No. of students	No. of schools
Primary – 1st cicle	468,898	4,543	228,913	4,775
Primary – 2nd cicle	1,278,189	9,819	624,004	486
Primary	2,905,640	520	1,418,517	1,504
Secondary / ESO	2,011,489	4,094	981,977	1,001
Total	5,561,457	19,184	2,715,071	9,632

There are areas of improvement in digitalisation in the Educational system in Spain. When comparing the PISA results, it is evident that Spain has to improve their students' performance in Mathematics (with a score of 481 compared to Denmark 509) and Science (with a score of 489 compared to Denmark 495).

THE PROCUREMENT SYSTEM AND KEY PARTNERS AND COMPETITORS

The Edtech sector in Spain is mostly atomized with around 250 startups. The textbook publishing industry, on the other hand, is dominated by a few big companies, most of them with activities in Spanish-speaking Latin America as well. Most of these big publishing houses offer digital content as well, although paper textbooks is still their main business.

Table 15. Key editorials & distributors of EdTech

		Coverage
Type	Type of ed tech	Geography (national vs. regional (which)
Editorial		
Santillana	K-12 learning material. Digital books, visual classrooms.	National

[14] Source: Drawn up by Eurydice Spain-Spanish Network for Information on Education (National Institute for Educational Evaluation, Ministry of Education and Vocational Training) on the basis of data from Statistics on Public Spending of the General Sub directorate for Statistics and Studies of the Ministry of Education and Vocational Training.

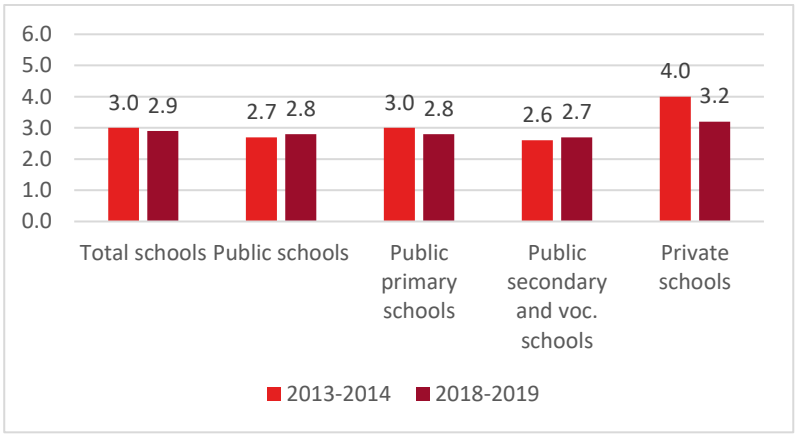
Grupo Anaya	Digital classroom, digital learning plan	National
Grupo SM	Digital learning platform	National
Vicens-Vives	Digital page & books	National
Edelvives	Digital textbooks, lector plan, interactive lectures	National
EdTech		
Odilo	Also known as “the Netflix of Education”	National
Cybee	Tools for teachers	National

MATURITY OF EDTECH IN THE EDUCATIONAL SYSTEM

Spain is far behind Denmark in terms of use of EdTech in the educational system. A number of tools have been implemented to close this gap, and the Covid situation has forced all schools in Spain, both public and private, to speed up the use of digital learning tools. The number of Edtech startups, as mentioned earlier in the report, is actually quite impressive. However, all of these developments are rather recent, while Denmark has more than a decade of solid experience in this field.

The efficiency and usability inherent to Danish design, the “tried and tested” tools that Danish companies can provide, together with the know-how accumulated in Denmark will be an important competitive advantage for landing customers in this still young, but very promising market.

Figure 3. Average number of students per computer dedicated to teaching/learning work:



Only 53.3 percent of Spanish schoolchildren have adequate internet-connected digital devices suitable for schoolwork, whereas the OECD average is 67.2 percent.

51.5 percent of Spanish educational centres have online learning platforms, where the average for OECD countries is 54.1 percent. The percentage is similar when measuring broadband in schools. 52.9 percent of students have an adequate broadband connection at school, still below the OECD average of 67.5 percent.

49 percent of secondary school students use digital tools on a weekly basis, a percentage that rises to 58 percent in high school. In the same way, only 47 percent of Spanish primary schools have been digitized (79 percent in secondary school and high school)[15].

Table 17. Percentage of schools with internet connection in 2013-14 and 2018-19

Percentage of schools with an Internet connection of more than 20 Mb of bandwidth		
	2018-2019	2013-2014
Total	**76,9**	**12,0**
Public school	74,5	8,6
Primary schools	70,3	5,6
Secondary and vocational training public schools	85,3	16,7
Private schools	85,0	23,9
Internet used by children aged 10 to 15 in the three months previous to the interview		
	2019	2014
Percent Internet users	**92,9**	**91,3**
At school	74,0	68,9
At home	96,8	89,8
Children aged 10	86,7	89,3
Children aged 15	98,0	96,0

A recent example of software used in the educational system has been the adoption of the CENTURY Tech educational tool, based on Artificial Intelligence, neuroscience and scientific learning, the implementation of which has become a success story[16].

The Spanish Education Ministry has published the plan "Educa en Digital" (Educate Digitally) targeting the digitalization of education in the country. In this program, 500,000 hardware units will be distributed to the educational sector and the following regions will be the first one to receive the hardware. Aragón, Asturias, Canarias, Castilla-La Mancha, Extremadura, Galicia, Islas Baleares, Ceuta and Melilla. The hardware will be distributed among 16,000 schools to promote digital learning. The budget for the program is EUR 230 million[17].

LEARN MORE

If you are interested in knowing more about concrete activities and specific counselling, please contact The Trade Council in Spain.

[15] Source: (España, a la cola de la digitalización en las aulas: al mismo nivel que Perú o Rumanía según PISA (elespanol.com)

[16] Source: (El 68% de las escuelas españolas están digitalizadas, pero solo el 49% de los alumnos de primaria usa las herramientas de manera semanal - elEconomista.es)

[17] Source: educacionyfp.gob.es

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