

Klecha & Co. The Digitisation of Education

December 2023

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ABOUT US Klecha & Co.

Klecha & Co. is a private investment bank focused on Technology, including Software, IT Services, Hardware and IoT. Our clients are private sector companies, active contributors to the data revolution or solution providers to the opportunities and challenges arising from the digitalization of business processes. We support our clients from the definition of their strategy through to post M&A integration.

The depth of our industry expertise, sector focus and M&A experience make us truly unique in the market.



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Educational Tech at a glance¹

\$6.5trillion

estimated size of the global education market, 2022

\$9.1billion

global VC funding of EdTech (#998) in 2022

~4%

of the education market digitised (~3.5% excluding Covid effects)

~\$325billion

estimated size of global market of digitised education, EdTech in 2022

600%

estimated CAGR in Al-powered adaptive EdTech learning 2018-2025F

\$1.8billion

of which to European EdTech firms

12,200

no. of European EdTech firms, of which 1,800 funded

>50%

of European VC funding going to London, Vienna and Paris, and a great majority to western Europe

70,000%

growth in usage of Massive Open Online Courses (MOOC's) 2011-2021



of surveyed European teachers who want European-wide standards and policies for EdTech



Education in Europe – an overview

In the European Union in 2021, there were **15.6 million children in Pre-K (nursery education, pre-school).** In compulsory education, going forward referred to as K-12 students (first, 4–6-year-olds, through twelfth grade) 60.2 million pupils. Of these 23.2 million where in primary education, 18.9 million in lower secondary education, and 18.1 million in upper secondary education. There were **18.5 million pupils in Higher Education** (university, tertiary students), of which 59% studying for bachelor's degrees.

The equivalent figures **for the UK** were **0.4 million in Pre-K**, **7.7 million in K-12 Education**, of which 5.5. million in primary, and 2.2. million in secondary education, and **2.2 million students enrolled in Higher Education**, of which 80% at a bachelor's degree level.

As illustrated by Picture 1, below, there are three main tracks of compulsory K-12 Education in the EU:

- Single structure education: all students follow a common curriculum providing general education from the beginning to the end of compulsory education there is no transition between primary and lower secondary education
- Common core curriculum: after successfully completing primary education (ISCED level 1), all students progress to lower secondary level (ISCED level 2) where they follow the same general common core curriculum
- Differentiated branches/tracks: after successfully completing primary education, students follow distinct educational pathways or specific types of education, which start either at the beginning or during lower secondary education. At the end of their studies, they receive different certificates 3, 4, 5_L6



Picture 1: Structures of K-12 Education across the EU 2022/2023⁷

Education in Europe – an overview

The majority (82.1%) of students in upper secondary education in the EU were taught in public institutions in 2021. At least two thirds of students in upper secondary education were educated in public institutions in nearly all the EU Member States. The vast majority (98%) of lower secondary school students in 2021 followed a general programme, with the small remainder following vocational programmes. Around half (51.3%) of upper secondary school pupils in 2021 followed a general programme and the other half followed a vocational programme. In contrast to the situation observed for lower secondary education, the vast majority (94.7%) of students in post-secondary non-tertiary education in 2021 in the EU followed vocational programmes.²

European digitisation of education – Status, Initiatives and Divides

Initiatives for digital learning and teaching in is not a post-Covid novelty in Europe, especially in Higher Education. Among others, the first 2014 European University Association (EUA) e-learning study showed that Digitally Enhanced Learning and Teaching (DELT) was applied at most universities, albeit in a very patchy fashion. The first EU-wide Digital Education Action Plan (DEAP) was adopted in 2018. The utilisation, initiatives, and funding for digitised education were however greatly accelerated throughout Europe by Covid and its social distancing consequences, in Pre-K, K-12 Education and Higher Education, as well as in the Corporate Workforce on a fully new level. To gauge Covid's impact on this acceleration, for example, almost 60% of EU citizens had not used distance nor online learning before Covid.

During Covid, EU funding, in particular for K-12 and Higher Education, made necessary by remote teaching, contributed to accelerate the EdTech adoption, applications as well as the sector's penetration and market size. Among others, the EU's €723.8 billion Recovery and Resilience Facility (RRF) was set up to mitigate the economic and social impact of COVID-19, including to digitise education. Twenty-one Member States chose to invest more than €11 billion in measures supporting the digitalisation of their education through this facility.

An updated Higher Education DELT survey was also conducted throughout 48 European countries (368 Higher Education institutional respondents) at the inception of Covid, in April through May 2020. It presented both the early Covid inception status and an expected strive to accelerate educational digitisation. On average, 57% of the respondents stated that DELT was widely used throughout their institution. This survey, however, also exhibited a geographical divide within the EU region, with educational digitisation rates generally much higher in northern and western Europe, and lower in southern, and particularly eastern Europe.



Graph 1: Usage of EdTech applications, Higher Education institutions in 48 surveyed European countries, April-May 2020 (%)⁸

European digitisation of education – Status, Initiatives and Divides

Further results from the DELT survey highlighted major intra-EU regional differences in the fields, but also EU-wide soft barriers for digitalisation of education. Foremost i) a lack of staff resources (51%), followed by ii) lack of external funding opportunities (40%) and iii) the difficulty to devise a concerted approach for the entire institution (36%). A lack of external funding was raised as a top three barrier to DELT in >80% of responses from Ukraine, Bosnia and Herzegovina as well as Albania, while considered a top three barrier in 20-22% in northern and western Europe. The same type of regional divide in barriers is particularly prevalent in areas suchas National Legislation and External Quality Assurance, with countries in eastern Europe citing them as top barriers, while those in northern and western Europe barely mentioning them at all. In Europe, while 40% of institutionson average considered a lack of external funding opportunities as a major obstacle, this was as digitisation overall comparatively high in some countries and regions.

The survey's display of a geographical split in Europe in educational digital usage, but also attitudes, infrastructure and literacy were confirmed to also exist on a K-12 Education level. This through a survey of >3,000 teachers across the full K-12 spectrum from 11 European countries located in different regions of the continent conducted by Vodafone in May 2022. Teachers in the study also cited the need for a European-wide standards on digital teaching to address government expectations and deliver quality digital education to students. Among others, 75% of teachers stated that there should be uniform European-wide policies and standards for digital education. Other key findings included that teachers in general are positive to the use of technology in educating and at large confident in using it. However, only 20% of the surveyed considered schools to provide a high-quality digital infrastructure, and 72% thought education policy measures were not sufficient to prepare students for future job markets. These gaps existed in all countries surveyed – rendering a clear conclusion that EU-wide, yet country-tailored, approaches are needed to improve schools' capabilities. A rather uniform consensus among the teachers in the surveyed countries was moreover that they see the biggest potential of digital technologies for learning in helping students acquiring skills for the age of digitalisation and in enabling students to access better sources of information.

Due to, among others, these benefits of digitisation of education, as well as such as the uptake of digitised online learning, studies concluding better education outcomes and individualisation potential from e-learning compared to traditional education, EU funding of EdTech is continuing also post-pandemic. This through, among others, the European Innovation Council (EIC), and EU's updated DEAP (2021-2027), adopted in September 2020. These also address to enhance digital literacy, infrastructure and skill levels of usage in education more uniformly: the EU's DEAP (2021-2027), indeed has the prime priorities to i) foster the development of a high-performing digital education ecosystem, through example intra-Member States dialogue, digital education frameworks, equipment and training ii) enhancing digital skills and competences for the digital transformation through e.g. common intra-Member States guidelines for digital literacy, AI and data-related skills, including European Digital Skills Certificates (EDSC), cross-national collection of data EU-level targets on student digital skills. To support these priorities a European Digital Education Hub has also been established. While, particularly in the developing world, one restraint has been, and driver for future digitisation of education, is the increased penetration of broadband, it is also an (uniformity) restraint in the EU as broadband access at home, also in Europe, varies: from 74% of households in the lowest income quartile to 97% in the highest quartile. Moreover, GDPR represents a complicator for EdTech growth in the EU region.^{8, 9, 10, 11, 12, 13}

The global education market was in 2022, according to a report by dealroom.co and the most active EdTech-focused venture capital fund in Europe, Brighteye Ventures, valued at US\$ 6.5 trillion, of which less than 4% digitised. This values the current EdTech market at \$375 billion, and boosted by, among others, Covid, represents a CAGR of 27% CAGR from 2017. HolonIQ, another research firm, estimate the digitised component of education at 4.3% in 2022, the total global education market at \$6.8 trillion, and the expenditure in EdTech at \$292.4 billion, for the same year. The research firm also estimates that the Covid effect, shifted the CAGR of EdTech expenditure 2019-2025F, from 13.1% to 16.3%, with an estimated market size reaching \$404 billion in 2025, Covid effects taken into account. Yet, the level of digitisation estimated by either, proxied by the amount of VC funding 2019-2022, is at a low level compared to other consumer markets of the same size, such as health and food, an underfunding offering untapped potential.^{14, 15}

Research firms Markets and Markets and Grand View Research reach **more conservative estimates and projections** of the EdTech market size. Markets and Markets value the EdTech market at \$125.3 **billion in 2022**, expecting it to expand at a CAGR of 13.2% from 2022 to 2027F, reaching a size of \$232.9 **billion**. Grand View Research, on the other hand, valued the market at \$123.4 billion in 2022, with an expected CAGR of 13.6% from 2023F to 2030F, reaching a size of \$348.41 billion at the end of the projected period.^{11, 12}

By most research firms' definitions, Education Technology (EdTech) is segmented into Hardware, Software and Content technology, used to educate the end users Pre-K, K-12 Education, Higher Education students, Corporate Education employees as well as B2C – General Lifelong B2C Learning. This on a virtual level: in classrooms, at conferences, at home and beyond, to enhance development, knowledge and skill outcomes.



Graph 2: EdTech end user verticals and applications, Software and Content Klecha & Co., Desktop Research

The industry is **dominated by business-to-business (B2B) and business-to-government (B2G) channels** (combined accounting for >65% of revenue)



(%), by end users, revenue 2022^{12}

The market is mostly privately owned (~89%, Oct'22), accelerated by – albeit most public Education and Training indexes as well as EdTech Price indexes have outperformed S&P 500 and S&P 500 Price respectively – a relative slash of public market valuations compared to private during the last two years.^{15, 16} The EdTech value chain comprises four key areas: Learning Materials, Tools and Enablers, Learning Platforms, and Education Providers.

The split between Hardware, Software and Content in EdTech as illustrated in Graph 4 below, is forecasted to remain roughly equal over research firms' periods reaching as far as 2030F. Geographically in 2022, while contingent on source, as exhibited by Graph 6: by revenue North America dominated the market with the highest revenue share of 36% (45% of private EV value), while Europe held a 25% revenue share (11% of private EV value) – the latter set to grow at 15.4% 2022-2026F. Asia-Pacific 16.2% (China and India 35% of private EV value). In terms of growth rates – where in particular India stood out among the crowd with an estimated market size of \$29 billion and projected highest CAGR country-wide. Asia-Pacific is also projected to grow at the fastest CAGR 2023F-2032F. As will be examined more in detail later in the report: an ongoing geographical shift is occurring. In 2010 the United States attracted nearly 75% of global EdTech VC funding – today India attracts around 15-20% depending on source, while China has been a major force, regulatory hurdles has driven significant drops. Furthermore, on premise delivery (71%) outsizes cloud based.^{11, 12, 14, 15, 16, 17, 18}



Drivers of historical and projected growth of the EdTech market on a global scale include the mentioned boost by Covid, including the aforementioned by EU, but also by other countries, resulting capital injections for digitisation of education. Further catalysts are mobile and digital devices as well as technological progress and penetration in general. Mobile, digital devices as well as connectivity speed and penetration are especially relevant for future accelerated growth stemming from developing countries, with India at the forefront. Furthermore, developing countries exhibit the highest population and education growth, representing a further category driving current and future growth of the Education and Training market and consequently the EdTech market. For example, the percentage reaching secondary education rate globally, is according to Our World in Data forecasted to expand from 35% in 2010 to 41% in 2030F.^{11, 12, 14, 15, 16, 17, 18, 19, 20, 21}

Covid, along with technological progress and digital device and connectivity penetration, have also accelerated several use cases growing the market. To exhibit the growth rate of a few prime applications:



Graph 7: CAGR and uptake in EdTech of different applications, globally (%)^{14, 15, 22}



Picture 2: Danish Labster's immersive VR simulation training²³

Restraints to both historical and future growth in EdTech include the risk of **cyberattacks**, **vulnerability and ransomware on educational institutes and privacy concerns**. This is particularly plaguing the K-12 Education segment. According to Microsoft Security Intelligence, **the education sector accounted for 61% of enterprise malware encounters in July 2022 making it the most affected industry**.

In China, EdTech has not escaped the recent sharp rise in general regulatory restrictions on Big Tech firms, especially in the remote Private Tutoring segment.²⁴ Furthermore, while increased broadband penetration on a global scale for educational institutions represents a driver, a further impediment is the access of broadband at home for students, particularly in the developing world. As previously mentioned, it is however also, albeit to a lesser degree, a restraint for growth in Europe through limited access also for lower income households on the continent.^{8, 9, 11, 12}

Generative AI in Education

AI, in for example adapting learning material to a student's needs, and certain teacher training and support, has been around for more than a decade in education. Generative AI's rapid advancements in especially the last twelve months, and predicted going forward, have however propelled its applications in EdTech. All of its future applications in and impact on the sector are speculative and unknown, with a current gradual tentation adoption. A few widespread areas of integration along with their consequent impact have however emerged. Among others, for:

• Education/Workforce Education: personalised adaptive/customised AI-based tutoring learning assistance, including enhanced immersive simulative interactions, that also can be curated to fit each interests

→ Impact, Generative AI:

- o generates unique problem sets or reading materials adapted to each student's skill level
- can be used to simulate realistic virtual immersive experiences, virtual tutors that can help engagingly explain complex concepts, or make topics more relatable and engaging – tools that allow the educator to utilise curiosity at every step of the learning process
- o gives teachers more time to engage with students, as administrative tasks are automated
- through data insights can generate predictive analytics to identify student performance trends and areas. This also aids in early detection of learning difficulties, providing the opportunity for timely interventions
- o tasks aligned to rubrics and generate multiple examples for students to learn from
- through data insights connect answers to solutions. Also allowing for more targeted feedback
- o builds new student-wide, AI, digital literacies, useful for a lifetime
 - e.g. Efficiency, Enhanced Understanding and Interaction, Curiosity Engine, Early Intervention, Support
- Teachers: AI-based teaching assistants, training and feedback
 - → Impact, Generative AI:
 - \circ the automatisation of routine/administrative tasks or drafts of communication
 - assessment efficiency and automtistion, and predicitive analytics with the aforementioned more targeted feedback, understanding and opportunities for early interventions
 - sharing of resources
 - o e.g. Administration Automatistion, Support, Assessment Support
- Parents: e.g. mapping of school options, requests, D2C customised and adaptive learning tools for use/tutoring at home

All at a lower cost, and thereby wider availability, than human equivalents.

Then there is the other side of the coin: students' ability to use generative AI applications, such as ChatGPT-4, to conduct their schoolwork, such as solve homework problems and writing essays. The sophistication of latter two applications have allowed its usage to span, not only K-12, but also Higher and Corporate Education. "You have no idea how much we're using ChatGPT," as the title of a recent essay was by a Columbia University student in The Chronicle of Higher Education. To counter this there are AI detector programs to catch such usage, as OpenAI's, the maker of ChatGPT, and Turnitin's, among others, AI detection tools. However, none of them have shown to work reliably well, in particular generating a lot of false positives. For example, OpenAI discontinued its AI writing detector this year because of a "low rate of accuracy."

Other **challenges and risks with AI in education** include: **bias** (e.g. ethnicity, gender, or socioeconomic) in its algorithms; **privacy concerns**, when students or educators interact with

Generative AI in Education

generative AI tools, their conversations and personal information might be stored and analysed; **increased social isolation**; **equality issues** due to diversity in access to broadband and digital devices and thereby AI applications; and outright **false information** output, or even AI "hallucinations."

At large, AI and generative AI are currently recommended and projected as a tool to enhance education and aid teaching, not to replace teachers nor physical student classroom interactions. In a survey throughout Germany published in April 2023 focusing on K-12 Education, also only 10% of Germans assume that AI will replace teachers at some point in the future. Nevertheless, the same survey exhibited that a majority (54%) of respondents expect that AI will significantly change teaching in schools – the higher the respondents' level of education, the more they agree with this idea. The top three applications being in i) administrative tasks, followed by ii) explaining things that are unclear and iii) checking academic performance (e.g. schoolwork). In Workforce Education, a survey conducted throughout France in June 2023 showed that 57% of employees estimate that AI will have a rather positive impact on education and vocational training.^{25, 26, 27, 28, 29, 30, 31}



Picture 3: Use of generative AI in the classroom, illustrative example created by the AI art generator Midjourney³²

The Main Actors on a global scale

Exhibited below is a categorisation of current applications of EdTech along with global incumbents for each:



Graph 8: Global EdTech incumbents by application^{11, 12, 14, 33, 34, 35, 36, 37, Desktop Research}

The EdTech market on a global scale is, especially in the Software vendors and Hardware segments, to a large portion dominated by Big Tech's BAs in the field along with a few EdTech-focused, minted or current, unicorns. In the Content segment pure play EdTech current (#30, collectively valued at \$89 billion) or minted (#64 since 2014) unicorn firms are more common. These are often focused on specific tutoring or learning, and aside to the USA, concentrated to Asia, of which a majority (historically minted) Chinese or Indian, and among the current thirty unicorns, two are Chinese and six Indian.^{38, 39}

The Main Actors on global scale

On the software vendor side (e.g. Learning Management Systems, LMSs), Microsoft's BA in the field holds the overall lead with 9% of global revenues in 2021, followed by Big Tech's equivalent BAs (e.g. Oracle, SAP), along with a few large EdTech-focused software vendors. The latter group consists of e.g. Blackboard, 2U, Ellucian and Workday.

On the Hardware side we find BAs of companies like Microsoft, Apple, Alphabet, Samsung and Smart Technologies.^{11, 12, 35}

The most valuable **pure play EdTech firms** are, as mentioned, in general found on the **Content** side. As of August, 16th, 2023, they were:³⁷

- 1. BYJU's (India) Estimated Valuation \$22 Bn (private/unicorn): animated educational videos with approximately 40 million users: tailored for test practice (GRE, GMAT, or e.g. national Indian Tests like CAT and IAS)
- Yuanfudao (China) Estimated Valuation \$15.5 Bn (private): pioneer in the use of AI for personalized learning, as well as provider of collaborative, interactive tools and hardware, among others. Approximately 4 million registered users
- 3. New Oriental Education and Technology Group Inc. (China) Market Cap \$8.94 Bn (NYSE:EDU): helps students prepare for college exams, international level GRE, and IELTS, along withonline courses throughout demography and oftentimes with VR to enhance engagement
- 4. Pearson plc (UK) Market Cap \$7.67 Bn (NYSE: PSO): digital education assistant for schools and colleges, creating tests and respective criteria that can help educational institutions gauge the merit for students. It also helps them develop course content
- Duolingo Inc. (USA) Market Cap \$5.51 Bn (NASDAQ: DUOL): the firm offers language certifications (e.g. IELTS and TOEFL) in 40 languages while aiding in language learning through interactive exercises
- 6. Bright Horizons Family Solutions Inc. (USA) Market Cap \$5.37 Bn (NYSE: BFAM): parent-assisted B2C Early childhood education, including virtual consultations
- **7.** BetterUp (USA) Estimated Valuation \$4.7 Bn (private): helps individuals to analyse their behaviour and discover their strengths, driving purpose and direction in the workforce through personalized coaching programs and detailed career advice
- 8. VIPKid (China) Estimated Valuation \$4.5 Bn (private): connects Chinese students with international tutors so they can learn verbal, written, or business English
- **9.** TAL Education Group (China) Market Cap \$4.47 Bn (NYSE: TAL): also known as 'Tomorrow Advancing Life', is one of the leading Chinese EdTech firms
- **10. Guild Education (USA) Estimated Valuation \$4.4 Bn (private/unicorn)**: business that works to provide online learning to corporate employees

The Main Actors on global scale

A selection of other, European, North American and Australian publicly listed entities that are among the largest pure play EdTech firms in the world, Market Caps (MC) as of November 2023, in US\$:^{37, Refinitiv, Desktop Research}

- Kahoot! ASA (Norway) MC \$1.55 Bn (OL: KAHOT): gamified learning platform that brings engagement and fun to >1 billion players every year at school (>9 M teachers), at work (97% of Fortune 500), and at home (>30 M active accounts, 2 Bn participants in over 200 countries, 2021-2022), live in groups or alone. Games and trivia quizzes: on any subject, language and device
- IDP Education Ltd. (Australia) MC \$4.16 Bn (ASX: IEL): helps students to study abroad, engaging in the placement into education institutions, including counselling, application processing, pre-departure guidance, and examinations, as English teaching and test preparation (e.g. IELTS), etc.
- Coursera Inc. (USA) MC \$2.87 Bn (NYSE: COUR): provides forums, courses and certifications online, such as Master's Degrees in data science, entrepreneurship, and MBA in affiliation with University of Michigan and California
- Udemy Inc. (USA) MC \$2.02 Bn (NASDAQ: UDMY): academic and professional tutoring in more than 60 different languages. Targeting those looking to learn professional skills to land jobs, incl. e.g. technical certifications. The firm's business customers include >50% of the Fortune 100
- Tribal Group plc. (UK) MC \$164.67 M (LSE: TRB): provides prominently Student Information Systems (software, maintenance and support services, etc.) and Education Services (inspection and review services for educational delivery, etc.). Serves K-12 to Corporate Education
- Chegg Inc. (USA) MC \$0.98 Bn (NYSE: CHGG): primarily solves problems for students online and rents out books at cheap rates, also career advice and live tutoring from professors in a remote premium quality
- Sanoma Oyj (Finland) MC \$1.23 Bn (HE: SANOMA): media and learning company that offers their media products in printed magazines and newspapers, digital media, radio, and television, as well as a digital learning solutions that can be personalised. Primarily caters to the K-12 segment
- Learning Technologies Group plc. (UK) MC \$757.87 M (LSE: LTG): provides learning and talent software and services for Corporate Education. Software & Platforms (SaaS and on premises), Content & Services, GP Strategies, and Others
- 2U Inc. (USA) MC \$77.15 M (NASDAQ: TWOU): offers a program management platform that partners with educational institutes, e.g. Yale and MIT, providing the technology for remote teaching to help students conduct their degrees online. Acquired edX (USA) in 2021
- **Docebo Inc. (Canada) MC \$1.6 Bn (TOR:** DCBO): chiefly provides a cloud based LMS with a high degree of generative AI and innovation for Corporate Education: to create and manage content, deliver optimised and personalised training, and understand the business impact of this
- PowerSchool Holdings Inc. (USA) MC \$4.44 Bn (PWSC: NYQ): cloud based software for end-toend K-12 Education (>50 M students) connection – central offices, classrooms to homes. Enables school districts to securely manage student data, analytics and insights, communications, etc.
- Instructure Holdings Inc. (USA) MC \$3.64 Bn (NYQ: INST): delivers SaaS LMSs and solutions, most prominently under its Canvas brand for K-12 and Higher Education
- Thinkific Labs Inc. (Canada) MC: \$163.68 M (TOR: THNC): sells a cloud based software platform that enables entrepreneurs and firms to create, market, sell, and deliver their own online courses: to scale and generate revenue by customised teaching of what they know
- D2L Inc. (Canada) MC: \$152.35 M (TOR: DTOL): Desire2Learn delivers personalised, flexible and modern learning experiences across all end user segments (Pre-K to Corporate Education) through its cloud based technology learning platform, Brightspace, and its extensions
- Sylogist Ltd. (Canada) MC: \$127.39 M (TOR: SYZ): provides SaaS ERP and CRM fundraising, education administration, and payments solutions, prominently for public sector bodies

Two out of the thirty current global EdTech unicorns are European: Austria's tutoring platform GoStudent and UK's Corporate Education LMS Multiverse, followed by 12,200 EdTech firms at different funding stages. Exhibited the notable leading along with a few high-growth or technologically innovative challengers:

PRE-K		K-12 EDUCATION		HIGHER EDUCATION	i cori	PORATE EDUCATIO	N
Kide 😤 🔬	assly 🕥	MyTutor 🛞	AMBOSS	StudentFinance	0	Lepaya. 🖏	Sana
lingokids ⁹	Kahoot!	+Babbel BRA	INLY		Labster	R rise up	\bigcirc
		nagi 🙆 GOODW	/ALL			multiverse	
← ←		← LIFE	LONG B2C LEA	RNING →	\rightarrow	→	\rightarrow
🥵 klassly 🖓 🎎	codinggiants Kahoot!	+Babbel			Perlego	elc	lercate
KIDE	🏭 imagi 🖉	GOODWALL BRA		StudentFinance	ODILO	Silber S	vilma
lingokids						Silber S	aion
European notable EdTech firms		ection of notab 5, 46, 47, 48, Desktop Re		an EdTech firms	by end user	verticals ^{Klecha}	a & Co.,

According to Tracxn, among the in October 2023 12,200 European EdTech firms at different maturity stages, 1,800 were funded. Among these the focus area by application and end user segment:



Graph 11: Size of European EdTech VC funding (USS Bn) and by end user segment (%), 2021 and 2022^{14, 55}

Mirroring the mentioned regional divided in lack of funding and other barriers in Europe, with an underfunded and impeded, in particular, eastern Europe in contrast to the western and northern Europe is the geographical distribution of VC investments:



Graph 12: European VC Investment Volume,Graph 13: European VC Investment Volume,EdTech 2014-Nov'23 (€ M)PitchBook * Not exhaustiveEdTech 2014-Nov'23 (#)PitchBook * Not exhaustive





While **the UK and London** still dominate in terms of value and volume of European VC funding and number of firms, the region's **status as a very dominant EdTech startup hub of Europe is in a declining trend.** This according to, among others, the research and insights firm HolonIQ's widely cited Europe EdTech 200, the company's annual listing of the 200 most promising EdTech startups – those founded >10 years ago, listed, acquired or controlled by another organisation excluded – from the continent (Nordic-Baltic region excluded). As exhibited by Graph 15 on the next page, the UK has seen a drop from 42% of the firms on the list in 2020 to 31% on 2023's list, the latter published on October 30. **This in favour of in particularly Spain and Italy, growing from 4% to 9%, and 2% to 6%, respectively, of the proportion of EdTech firms on the list over the period, as well as a more geographically fragmented continent with the Rest of Europe growing from 14% to 26% over the period. In part, this geographical distribution, and its change over time in HolonIQ's lists might be the consequence of**

Brexit, but also the prevalence of significant EdTech-focused incubators and accelerators. As mapped by European Schoolnet (EUN) in 2021, four or more such existed only in the UK, France and Spain, while Italy was among four other countries included in the scope of HolonIQ's Europe 200 lists with two to three.^{49, 50}





Examples of notable firms from Spain and Italy, but also France, on HolonIQ's list or not (one has to consider their strict exclusion criteria) include ODILO, Lingokids, Learnlight, Netex Learning, Factory, StudentFinance, innovamat, Gamelearn (Spain); Futura, EPICODE, Talent Garden, WeSchool, Ludwig, Skuola, Anatomy 3D Atlas, Gruppo Spaggiari Parma (Italy); and 360Learning, Hivebrite, Coorpacademy, OpenClassrooms, Ornikar, Rise up, La Solive, Classter (France).



Graph 16: Deal count per type – Italy, Spain and France, 2023 YTD (#), data as of November 2023^{PitchBook}



Graph 17: Selection of notable European EdTech firms by application Klecha & Co., 51, Desktop Research

EdTech M&A

Stemming from the macroeconomic backdrop M&A activity in the Education and Training sector, as exhibited in Graph 18, **has dropped from peak years in 2020 and 2021**, a trend that have continued **into 2023**. In terms of number of transactions 2022 still outperformed all years prior to 2020, and in deal volume prior to 2018. Private strategic buyers have historically accounted for the largest share of transactions but has since 2021 been overtaken by PE add-on acquisitions (buy-&-build), with a 44.9% share of the global M&A deals in the sector. This while strategic private buyers accumulated 36.5% of the transactions in the same year, the remaining accounted for by public strategic buyers and PE platform acquisitions.



Given that modern EdTech is still a relatively nascent industry, the sector's share of M&A activity in the Education and Training sector has historically been relatively modest, but boosted by 2020's Covid started to account for larger share of transactions, a trend projected to accelerate going forward. Key transaction drivers include synergy potential, globalisation, industry convergence and innovation. Large VC capital injections have furthermore acted as an enabler. As with Education and Training, a trend is seen where PE activity in the EdTech space has taken a larger share of M&A in recent years, compared to a historic dominance of strategic buyers. Deal volumes and value in in EdTech have remained at 2022 levels 2023 YTD.^{15, 17,52, 53, 54}



EdTech M&A

EdTech Funding

EdTech VC funding peaked around the most intense Covid years 2020-2021. In 2022, a strong start was followed by pandemic-related public spending cuts, the macroeconomic climate – including the rising costs of living and the effects of Russia's invasion of Ukraine – making funding reach prepandemic levels, equivalent to year 2018. This was followed by a record low H1'2023 period over the examined period. Nevertheless, in Q3'23 a 50% increase in funding value occurred, driven by series B and C rounds in mainly Tutoring, Language Learning, Finance and VR, compared to the record low quarter over the analysed period, Q2'23. A resurgence of mega deals (>\$100 million) is nevertheless not in sight, and by Oct'23, the research firm HolonIQ projects \$3.5 billion of VC funding for the full year. EdTech's reduced VC funding activity is broadly in line with peer sectors'.^{55, 56}



Graph 20: Global EdTech VC funding value (US\$ Bn) and (# of transactions), 2016-2023F⁵⁵

European EdTech M&A and Funding

As exhibited by Graph 21, below, Europe at large followed global trends in terms of M&A and VC funding with a peak year in 2021, followed by a slowdown in 2022 and 2023. However, in terms of VC funding Europe still stood, and stand, relatively steadfast compared to other regions, both in 2022, 2023 YTD and FY'2023F: getting a larger slice of a smaller pie. The region secured 40% more funding in H1'2022 than in H1'2021, after which a positive momentum slowed, reflecting the broader landscape in public and private markets. 2022 rounded up with a 28% fall in funding, which nevertheless should be contrasted to 64% for the US, 89% for China and 46% for India. The fall in Europe was throughout the full end user spectrum, except Corporate Education where funding continued to grow in 2022.^{55, PitchBook}



Graph 21: Capital raising and M&A activity in the EdTech market across Europe, by type 2018-Nov'23 (€ Bn; #)^{PitchBook}

It should furthermore be noted that a few large European EdTech M&A transactions have recently occurred, such as Goldman Sachs Private Equity's (majority) and General Atlantic's ongoing publicto-private buyout of the Norwegian EdTech content firm Kahoot in an \$1.72 billion all-cash deal.

European serial acquirers is yet to emerge at scale. A European firm that has gone on a buying spree relative to peers, along with the development of its cutting-edge AI-powered capability development platform, is Dutch firm Lepaya. In May 2023, the company acquired Swiss Krauthammer, marking its fourth acquisition in five years, and making the firm the largest Corporate Education EdTech provider in Europe. The acquisition came just six months after the firm acquired London-based Speak First. Previous acquisitions include German vCoach (2022) and Belgian SmartenUp (2020). Acquisitions and application developments are likely to continue as the firm in September 2023 secured \$38 million in a Series C capital injection.^{53, 57} Another firm, albeit smaller in terms of revenue and to date local, yet leader in their region and with European-wide ambitions, is PE-backed Finnish Eduhouse, the

European EdTech M&A and Funding

largest Corporate Education tech company in the Nordics. In January 2023, the company acquired **Danish GoLearn**. The acquisition follows three of **Finnish companies: Sovelto and Hallintoakatemia** (2022) and **Wistec Training (2021).**⁵⁸ **GoStudent**, the Austrian EdTech Tutoring unicorn powerhouse has also made its fair share of acquisitions over the years, including UK's Seneca Learning, Spainbased Tus Media Group and German Studienkreis in 2022.⁵⁹

According to Tracxn, among the in October 2023 12,200 European EdTech firms at different maturity stages, 1,800 were funded. Of those funded:



Graph 22: Proportion (#) of funded European EdTech firms at different funding stages (%)⁴⁸

The norm is as markets mature the proportion of larger funding rounds usually becomes larger. However, in European EdTech one can observe an opposite dynamism – **the portion of funding raised in larger deals (>\$40 million) has decreased to 44% from a peak of 67% in 2020**. This **reverse development to many other VC-funded sectors** is most likely due to three reasons **i)** the large influx of large round in 2020-2021 as a result of Covid, **ii)** a dynamic, relatively nascent sector, with few European firms of high maturity **iii)** it follows a broader VC trend where, among others, the last years rapid technological advancements, in e.g. AI, and the macroclimate have seen growth stage funding slow in favor of early-stage fundings. As overall rounds have fallen it should also be noted that a higher **proportion of those made are by VCs specialising in EdTech as opposed to generalists.**



Graph 23: European EdTech VC funding has been dominated by mid-sized (US\$ 4-100 M) rounds this year *6 out of top 10 European investors EdTech specialists⁵⁵

Appendix

M&A ACTIVITY IN EDTECH - TRANSACTION MULTIPLES

Date	Target	Target Country	Bidder	Target description	EV \$m	EV/ • Revenues	EV/ EBITDA
Aug-23	Arco Platform	Brazil	Dragoneer Investment Group, General Atlantic	Provides a complete pedagogical system with technology-enabled features to deliver educational content to private schools	1,500	4.0x	9.7x
Jul-23	Kahoot!	Norway	General Atlantic, Goldman Sachs	Game-based learning platform that brings engagement and fun to 1+ billion players every year	1,840	11.6x	nm
Jul-23	Seably AB	Sweden	Mintra Holding AS	Digital learning marketplace for maritime professionals	7	3.3x	na
May-23	Gruppo Spaggiari	Italy	Ambienta	Software house specialising in the digitisation of school activities and processes	n.a	na	na
Feb-23	GL Education	UK	Renaissance	Provider of assessments and data analytics for schools and school groups	612	na	15.0x
Feb-23	Coding Dojo	US	Colorado Technical University	Coding bootcamps online and in person	68	na	na
Jan-23	Twinkl	UK	Vitruvian	Provide digital teaching ressources to educator globally	600	9,1	15.8x
Oct-22	BrainPoP	US	Kirkbi	Curriculum based animated movies, learning games, interactive quizzes, primary source activities	875	na	na
Sep-22	Intake education	Australia	IDP	Connects international students with overseas education opportunities	56	2.8x	na
Aug-22	Frontline education	US	Roper Technologies	Provider of school administrative software including solutions for proactive recruiting and hiring, and student information systems	3,375	9.1x	19.3x
Jun-22	SI-UK	UK	Averna Capital	Information on UK education and universities for international students	120	4.0x	10.0x
Jun-22	Pearson Italy	Italy	Sanoma	Provides K12 learning material	203	1.6x	6.4x
May-22	Tutorme	US	Goguardian	A local online tutoring solution creating access and opportunity for all students	55	na	na
May-22	Blackboard collaborate	US	Class	Virtual classroom tool	210	na	na
May-22	Emagister	Spain	Mura Partners Educaedu	Catalonia-based search engine for online education	na	na	na
Jan-22	De Agostini Scuola	Italy	Arnoldo Mondadori Editore	Publisher of academic textbooks and e learning materials	212	2.2x	7.4x
Jan-22	Educaedu	Spain	Mura Partners	Online education directory where educational institutions from all over the world can publish their programmes to attract students and fill their classrooms	na	na	na
Jan-22	Eveerfi	US	Blackblaud	Custom Education For K-12 students	750	6.3x	na
Nov-21	Busuu	Lituanian	Chegg	Content education platform focused on learning languages	436	9.7x	na
Oct-21	GP Strategies	US	Learning Technologies Group	GP Strategies Corp provides training, e-Learning solutions, management consulting, and engineering services	379	0.8x	14.6x
Jun-21	Learning Pool	UK	Marlin Equity Partners	Provider of internet learning and organizational training services in the United Kingdom	213	8.9x	25.6x
Feb-21	Skill & You	France	IK Partners	Online vocational e-learning	302	2.6x	15.0x
Dec-20	Texthelp	UK	Five Arrows Capital Partners	Developer of an assistive learning platform intended to help everyone read, write and communicate with clarity	140	5.0x	14.7x
Average						5.1x	14.0x
Median						4.0x	14.7x
MAX						11.6x	25.6x
MIN						0.8x	6.4x

Table 1, Source: MergerMarket

Company F	IQ	Raised value (\$m)	Descriptives
分 насктневох		55	Cybersecurity training
StudentFinance		33	Student Finance
😍 Sana 🚦		28	Al-Powered

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knowledge mgmt.

Maths education

University Access

K12 operations

AR/VR executive

training

Mentoring Collaboration

tools

Healthcare

training

LARGEST EUROPEAN EDTECH FUNDINGS H1'2023

Table 2, Source: Brighteye Ventures, dealroom.co⁵⁵

Company	HQ	Raised value (\$m)	Descriptives	Valuation (\$m)
GoStudent		340	Tutoring	3,500
multiverse		220	Vocational Training	1,700
CoachHub 🛟		200	Coaching and Mentoring	600
() sosafe		73	Cybersecurity training	350
		66	Cybersecurity training	375
ODILO		64	Media Education	320
Perlego		50	Interactive textbooks	250
Labster		47	AR/VR	300
• ; • Sana		34	Enterprise Software	180
R rise up		30	Learning Platform	160

LARGEST EUROPEAN EDTECH FUNDINGS 2022

Table 3, Source: Brighteye Ventures, dealroom.co⁵⁵

Company	HQ	Raised value (\$m)	Descriptives	Valuation (\$m)
GoStudent		244	Tutoring	1,500
360 Learning		200	Corporate Learning LMS	800
multiverse		130	Vocational Training	875
=ornikar		120	Driving Education	750
🛟 CoachHub		80	Coaching and Mentoring	480
DPENCLASSROOMS		80	Vocational Training	400
		75	Cybersecurity training	375
% Lingoda		65	Language Learning	315
Labster		60	AR/VR	300
elœmi®		55	HR Software	n.a.

LARGEST EUROPEAN EDTECH FUNDINGS 2021

Table 4, Source: Brighteye Ventures, dealroom.co⁵⁵

CAPITAL RAISING & M&A, EDTECH: ITALY, SPAIN, FRANCE 2020-Nov'23



Graph 24, Source: PitchBook



SELECTION OF EDTECH TRADING MULTIPLES (data as of November, 2023)

Table 5, Source: Refinitiv

SELECTION OF TOP EUROPEAN EDTECH VCS





Graph 25, Source: Shizune⁶⁰

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photoreal, ultra-detailed, intricate details, 8K, super detailed, full color, volumetric lighting, HDR, realistic, Unreal

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