



OPEN-SOURCE TAXONOMY

2021 Global Learning Landscape

Mapping the future of education.

2021 Global Learning Landscape



“The Global Learning Landscape is an open source taxonomy for education innovation, providing a common structure and language for identifying, tracking and making sense of the complexity and volume of innovation happening in education globally.”

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Welcome

One billion learners at three million schools, colleges and universities around the world are depending on education to prepare them for a prosperous life and the jobs of the future. However, the overwhelming majority of institutions are unable to innovate fast enough to deliver on this mission and, while education is estimated to become a \$10T market by 2030, it is highly fragmented and grossly under-digitized, impeding transformation at a global scale.

Technology is operating across the entire learner lifecycle and examples can now be found at every point of the learning journey, in both formal and informal education settings. From platforms to support the discovery of educational opportunities, new ways of generating content and experiencing learning, software to support education institutional management and administrative processes, through to the delivery, assessment and the credentialing of learning on the pathway to employment.

The 2021 Global Learning Landscape is an open-source taxonomy for education innovation, providing a common structure and language for identifying, tracking and making sense of the volume and complexity of innovation happening in education globally. The taxonomy provides a well-defined, robust, accessible and community enabled segmentation.

Combining machine learning with a global community of experts, we analyzed over 60,000 organizations, 500,000 apps and considered the 3 million schools, colleges and universities around the world. Using the classical top-down / bottom-up design methodology, the 2021 Global Learning Landscape was built around 50 core clusters along a learning journey. From knowledge and curriculum to engagement, assessment, workforce and talent, the Global Learning Landscape is inspired by design thinking, following the learner from early childhood to lifelong learning.

Licenced under Creative Commons and as an open source project, the taxonomy is available for anyone to support their own work in education innovation, to identify an area of focus, or to locate their organization and their peers on the landscape.

HolonIQ is a globally unique education market intelligence firm. Our mission is to connect the world with the technology, skills and capital to transform education through access to the most comprehensive education innovation dataset, intelligence tools and global network of people and ideas.

We help companies, institutions, governments and investors power growth and innovation by connecting billions of data points about education startups, technologies, deal flow, schools, universities, jobs, skills, research and patents and apply machine learning to analyze, evaluate and identify patterns, generating insights that help our customers make data-driven decisions and answer the strategic questions that really matter.



Patrick Brothers
Co-CEO & Co-Founder

Maria Spies
Co-CEO & Co-Founder

Methodology

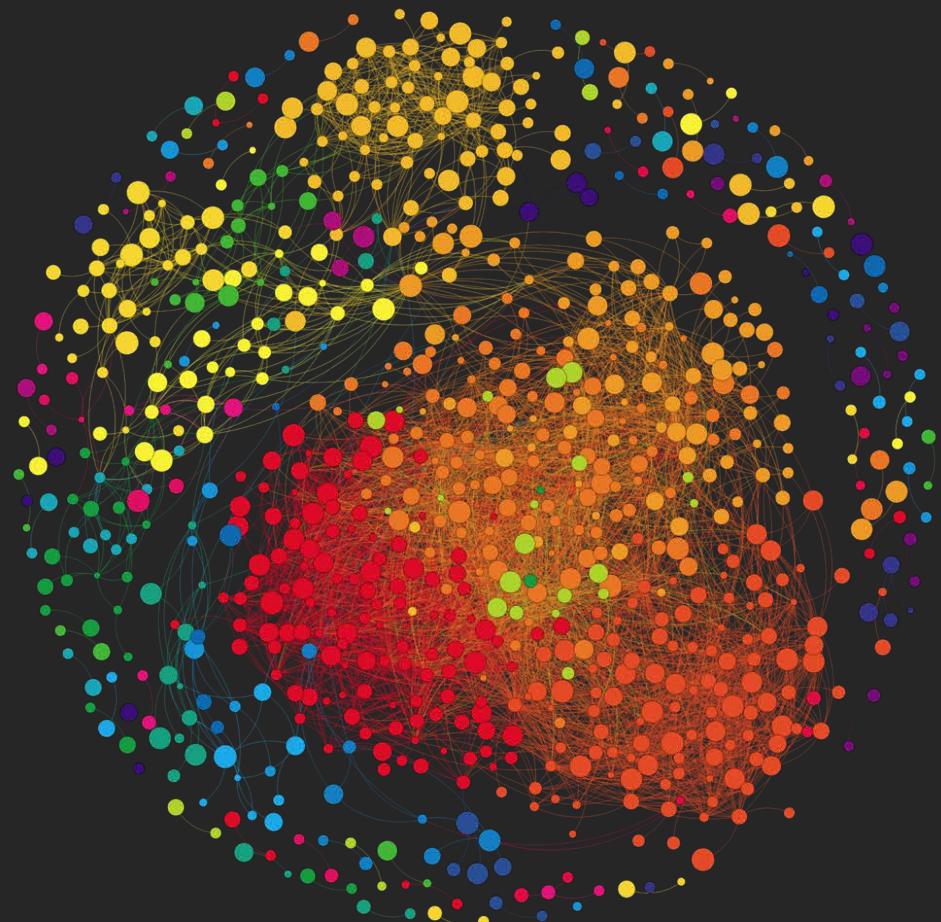
The Global Learning Landscape embraces two classical approaches to data, analytics and design. 'Bottom Up' analysis powered by our Global Intelligence Platform leveraging powerful machine learning and artificial intelligence, augmenting 'Top Down' analysis driven by HolonIQ's Education Intelligence Unit and our global network of experts.

BOTTOM UP – MACHINE LEARNING

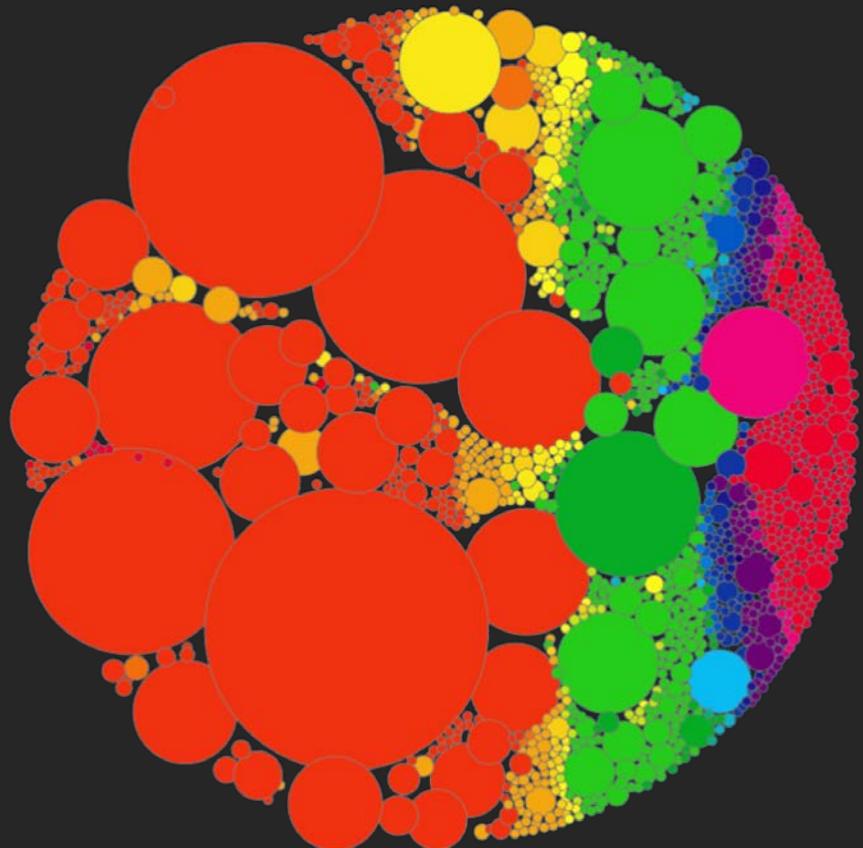
In order to support the development of the taxonomy, we initially undertook 'bottom-up' analysis using HolonIQ's proprietary machine learning and artificial intelligence to analyze 60,000+ education organizations worldwide.

The analysis identified natural patterns in the data using uses 'Unsupervised Learning' to explore new approaches to clustering and segmentation that are not anchored or biased by the more established and traditional taxonomies of education.

The visualisation on the right-hand side of the page for example is exploring the network of organizations in a single country. Organizations that are similar in how they support learners, parents, schools and institutions are clustered together based on the segments they service and the models and technologies they employ.



Vizualising clusters of innovation in education innovation and technology using HolonIQ's Intelligence Platform.



Vizualising the concentration of education innovation and technology clusters using HolonIQ's Intelligence Platform.

TOP DOWN - HUMAN EXPERTISE

HolonIQ's Education Intelligence Unit and our global network of experts from early childhood to lifelong learning bring deep expertise to our 'top-down' methodology.

The top-down approach draws on the data-driven foundations of the bottom-up analysis to interpret patterns that the machine learning and artificial intelligence process produced. Drawing on uniquely 'human' abilities, the process considers elements such as context, history, purpose, business model, technologies and ecosystem relationships.

A top-down process adds depth and interpretive understanding to the final framework, also enabling validation of findings against the models and innovations found in education today or expected in the future.

2021 Global Learning Landscape

An open source taxonomy for the future of education. Mapping the learning and talent innovation landscape.

Knowledge & Content	Education Management	Traditional Models	New Delivery Models	Experiencing Learning	International Education	Learning Support	Assessment & Verification	Workforce & Talent	Skills & Jobs	Ecosystem
K 1 Knowledge B2B, B2C	Em 6 Management B2B	Pk 11 Pre-K B2C	Mo 16 MOOC B2C, B2B2C	X 21 XR, AR, VR B2C, B2B2C	L 26 Language Lrn B2C	Tr 31 Teacher P2P, B2C	A 36 Assessment B2B, B2B2C	Wp 41 Workforce B2B	Us 46 Upskilling B2C, P2P	Gg 51 Global Clients B2B, B2C
Or 2 Craft Research P2P, B2C	Le 7 Learning Env B2B	S 12 School B2C	Pr 17 Prop Online B2C, B2B2C	Ro 22 Robotics B2C, B2B2C	Lt 27 Language Test B2C	Sn 32 Study Notes B2C, P2P	Po 37 Portfolio B2C, B2B2P	T 42 Talent Acq B2B	It 47 Internships B2C, B2B2C	I 52 Initiatives B2B
Cu 3 Gamification B2B	Ct 8 Close Tech B2B	V 13 Vocational B2C	Op 18 OPM B2B	Ai 23 Voice & Chor B2C, B2B2C	Di 28 Discovery B2B2C, B2C	As 33 After School B2C, P2P	C 38 Credentialing B2B2C, B2C	Cd 43 Development B2B2C	At 48 Apprenticeship B2C, B2B2C	Ac 53 Acceleration B2B
Er 4 Ed Resources B2B, B2C	Ad 9 Admissions B2B	Al 14 Alternative B2C	Bc 19 Bootcamp 2.0 B2C, B2B2C	Ga 24 Games & Sim B2C, B2B2C	Is 29 Int Schools B2C	Tu 34 Tutoring P2P, B2C	Cp 39 Career B2C, B2B	Pm 44 Performance B2B	Gi 49 Gigs P2P, B2B2C	Ev 54 Events B2C, B2B
Qa 5 QA B2B	Fi 10 Finance B2C	U 15 University B2C	Ap 20 Apps B2C, P2P	St 25 STEM / Coding B2C, B2B2C	In 30 Int'l Study B2C, E2B2C	Tp 35 Test Prep B2C	Sv 40 Verification B2B2C, B2C	Wi 45 Wellness B2B, B2B2C	Mn 50 Mentoring P2P	Aw 55 Awards B2B, B2C

Knowledge & Content

Knowledge Discovery

Advancements in artificial intelligence technology are driving an increasingly sophisticated approach to unlocking knowledge from enormous volumes of text-based data to uncover new patterns, connections and ideas.

Powerful search capability and automated, intelligent systems can connect knowledge from multiple language formats.

Knowledge is increasing found in video, audio and other new digital formats. Deep tech start-ups are mining this data, connecting it with other points such as geo- and bio- information to identify new knowledge.

Illustrative examples of organizations in this Cluster



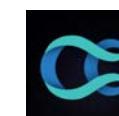
Benchling



BenchSci



Bloomfire



Curiosity



Data Grand



EagerPanda



EdGate



Everipedia



Golden



Intrepid Learning



Iris.ai



Knowledge Officer



Knowledge To Practice



Mendeley



Meta Science



Morressier



PeerJ



PLOS



Primer



Sparrho



Uman.ai



UNSILO



Volley Labs



WizeNoze



Yewno

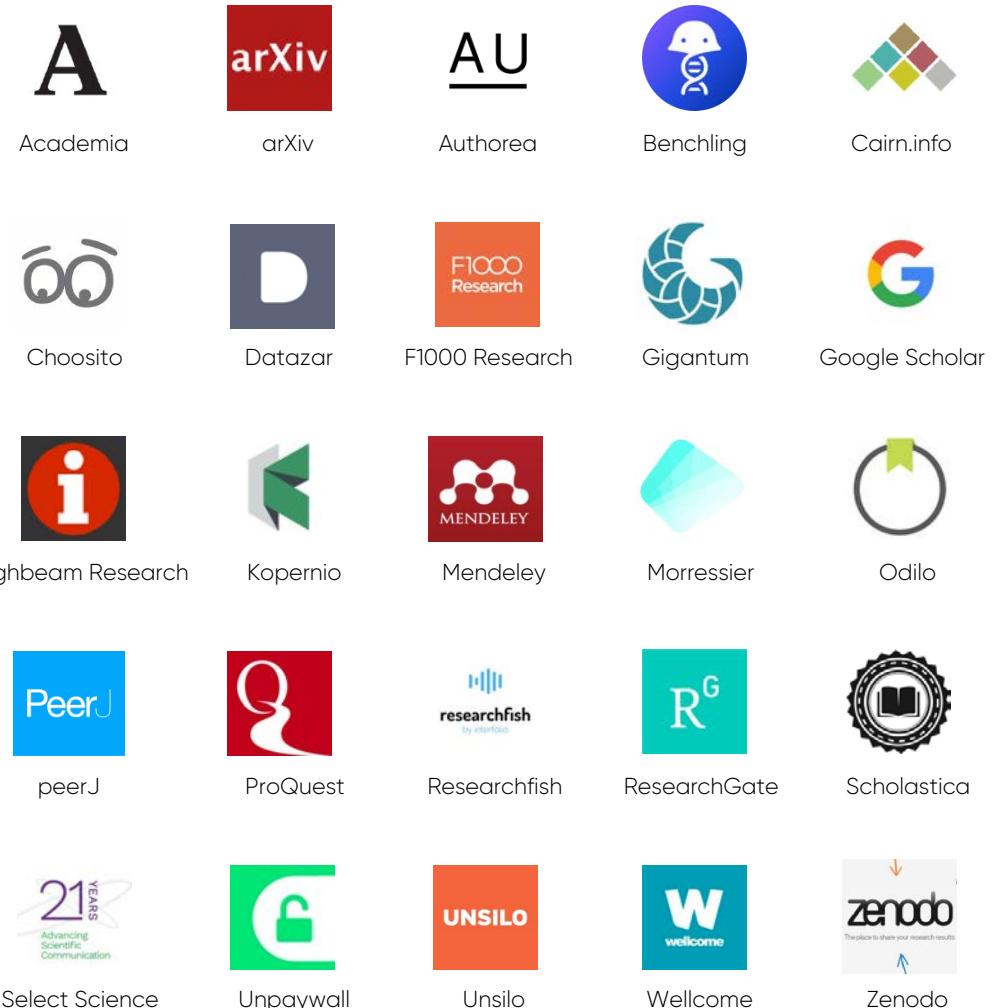
Open Research

The open knowledge movement is in full swing with institutions, academics and governments questioning the proprietary academic publishing model that profits from publicly funded research, when costs of distribution are now close to zero.

Under pressure from all sides including mass boycotts, academic publishing giants are increasingly providing free and open access to parts of their open access journals.

Tools for finding, collating, tagging and organising research are in this cluster, along with platforms that support collaborating, sharing and publishing of research and new knowledge. By making existing scientific, statistical and computational data and research available broadly for use, these platforms are drawing on the power of a global community of researchers, practitioners and enthusiasts.

Illustrative examples of organizations in this Cluster



Curriculum

Startups are collaborating with educators to design new types of curriculum in specialist areas such as language learning, science or coding.

Offered in conjunction with proprietary content or curated from open educational resources, bespoke learning content is being mapped to the requirements of industries, companies or professional bodies and increasingly built for personalised pathways aligned to set curriculum.

Adaptive learning platforms are increasingly adding resources and content to their offerings and morphing into 'learning design' solutions with full curriculum designed in conjunction with or on behalf of educational providers and content houses.

Curriculum authoring tools, design platforms and learning analytics solutions are also part of this cluster.

Illustrative examples of organizations in this Cluster



Age of Learning

Amplify.

Annoto

Calvert Learning

Coursedog



Curriculum Trak



Curriki

Amplify

Annoto

Calvert Learning

Coursedog



EdGate



Calvert Learning

Coursedog



Coursedog



Education.com



Glynlyon



Huijiang



Kiddom



Kognity



LEAD School



LearnZillion



Leapest



Magpie Education



Magpie Education



MAWI Learning



Minerva Project



OpenCurriculum



Positivo



XSEED Education

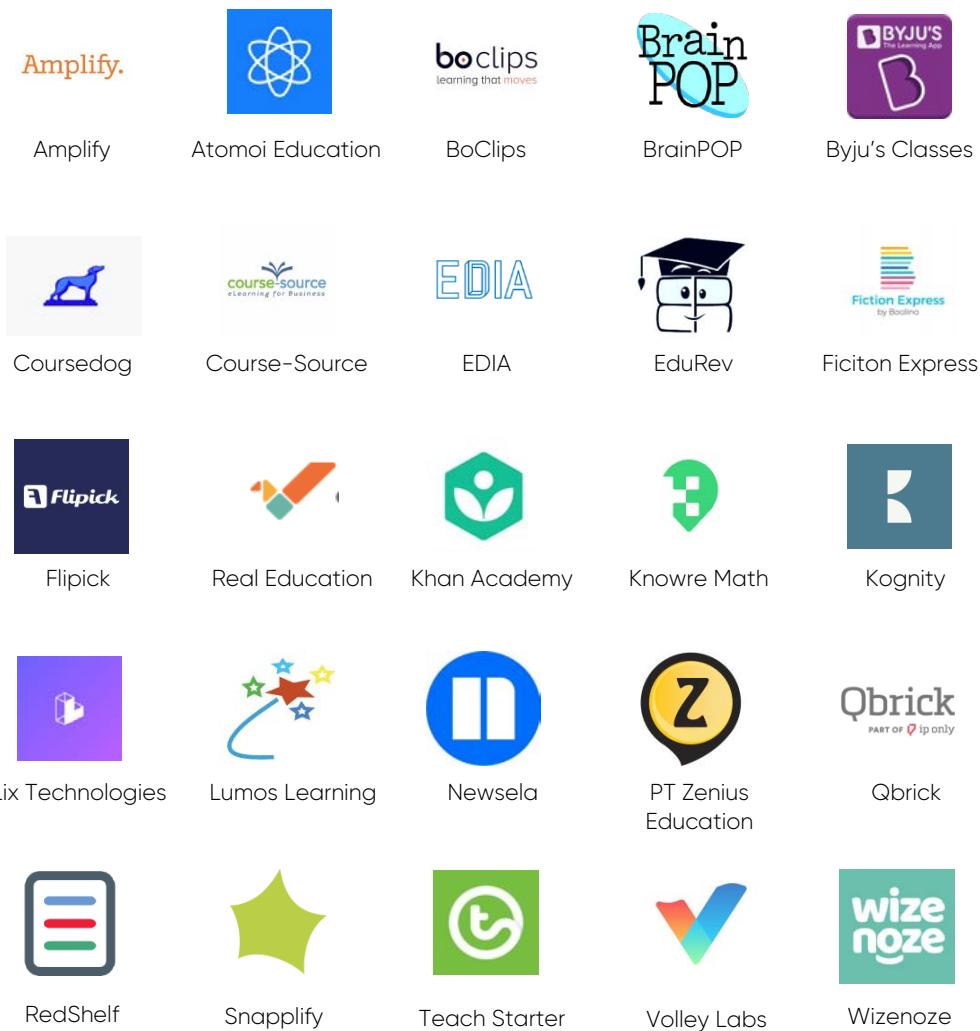
Educational Resources

This cluster includes solutions for sourcing, storing, tagging and using educational resources to provide teachers with a 'portfolio' of resources for use in their curriculum. Resources are increasingly digital and able to be tailored by teachers, allowing for contextualised solutions.

Peer to peer content sharing platforms for teachers have taken off with hundreds of thousands of teachers sharing (and selling) their tried and tested lesson plans, worksheet and activities.

Aggregation platforms for open education resources provide a place for educators, or anyone, to construct their own courses. Textbook and learning resources marketplace solutions, literacy and numeracy platforms and apps, gamified learning content and online marketplaces for compliance and skills training are all part of this broad cluster.

Illustrative examples of organizations in this Cluster



Q&A Platforms

The peer-to-peer knowledge exchange phenomenon is moving into learning and education, with platforms supporting educational Q&A structured by traditional content topics such as maths, science and history.

Platforms offer membership options for advanced content, peer voting and scoring of content for contributors to manage quality. Other platforms act as matching solutions for those who seek answers with those who are experts in the field, or with the online community to support a 'crowd sourced' solution, offering answers in real-time.

Peer to peer knowledge solutions in education will continue to challenge the notion of 'trusted expert' which has traditionally been vested in institutional contexts.

Illustrative examples of organizations in this Cluster



Answers



Ask.fm



Bolo



Brainly



Brilliant



Dialoog



EagerPanda



eNotes



Experts Exchange



FragRobin AG



MentHub



MicroEduca



Narrator



Packback



Piazza



Prepathon



Pulse



Quora



Stack Exchange



Stack Overflow



Unanimous AI



Wonder



Zapiens



Zhihu



Zueyebang

Education Management

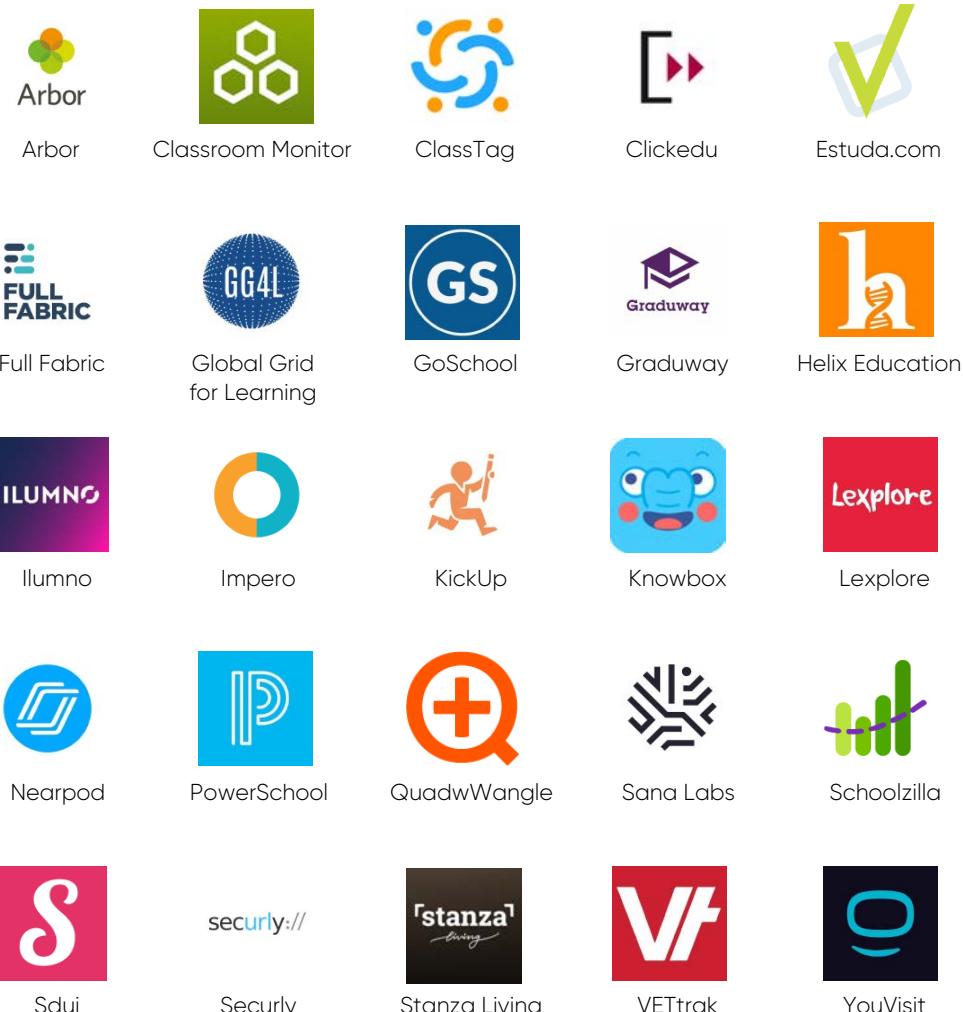
Education Management

Education management tools and platforms provide a unified data solution across the student journey. Learner and learning data are visible to teachers, parents, students and administrators to assist in decision-making and tracking progress.

Using AI technology, some solutions in this category provide personalized and predictive recommendations, while others solve the communication challenge across many stakeholders by automating workflow, alerts and providing dashboard-like data visualisation.

Supporting institutions in administrative workflow and efficiency, solutions in this cluster range from student behaviour management, financial aid management, teacher hiring, timetabling, identity management and parent communications.

Illustrative examples of organizations in this Cluster



Learning Environments

Digital learning environments in educational institutions are still dominated by traditional LMS/VLE platforms designed to administer content, activities and assessment related to learning.

Incumbent systems are challenged by old architecture, however interoperability standards, cloud computing, a greater focus on user experience and integration of intuitive communication and social solutions will keep competition in this market.

Newer solutions focus on the whole learner experience and a 'one stop shop' for teachers, schools and whole education systems.

Global technology giants are developing partnerships and learning environment solutions that leverage broader integrations with their product set.

Illustrative examples of organizations in this Cluster



Absorb LMS



Blackboard



BrightBytes



Classter



CogBooks



Desire2Learn



Docebo



DreamShaper



EdCast



Edmodo



EX-IQ



Feedback Fruits



FireFly



Google Classroom



Instructure



Its learning



KoolSkools



Moodle



Nearpod



Prezentt



Quintal



Schoology



Studytube



Totara



Yunxuetang

Classroom Technology

The lines are now blurred between physical and digital classrooms. At campuses around the world, technology in the classroom has come off the walls and into the hands of students, allowing the integration of digital resources, activities, games and assessment with the lessons that are happening in the physical world.

Digital capture of physical learning enables students to revise and engage with their own class, or to interact with others in live, synchronous online class spaces.

Smart classrooms and smart furniture, screen casting and recording, interactive whiteboards, 3D printers, classroom robotics are included in this cluster.

Illustrative examples of organizations in this Cluster



Adaptemy



A-HA! Innovations



Ambi



Aver



beekast



Boxlight



Buka TV



ClassIn



echo360



Explain Everything



FrontRow



iMod Structures



Interlock Concepts



Kami



Kofschip Groep



Mimir



Nearpod



Panopto



securlly://



Smart Technologies



Study Bee



Top Hat



Trinity 3 Technology



UbiCast



Vivi

Admissions

Admissions platforms solve problems for students, parents and institutions by digitising search, matching, verification and admissions processes and by providing step-by-step workflow management.

Solutions are now broadening out into consumer sales and marketing strategies and solving student retention issues through personalised communication approaches.

Drawing on the 'power of the crowd' some solutions in this category are using a peer to peer advisory model using students and recent graduates to provide mentorship and admissions advice.

Illustrative examples of organizations in this Cluster



Admission Table



AdmitHub



AdmitKard



AdmitSee



Aventus Education



Cialfo



CollegeDekho



EAB



Enrolly



GradTrain



Ivy Coach



Kira Talent



Leverage Edu



Lumerit Education



MyOptions



Naviance



QS Enrolment Solutions



RaiseMe



Study Group



Ubergrad



Unibuddy



University



Vibeffect



ZeeMee

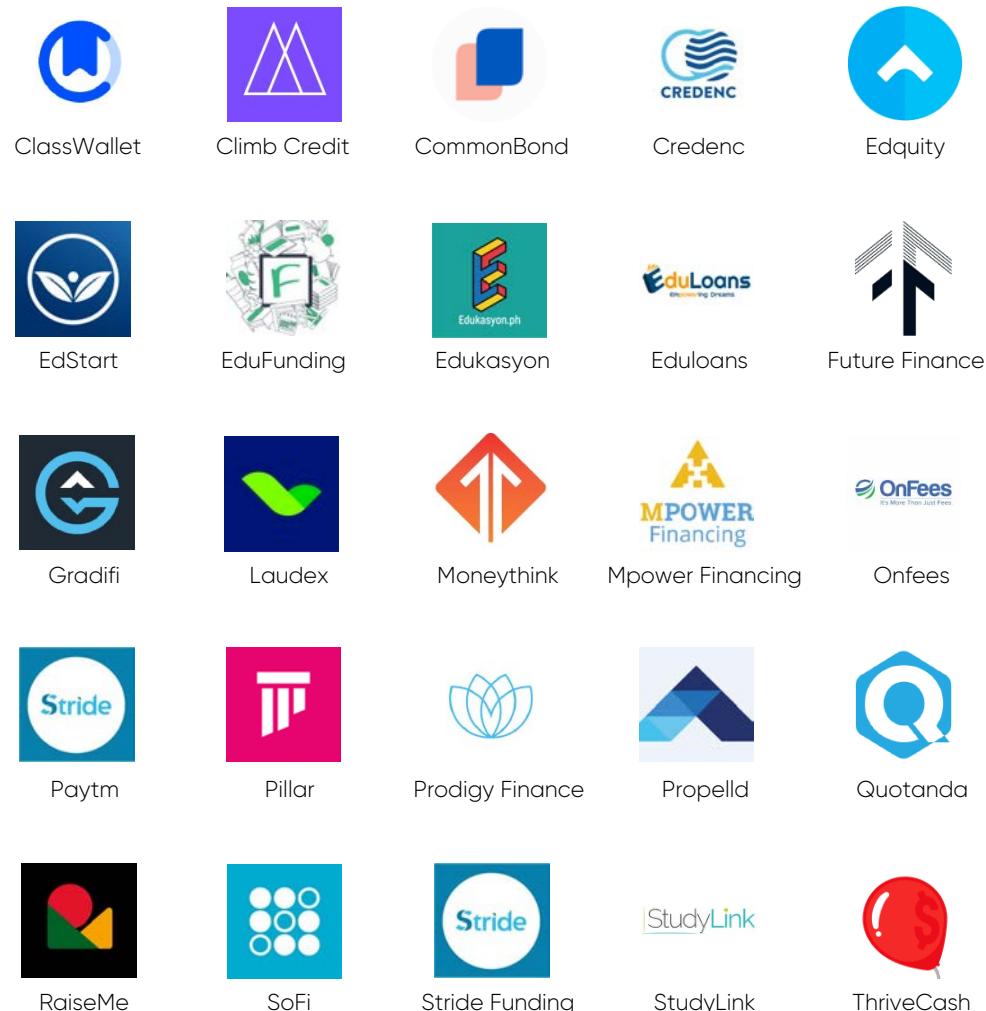
Finance

Following trends in other industries, new tech-enabled solutions for financing education have gained traction over the past few years. Solutions offering 'earn now, pay later' models, micro-lending and re-financing options for learners provide easy to use, membership-based solutions that are challenging traditional lenders.

Financing options for private school fees that allow repayment after graduation ease the strain on parents. Scholarship search and matching solutions enable students to discover and navigate complex scholarship processes and enable schools to fulfil their scholarship commitments.

New payment processing solutions help colleges process payments from international students and challenge traditional providers in this space.

Illustrative examples of organizations in this Cluster



Traditional Models

Pre-K

The Pre-K cluster incorporates organised learning, typically offered in pre-school environments ranging from traditional models, to exploratory learning and immersive settings.

Tech innovations in before school learning apps and games, tech-enabled toys and robotics are undergoing a surge of interest and innovation as research on the brain of 0-6 year old's reveals an exponential return on educational investment in those early years.

As governments around the world regulate for mandatory formal education prior to school, new models such as 'micro-pre-schools' are emerging. Babysitting and nanny platforms, early learning apps, educational games, audio and interactive storybooks are also included in this cluster.

Illustrative examples of organizations in this Cluster



Age of Learning



Babysparks



BabyTree



Cadence Education



CozyKin



EduKids



epic!



EuroKids International



G8 Education



Green Cheng



Gym Angel



hatch



HOMER



Huandong360



Kangarootime



Kiddie Country



Land of Oz



Little Vista



Novel Effect



Oi Playschool



SayKid



Sphero



Studycat



Winnie



Wonderschool

School

Typically organised along national curriculums and embedded into the social fabric of communities, schools offer standardised curriculum for children aged between five and eighteen years.

While there are vast differences in participation and learning approaches in schools worldwide, there is a global trend towards private schools across both developed and developing countries.

As nations, economies and communities become increasingly engaged in a global world, there is a growing network of global schools, which maintain diversity and internationalization at their core.

Illustrative examples of organizations in this Cluster



Al Enaya Schools



ALGhad Schools Company



Allendale Columbia School



Bahema Educação S.A.



Benson Church of England Primary School



Colegio Joyfe



Engage Independent School



GEMS Education



Hailiang Education



Heathside Preparatory School



Invictus International School



KinderWorld



Kingdom Schools



KIPP Foundation



Los Alamos Public Schools



Maarif for Education & Training



Maple Bear Global Schools



Nobel Learning Communities



Nova Pioneer



Pueri Domus



Punahou School



Rocketship Schools



St. Michael School



Tbilisi Green School



The King School Linbro Park

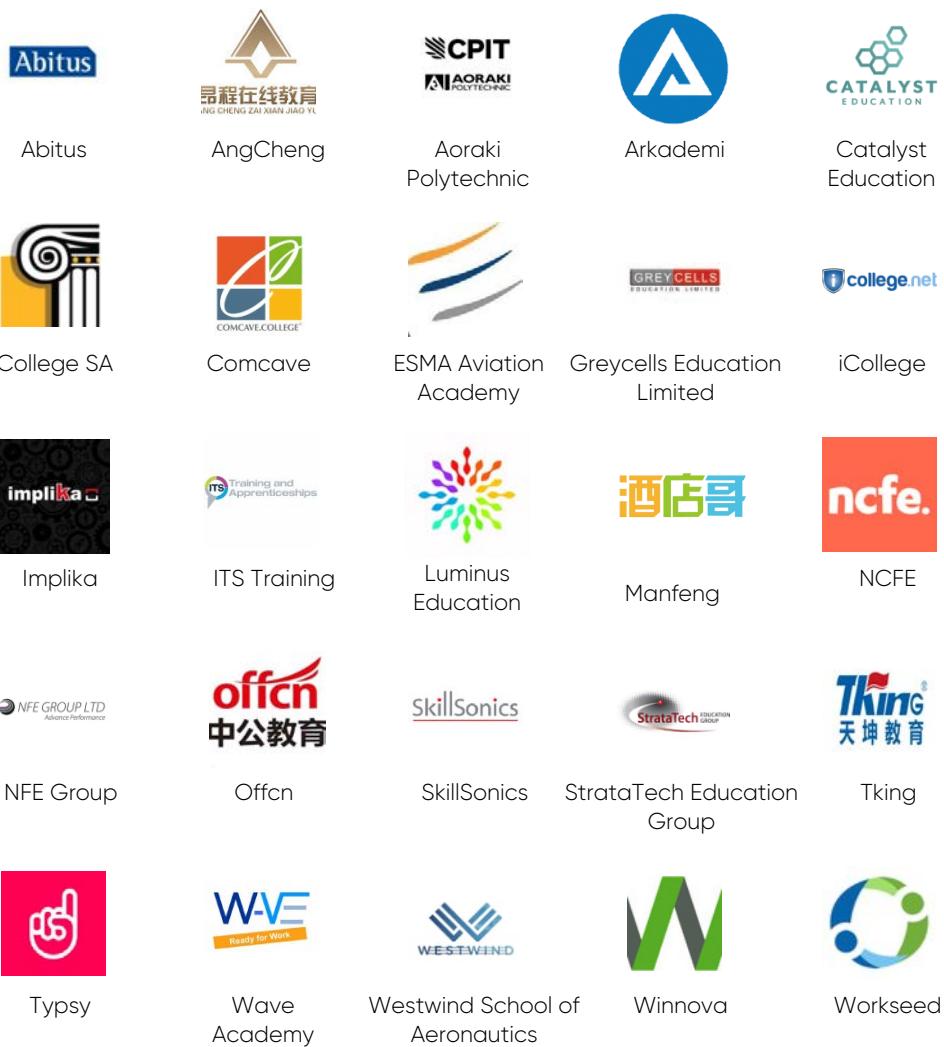
Vocational

Vocational training is usually incorporated into national education systems and deals with technical training required of physical professions, with historical roots in craftsmanship. Traditionally, those who undertook vocational training went through an apprenticeship learning model.

Vocational training institutions have not seized the opportunity to 'own' the new technical professional space of computing and coding but have been languishing in the shadow of their more elite university peers over the past twenty years.

However, there is emerging worldwide recognition of the importance of technical and vocational training to deliver future human capital as the 'engine room' of healthy economies.

Illustrative examples of organizations in this Cluster



Alternate

Alternate education providers, ranging from K-12 through to ongoing professional training have always been considered 'outliers' and 'edge cases' to the formal education system, with a negligible percentage of learners engaging in alternative forms of education.

However, in search of better outcomes and frustrated with national systems, alternative providers are gaining traction and we now see alternative university models for example, which are focussing on specific skills and outcomes such as critical thinking, ethical decision making and leadership.

Illustrative examples of organizations in this Cluster



African Leadership Academy



AltSchool



App Academy



AttainU



Briteschool



EdisonLearning



European Leadership University



Fernfachhochschule Schweiz



Foundry College



Galvanize



GEC Academy



Jolt.us



K12



Kenzie Academy



Lambda



MakeSchool



Minerva Project



NewCampus



Nxford University



Outschool



Skillbox



Sunstone
Eduversity



Tongxing
School



UNICAF



Verto Education

University

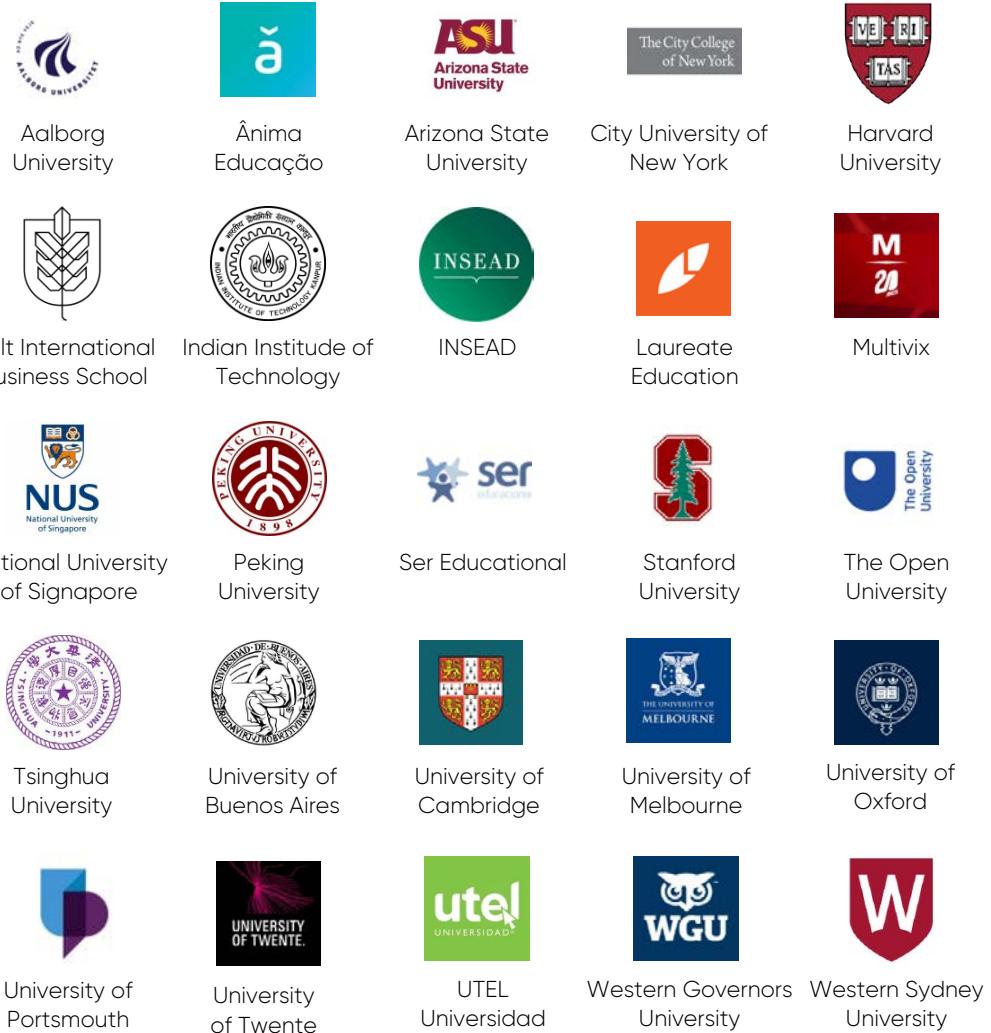
Once the sanctuary of the elites, over the past thirty years, universities have morphed into servicing the mass market. In the context of diminished public resources and market demands, universities have incorporated technology into most parts of their educational delivery.

Many traditional universities offer fully online courses and represent a significant customer segment for EdTech firms and technology companies alike.

There are many university 'segments' from Ivy League, to open and distance learning to those who's remit is in particular disciplines such as engineering or technology.

Some 'mega' universities are emerging off the back of massive global online enrolments and others are joining forces to create alliances, share resources and students.

Illustrative examples of organizations in this Cluster



New Models

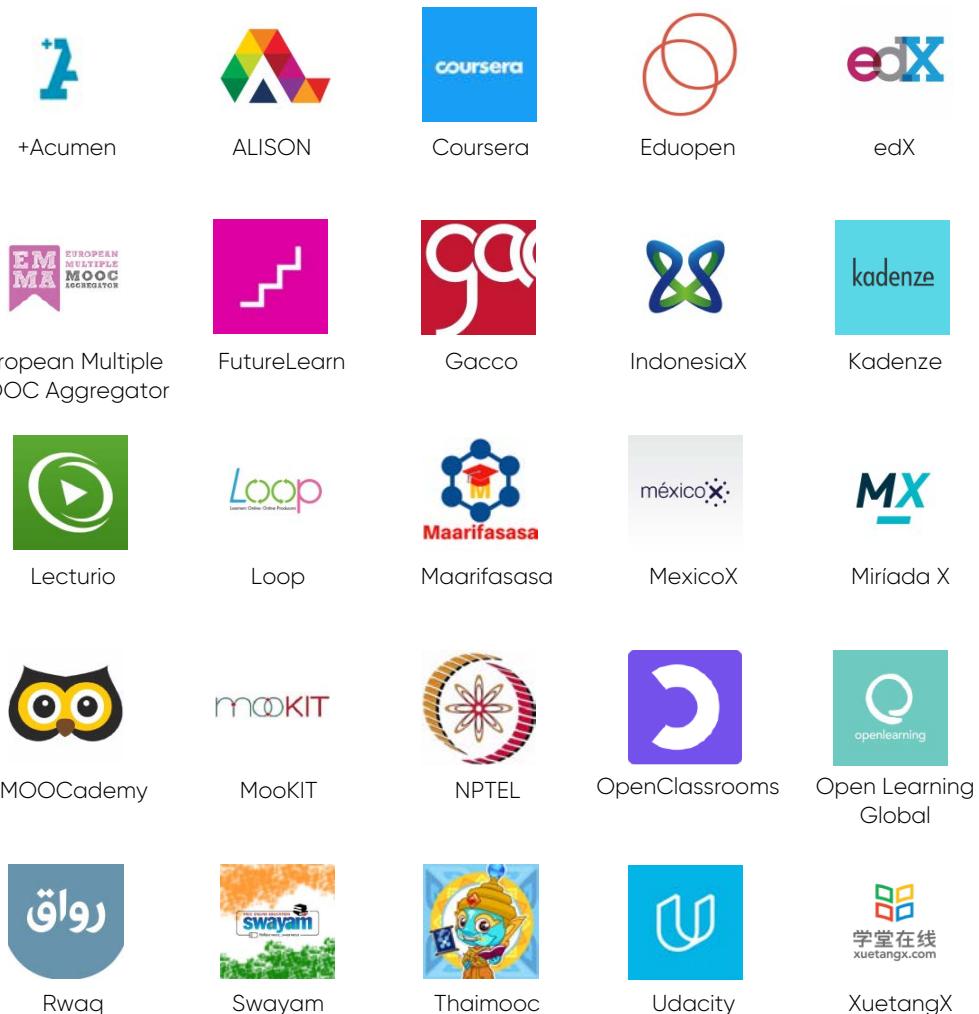
MOOCs

Massive Open Online Courses have evolved significantly since the early days of their free, open B2C beginnings.

In addition to the giants, which provide learning solutions to hundreds of millions of people worldwide, many universities and entire countries have now launched their own MOOCs or partnered with large MOOC providers to offer their students/workforce with flexible options for ongoing learning.

MOOC providers have modified their business models to include paid components for testing and credentials, formed alliances with universities around delivery and recognition of learning and have become a 'training' provider to corporates for upskilling their workforces. MOOC providers have also commenced delivering full degree programs with partnering institutions, thereby edging into the OPM market.

Illustrative examples of organizations in this Cluster



Proprietary Online

Online learning is now an accepted form of education and ongoing learning. Online education providers with proprietary content and activities range from those offering short courses for professionals seeking to update their skills, to online courses for children to supplement formal school education.

Learning experiences range from individual, self-paced learning through to live synchronous classes with academic or industry teachers.

Many proprietary online providers operate B2C, though we are seeing more B2B models where online providers are partnering with institutions, corporates or schools.

Illustrative examples of organizations in this Cluster



Byju's Classes



Chegg



Colibri Group



Eduonix



Edureka



Eneza Education



Foundry College



Khan Academy



LaiOffer



MasterClass



MOTIF



Of Course Learning



OpenClassrooms



OpenSesame



Platzl



Pluralsight



Podia



Shaw Academy



Skillshare



Tareasplus



Teachlr



Thinkific



Udacity



Udemy



Z-kai

OPMs

OPM's (Online Program Management) effectively act as the outsource provider of online learning for schools and universities who do not have the capability or infrastructure to go it alone, or who see an OPM arrangement as a better strategic option.

OPM's market, design and run online education programs on behalf of institutions with commercial arrangements ranging from profit share through to fee for service.

To remain competitive, keep their current students engaged and as a source of additional revenue, schools are increasingly using OPM's as a low risk way to enter the online market.

Illustrative examples of organizations in this Cluster



2U



Academic
Partnerships



Adtalem



All Campus



Capabilia



CEG Digital



ChinaEdu
弘成教育



Coursera



edX



Elsmere Education



Everspring



FutureLearn



Guild Education



HarukaEdu



HotChalk



iDesign



Keypath



Noodle



OES



Orbis Education



Shorelight



The Learning House



Udacity



UNICAF



UpGrad

Bootcamp 2.0

Originally designed to fill the skills gaps for coding and other new digital skills, bootcamps are short, full-time programs, typically 9 to 12 weeks in length aimed to get learners 'job ready' in new professions.

Over the past five years bootcamps have evolved into partnership and B2B operations which sees traditional providers such as universities and schools partnering with bootcamps to provide a much needed skills 'shot in the arm' in topics that traditional providers cannot cover.

Bootcamps are strengthening their focus on employability and moving into the corporate arena by partnering with large companies and industry bodies to provide upskilling for workforces.

Illustrative examples of organizations in this Cluster



42 Silicon Valley



Academy Xi



Andela



App Academy



Codecool



Coder Academy



Coding Ninjas

Digital House
Coding School

Flatiron School



Fullstack Academy



Galvanize



Gama Academy



General Assembly



Ironhack School



Kenzie Academy



Lambda



Le Wagon



Lighthouse Labs



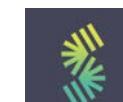
Make School



React GraphQL Academy



Red Academy



Springboard



Thinkful



Trybe



Turn into Coders

Apps

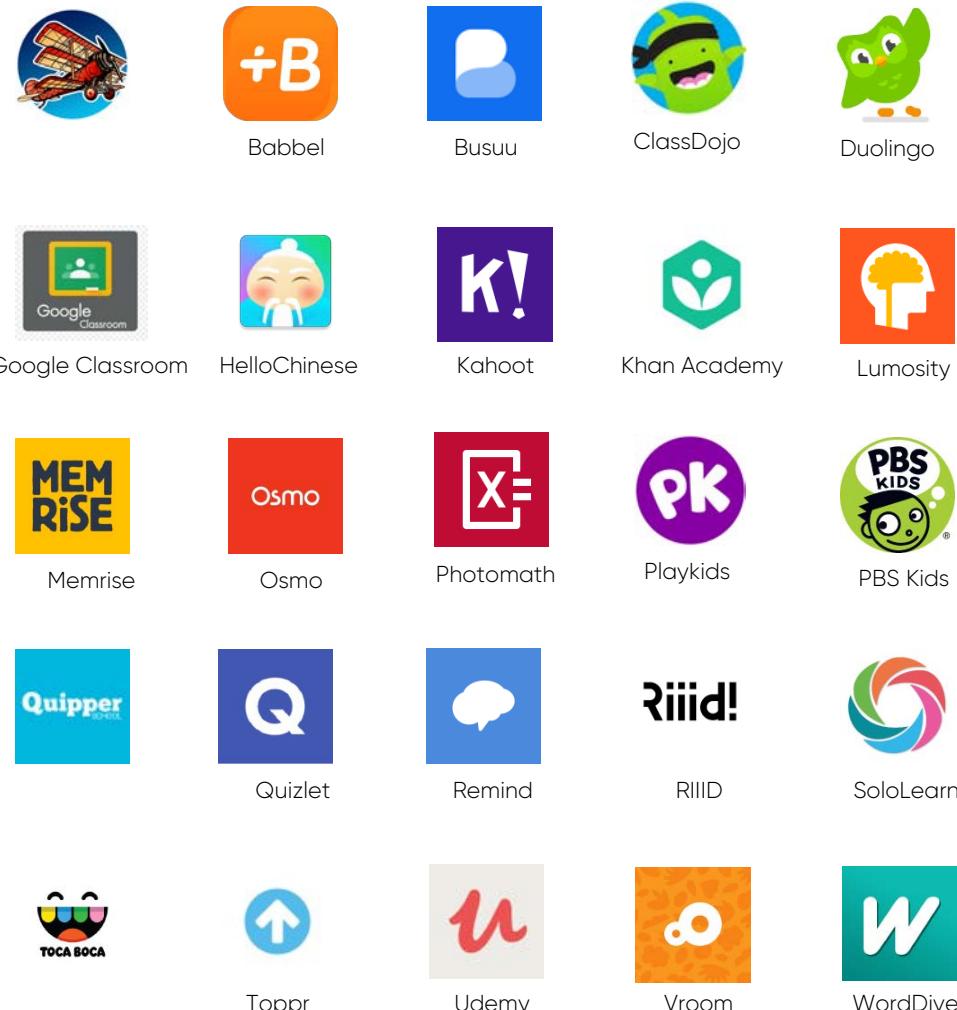
More people in the world now access the internet via smartphone than any other device and the 'app' is the primary mechanism for access to information and services.

There are over half a million education apps, which are in the top three most popular apps categories.

Not surprisingly, we see a vast number of education apps for children in key learning areas such as maths and language learning.

The reach and user acceptance of app technology also means that more traditional education providers, both online and offline, are increasingly using app technology to communicate and engage learners.

Illustrative examples of organizations in this Cluster



Experiencing Learning

XR

Extended Reality refers to virtual reality (VR), augmented reality (AR), and mixed reality (MR). XR has the potential to solve key learning challenges such as engagement, but also offers the opportunity for lower cost training in high stakes situations such as medical, defence and aerospace.

XR startups focusing on education range from mobile solutions that allow multi-use in schools, the redefinition of experiential learning, to alternative models for vocational training in physical trades and lab learning.

As the costs of immersive technologies reduce and technologies become more user-friendly, schools are more able and willing to invest in alternative, virtual experiences for their students.

Corporates are also increasingly investing in XR for workforce training in industries such as retail and industrial production.

Illustrative examples of organizations in this Cluster



BeingVR



Blippar



CareerBuilder



cerevrum



CODON VR



Discovr Labs



Embodye Labs



Explore Learning



FundamentalVR



Health Scholars



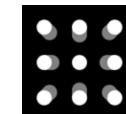
Labster



Lifeliqe



Manzalab



MEL Science



Mursion



Osmo



Osso VR



Play Shifu



realwear



SkillReal by Compedia



STRIVR Labs



SuperManual



Unimersiv



Upskill



YouVisit

Robotics

A modern renaissance of engineering, electronics and programming is being manifested in the revival of robotics.

Combining creativity in software and hardware, robotics startups are helping kids to find their inner inventor through 'make your own' kits, combined with online communities of enthusiasts and teachers, global competitions and the use of everyday household materials.

Already a significant B2C market, robotics startups are also working with schools and school systems to allow integration of hands-on robotics learning into the curriculum.

Illustrative examples of organizations in this Cluster



Arduino



Barobo



Cherpa



CoderZ



Furhat Robotics



Hummingbird



LittleBits



LocoRobo



mobsya



Osmo



Ozobot



Photon



Piper



Roboterra



Robotix Edu



RobotLAB



ROYBI



Shape Robot



SoftBank Robotics



Sphero



Tinkerbots



Turing Robot



UBTECH



Wonder Workshop



QtPi

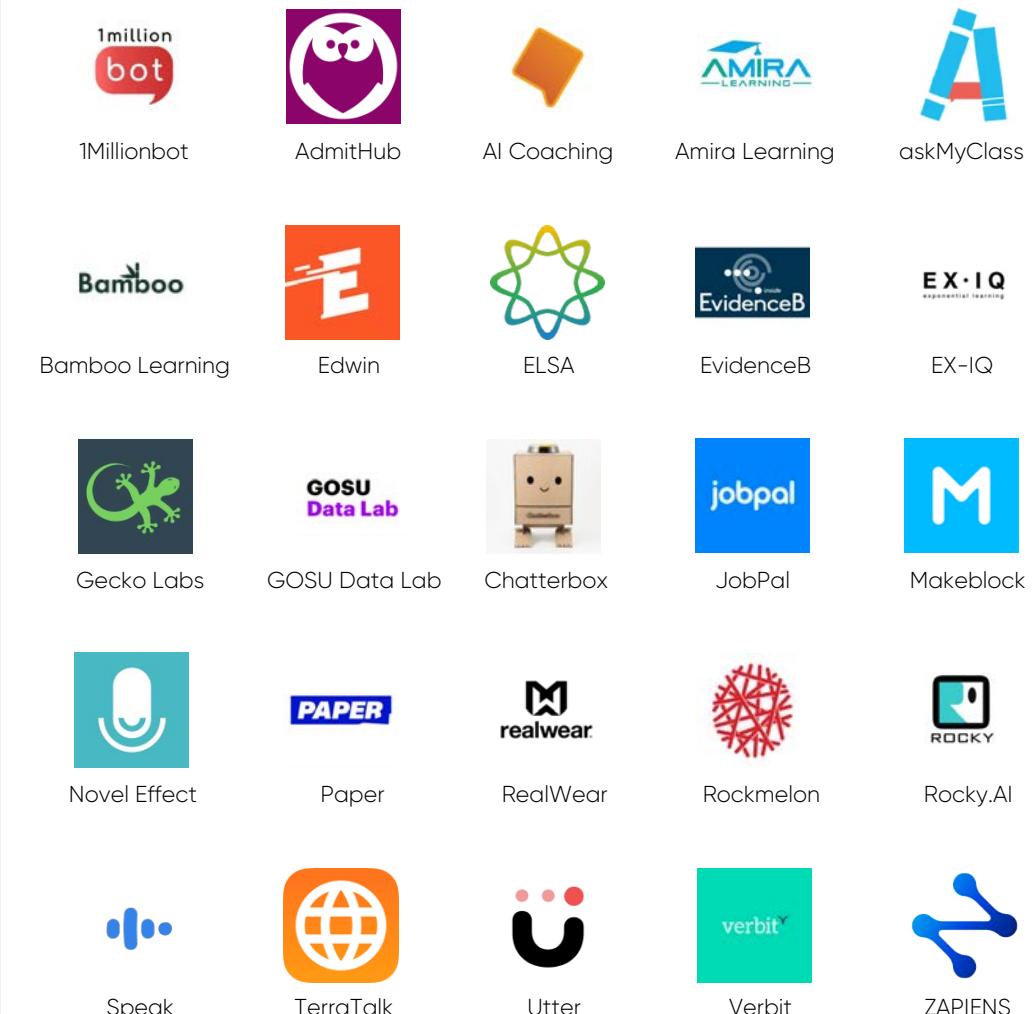
Voice and Chat

The development of artificial intelligence, voice recognition, GPS and micro-processing technology now supports innovations in both the administration of education as well as learning processes.

Chat bots are widely used to assist student choice for providers and courses, while voice enabled hardware is being installed in college dorm rooms to provide personalized information and in classrooms as teaching assistants.

Voice-based analytics, literacy and language learning are growing as voice recognition technology advances. Wearables that prompt learning for students of all ages, or deliver guidance in field services, manufacturing and other physical occupations are becoming more prevalent as real-time learning integrates with productivity solutions.

Illustrative examples of organizations in this Cluster



Games & Simulation

Games have long been a core instructional strategy in the Pre-K space and game-based learning apps still dominate this space.

Elements of gamification have also been making their way into higher educational levels and corporate training over the past few years and more recently, serious game design elements are being used in professional online training.

Virtual and mixed reality simulations, once limited to high cost operations such as flight simulators, are now becoming mainstream and we see many applications in medical, engineering and other physical procedures but also increasingly common in 'regular' curriculum as the benefits of authentic activities are more appreciated.

Illustrative examples of organizations in this Cluster



BrainCeek



Classcraft



Encantos



Explore Learning



FaceBoard



FundamentalVR



Jules



Kahoot!



Labster



littleBits



Luqo



Manzalab



Mimo



Piper



Play Shifu



Prodigy Game



Qtipi



Quitch



Quizlet



Simcoach Games



Simformer



Solar Games



Square Panda



Toca Boca



Transfr

STEAM & Coding

STEAM and coding have become one of the largest domains of innovation activity over the past few years across all sectors and age groups.

Offline solutions focus on boot camp-style offerings for kids and adults alike, especially for upskilling in the area of coding. Equally abundant and online and app solutions for learning to code, which often include an online community, peer instruction and competitions or global 'jams'.

A new wave of STEM products such as robotics and science kits are integrating software and hardware, and the maker-movement.

Arts education, broadly defined, is also seeing a renaissance, with tech-enhanced creative and design skills, online music and art education.

Illustrative examples of organizations in this Cluster



10Monkeys



Barobo



Code.org



Codemao



CueMath



Databot

Digital House
Coding School

Huohua Siwei



Kano



Kide Science



Knowre Math



Kuaipelian



Labster



Mathpresso



Mastree



Meishubao



Piper

Pi-Top



Sam Labs



Science Bits



Sparx



Thinkful



Thinkster Math



Treehouse



Tynker

Language Learning

While the use of technology to learn a language is not new, over the past few years we have seen significant investment and innovation in technology-led language learning models.

Live synchronous small group learning that makes use of advanced video and audio technologies connecting language learners with teachers anywhere in the world has powered the Chinese afterschool tutoring market. App driven language learning for kids and adults has made language learning, particularly English, one of the top app categories on all platforms.

The use of artificial intelligence is well and truly embedded language learning solutions, from adaptive processes to voice recognition for pronunciation.

Illustrative examples of organizations in this Cluster



ABA English



Babbel



Busuu



Cambly



Chatloop



Duolingo



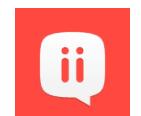
Edwin



ELSA



English Attack



italki HK



LearnCube



LeeRit



Lingvist



Memrise



New Oriental



Reactored



Rosetta Stone



Skyeng



SpeakingPal



Squiline



VIPKid



Voxify



WordDive



Xeropan



Yoli

Language Testing

Morphing from pencil and paper to technology-based language testing has been happening for many years. However, efficiently scaling the speaking and listening components have proved challenging.

Recent developments in synchronous video/audio technology along with bio-credentialing and live monitoring have opened up new possibilities for secure and verified testing solutions at scale.

Application of artificial intelligence allows for a unique assessment path for each test-taker, and moving beyond language basics to assessment of skills and capabilities for courses or scholarships.

Data from millions of language learners and billions of learning interactions paves the way for the disruption of incumbent language tests and testing procedures.

Illustrative examples of organizations in this Cluster



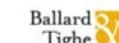
Alpaca Education



ALTA



Avant Assessment



Ballard & Tighe



btl



Cambridge Assessment English



Carnegie Speech



Duolingo



Education Testing Service



EduSynch



Edwin



ETS



Extempore



Giasu



i-Course



IDP Education



IELTS



Koolearn



LangCorr



Language Testing International



Miracle Mandarin



Paragon Testing



Perpetual Technology Group



Pipplet



Step

Discovery

Parents and students are turning to technology to help them find the best match for their study goals and preferences.

Matching and 'concierge' platforms that use artificial intelligence to connect learners with institutions and help them through to admissions are becoming more common as the competition for top talent starts earlier than ever.

Other approaches see platforms built out of networks of college advisors to guide and answer questions from initial contact through to course choices and admissions.

Illustrative examples of organizations in this Cluster



Admission Table



AdmitKard



BookYourStudy



BridgeU



Campuswire



CollegeDekho



CollegeVine



Easyuni



Edarabia



Edmit



Edukasyon



Higher Education



Knack



Melhor Escola



NICHE



QuadWrangle



Ribit



SCOIR



Study Edge



StudyLink



StudyPortals



Unibuddy



Vibeffect



Winnie



Zept

International Schools

With over 8,000 international schools worldwide, serving almost 5 million students and half a million teachers, international schools are big business globally.

Over three quarters of enrolments in international schools come from the host country, an indicator of the demand (and ability to pay) from parents who want to give their children an internationally focused education and provide a better chance at entry into a top global university.

China has the most number of international schools with almost 600 in the country and will need at least to double that in the coming years to service the likely demand from high net worth families and the growing middle-class population.

Illustrative examples of organizations in this Cluster



Aoba International
Educational Systems



Avenues:
The World School



Britannia Secondary
School



British-Georgian
Academy



Buckswood
International School



CATS Colleges
Holdings



Cognita Schools



Enko Education



GEMS
Education



Hailiang Education



Help International



Iale International
School



inspirED



International
Education Partnership



Invictus International
School



KinderWorld



King's College
Schools



Maple Bear Global
Schools



Nord Anglia
Education



Oakridge
International School



Pueri Domus



Seoul Foreign School



Taaleem PJSC



United Lisbon
International School



Whittle

International Study

International education is one of the most commercialized aspects of the higher education, with millions of students travelling abroad each year to study overseas, undertake summer school or exchange programs, or as a pathway into higher education via English language and foundations studies.

While the traditional face to face 'agent' model still dominates, high tech solutions are prevalent across every part of the value chain from searching and matching platforms, online admissions consultants, peer to peer coaching, scholarship finder, study skills and internship services.

Illustrative examples of organizations in this Cluster



Adventus



Amerigo Education



ApplyBoard



Cambridge Education



Cohort Go



EliteStudent



Ella Study



Enrolly



ESL Education



Everest Education



GradTrain



HigherEdMe



IDP Education



INTO



Kaplan International Pathways



New Oriental



Pineapple Online



Preacher



Study Group



StudyWing



Ubergrad



UniZest



Verto Education



Your EduAdvisors



Zept



Learning Support

Teacher Resources

Discoverable digital resources for teachers, facilitators and even those aimed at parents provide an easy to find, curate and contextualized content for teaching – saving hundreds of hours creating or searching for content and lessons.

Not just covering the core curriculum, digital content, activities and instructional guidance also help teachers with age appropriate resources for skills such as critical thinking using authentic scenarios.

Ready-made interactive online resources and printable worksheets integrate on- and off-line learning. In addition to proprietary providers, peer to peer teacher sharing platforms engage tens of thousands of teachers, rewarding popular and well-designed resources with micro-payments and community kudos.

Illustrative examples of organizations in this Cluster



Academyapps



Annoto



BetterLesson



Clark



ClassCover



Course Hero



Education.com



Ella app



FeedbackPanda



GoNoodle



Key Stage



KickUp



Knowbox



Lalilo



MATR



Newsela



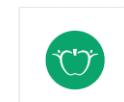
Science Bits



Tailor-ED



Teach Starter



TeachersPayTeachers



TeachFX



Tebo



Toddle



Top Hat



VOA educação

Study Notes

As learning productivity tools, apps are more popular with digitally savvy generations. Easy to use, organize, tag and find, study note tools are increasingly integrated with operating systems (think Chrome extension).

Study and homework organizers range from tools for collating, and finding, going paperless by scanning and storing study papers, annotating and notetaking on PDFs, and putting together citations and bibliographies.

Other apps in this category assist students organize their classes, assignments and exams while synchronizing across devices.

Larger platforms that offer support across the whole student lifecycle aim to 'own the customer' across their whole study career, from school to undergraduate, postgraduate and beyond.

Illustrative examples of organizations in this Cluster



Aprovado



Chegg



Citationsy



Classmint



Course Hero



Cram Fighter



EduRev



Evernote



Ginger Labs



Knoowy



Kocla.com



LectureNotes



Macmillan Learning



MedicoNotes



MyStudies



NimbleNotes



PowerNotes



Quipper



Quizlet



SchoolMouv



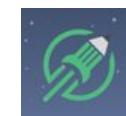
StuDocu



StudyBlue



Studydrive



Study Rocket



StudySoup

After School

Arguably the fastest growing segment in the Asian EdTech space, online and offline after school tutoring and coaching supports millions of students every day of the week in thousands of online and offline classrooms and clinics.

Whether learning English to better prepare for high school exams, remaining competitive in mathematics or undertaking broader critical thinking skills training to prepare for SAT-style exams, after school tutoring and coaching in core areas remains vastly popular, particularly in competitive, exam focused cultures.

Technology enables high quality digital alternatives to physical classes and have been a catalyst for huge scale and broader access.

Illustrative examples of organizations in this Cluster



6crickets



After School Hustle



Alicerce



Bettermarks



CampGurus



Cherpa



Cubspot



DigiChamps



gyanLab

Homeroom



HomeRoom



KidztoPros



Kumlaudi



Kyna.vn



Magic Crate

新东方

EDU.CH



New Oriental



PGL Travel



Right At SCHOOL Sigma Education



Sigma Education



Sofatutor



Studienkries



SuRaLa Net



TAL Education



The Learning Labs



TopSchool



Z-kai

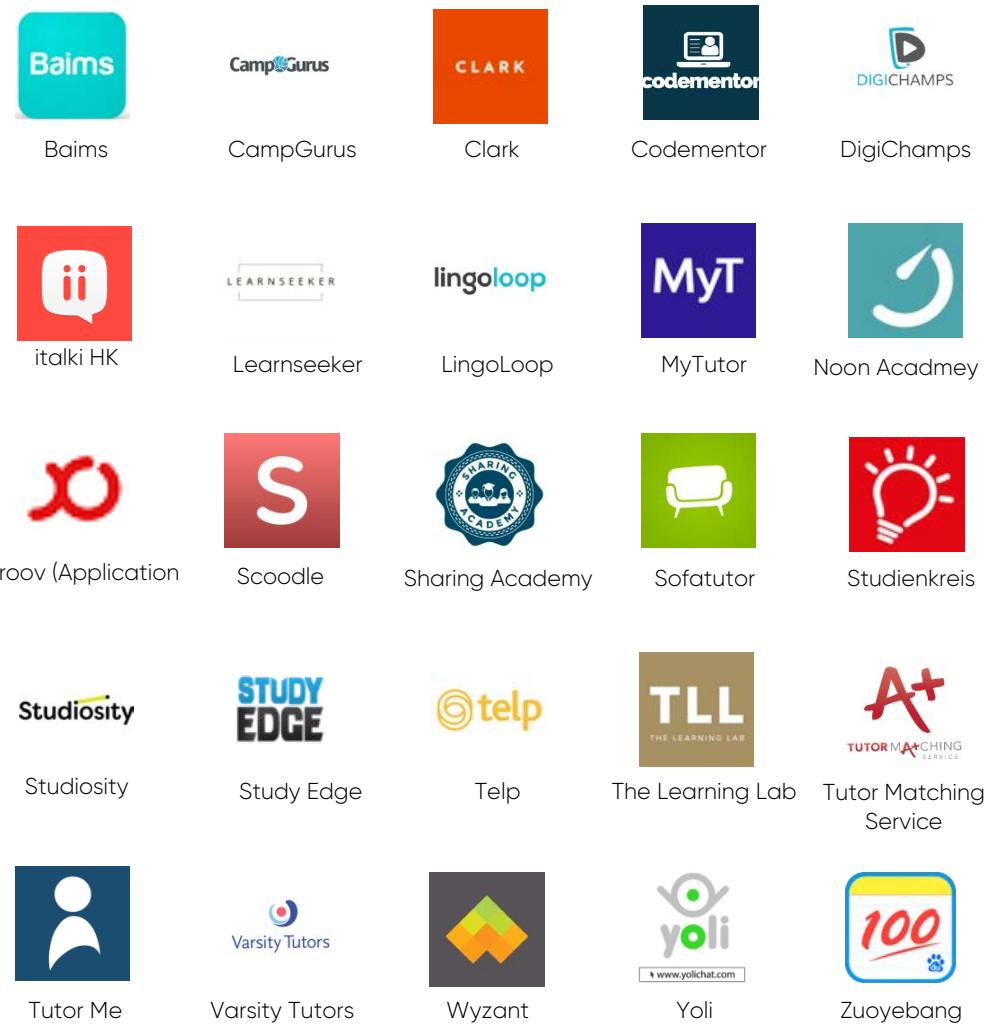
Tutoring

Tutoring platforms match tutors with student needs and provide interactive online class spaces for synchronous instruction. Video/audio technology advancement has meant that 'anywhere' tutoring has unlocked tutor supply. In addition to set tutorial sessions, some providers offer 'anytime help' hours by drawing on a pool of qualified tutors available from different time zones.

Other tutoring models ditch the 1:1 teaching altogether allowing students to photograph their problem/question, is matched with a tutor who walks them through the steps to solve the problem via messaging. Other models are more 'on demand' tutoring services, connecting students with a tutor within minutes of requesting help.

Education integrations with other 'home services' are increasingly common, and learners can now add tutoring to their 'Amazon cart'.

Illustrative examples of organizations in this Cluster



Test Preparation

High stakes exams such as language tests, university admissions and entry into professions still feature heavily in the education landscape.

As such, test preparation remains a thriving part of the sector, with more online and personalized options available.

In addition to traditional online solutions such as video tutorials, AI technology supports adaptive and personalized preparation of many providers and peer platforms connect and match learners with those who've succeeded and provide feedback on practice exams.

Illustrative examples of organizations in this Cluster



Byju's Classes



Descomplica



Embibe



Entri



Estuda.com



examPAL



Gojimo



Koolearn Technology



Luma



Pahamify



PrepFact



PrepMyFuture



ProPrep



Ready4



Revolution Prep



Sofatutor



Studienkreis



Studos



StudyBlue



Tassomai



Test Innovators



TriviaNote



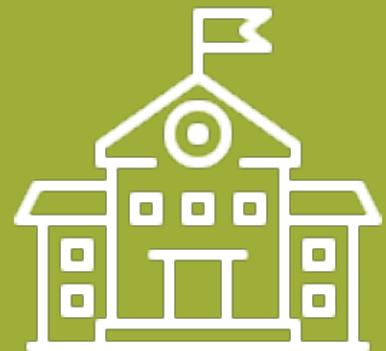
Unacademy



Varsity Tutors



Veritas Prep



Assessment and Verification

Assessment

As the cornerstone of learning, assessment design, delivery, grading and feedback has been digitized significantly over the past fifteen years.

Now far beyond multiple choice question banks, technology solutions are enabling everything from online proctoring, handwriting and audio to text, analysis of video assessment, robust peer-grading systems and assessment design tools.

AI applications in text analysis supports machine-grading of complex written work and identification of engagement and participation in online classrooms.

Illustrative examples of organizations in this Cluster



Altus



Aspiring Minds



Caliper



Callido



Classkick



Codility



Dana Tech



Digication



Edumetrics



FastBridge Learning



Feedbackbox



Foliotek



Honorlock



Kinteract



Learnosity



Metacog



MetaMetrics



Pariksha



ProctorEdu



ProctorU



Reflection Sciences



Scantron



StudyBee



Tebo



Workseed

Portfolio

As careers are increasingly made up of many jobs or gigs, which are digital in nature, systems for capturing and recording work output are extending beyond the creative professions.

Portfolio systems, provide an individual online space to evidence work, knowledge and skills, which is 'owned' by the learner/professional rather than by the institution.

Portfolio systems become the 'digital persona' of an individual, rendering the traditional CV obsolete and with the learner in control of who gets access to what information.

Digital portfolio platforms provide the opportunity to showcase non-academic work, while code repositories are effectively showcases of programming skills.

Illustrative examples of organizations in this Cluster



Badge List



Behance



bulb



Chalk & Wire



ChildDiary



ChromaUp



Cirkled in



[D]

Digication



Digitairy



Edufolios



Engrip



Foliotek

fresh
grade

FreshGrade



GitHub



Kinteract



Kloodle



Krackin



Spect

LeaderLync



Mahara



Pathbrite



PebblePad



Plowns



Portfolium



Seesaw



Vmock

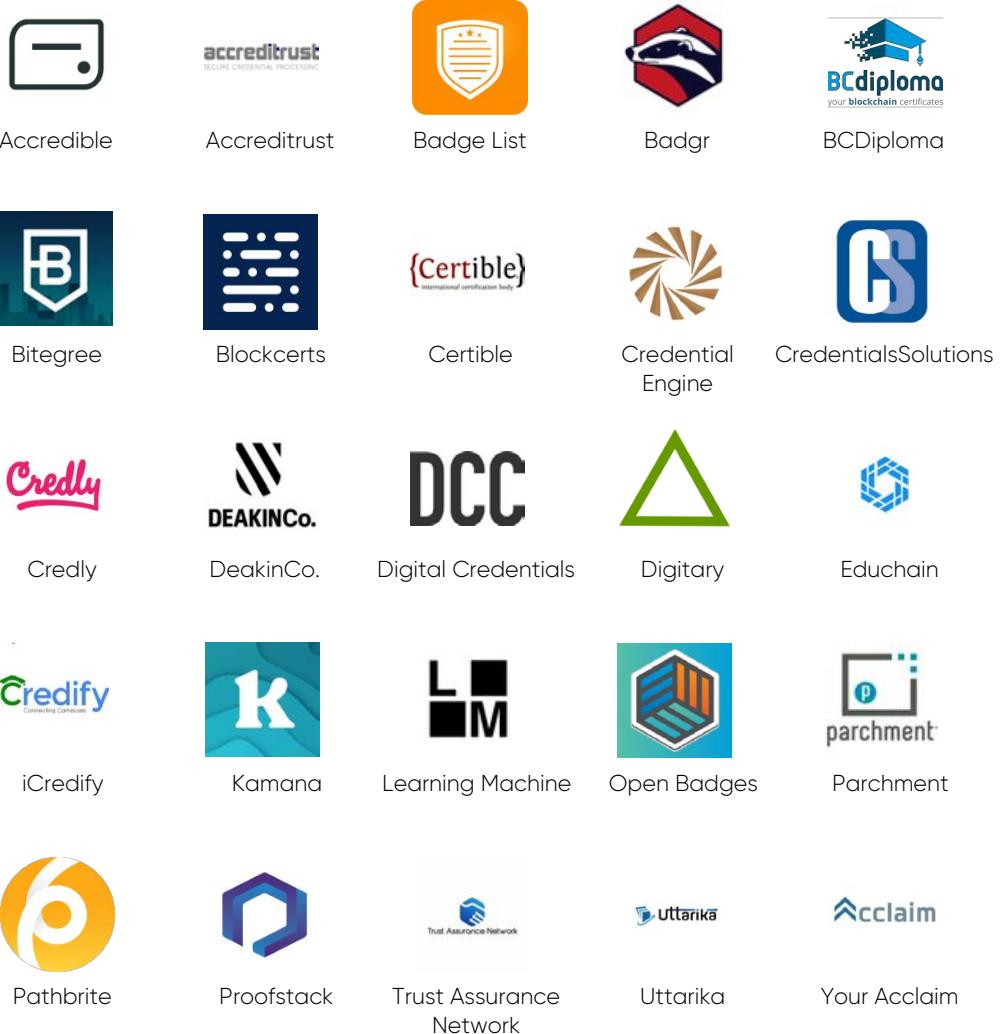
Credentialing

Traditional credentials provided by universities and other educational institutions are less able to service the need for more granular verification of specific technical, content and professional knowledge and skills.

A number of proprietary and open badging and credentialing services are now available, which manage the design, issue and management of digital badges, allowing learners to evidence their learning, and keep digital credentials from different providers attached to their online social and professional profiles.

Blockchain technology is now powering a number of these providers, thus enabling tamper-proof, shareable and immutable records. Partnerships and integrations between traditional institutions and credentialing providers offers new possibilities.

Illustrative examples of organizations in this Cluster



Career Planning

Career guidance has moved beyond the career counselor's office, with sophisticated apps and tools and resources for career assessment, planning and guidance.

Tools in this space support the new job seeker as well as providing B2B solutions for government and industry managing workforce and industry transitions. Other platforms use artificial intelligence to improve job-seeking performance through automated resume evaluation and feedback, online interview practice with a robo-interviewer and in-depth interview analysis and feedback.

Self-exploration tools help individuals identify their strengths and preferences and identify career possibilities and pathways.

Illustrative examples of organizations in this Cluster



100mentors



AdmitHub



Apply Square



Boardinfinity



Boldly



Codility



EduConnect



Engrip



Handshake



Humanroads



IDreamCareer



Krackin



Leverage Edu



Loopinc



MajorClarity



Mindler



Naviance



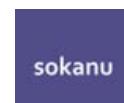
NexusEdge



Pathrise



PrepLounge



Sokanu



Truity



Viaedu



Vmock



Vocaprep

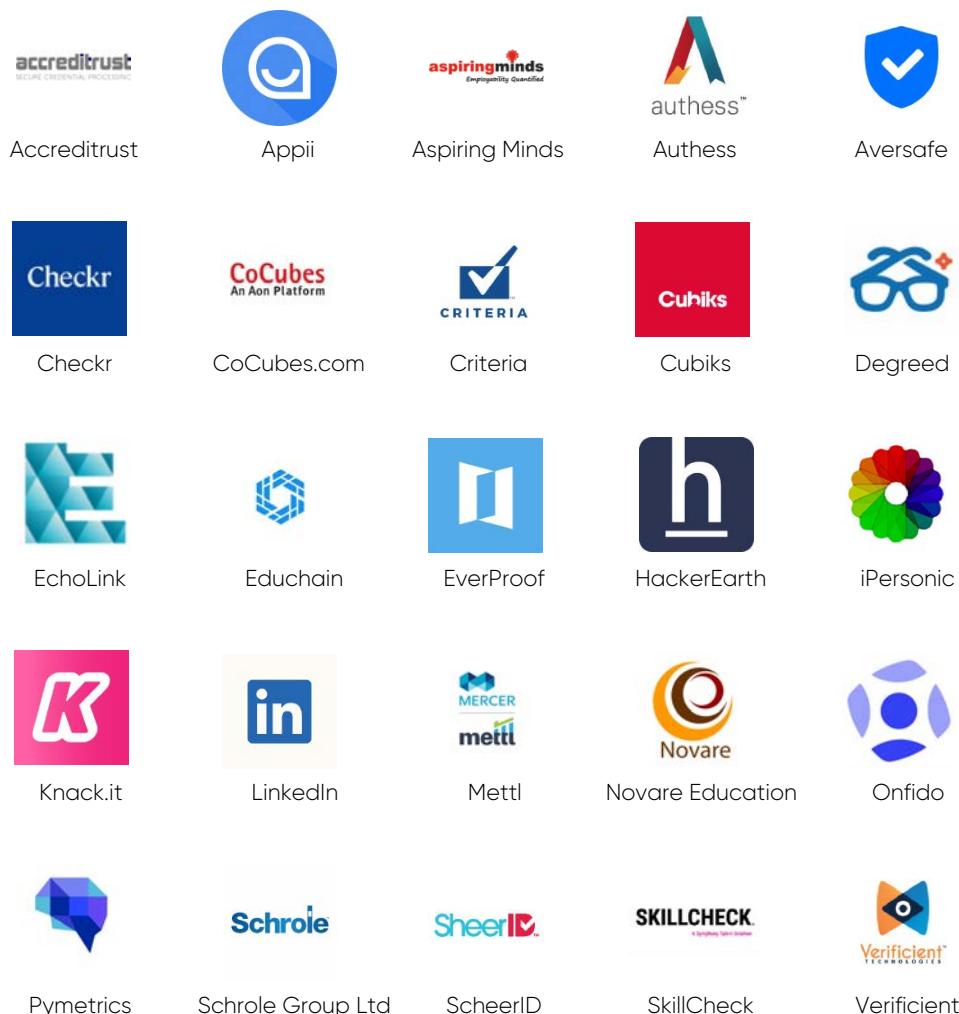
Skills Verification

Employers are increasingly seeking evidence of candidate skills rather than just relying on education qualifications for hiring decisions.

Using artificial intelligence, solutions in this category assess in demand skills such as creative and critical thinking, problem-solving and communication.

Understanding individual preferences, styles and traits and matching these against employer needs and profiles, or team culture fit are also part of this landscape, with some apps focusing on enabling graduates to uncover their skills and match these with employer needs.

Illustrative examples of organizations in this Cluster





Workforce and Talent

Workforce Planning

Organizations in this cluster are focused on workforce data and analytics.

From labor market analytics that help governments, universities and employers make decisions and understand local labor markets to platforms that assist in supporting whole workforces successfully transition into the fourth industrial revolution.

Other solutions mine information about an organization's existing workforce to identify current and future capability gaps and surface labor market information through analysis of millions of job postings and resumes.

Illustrative examples of organizations in this Cluster



Adepto



Area9 Learning



Assembled



AZBio



Burning-Glass



Catalant



Clustree



Distributed



EMSI



Forecast



Fuel50



Hivebrite



Hone



ImplementHIT



Innovapptive



Instant Teams



Oasis Outsourcing



Perceptyx



Plum.io



Profinda



Pulsifi



Remote-how



RITEQ



Tata Interactive Systems



The Riveter

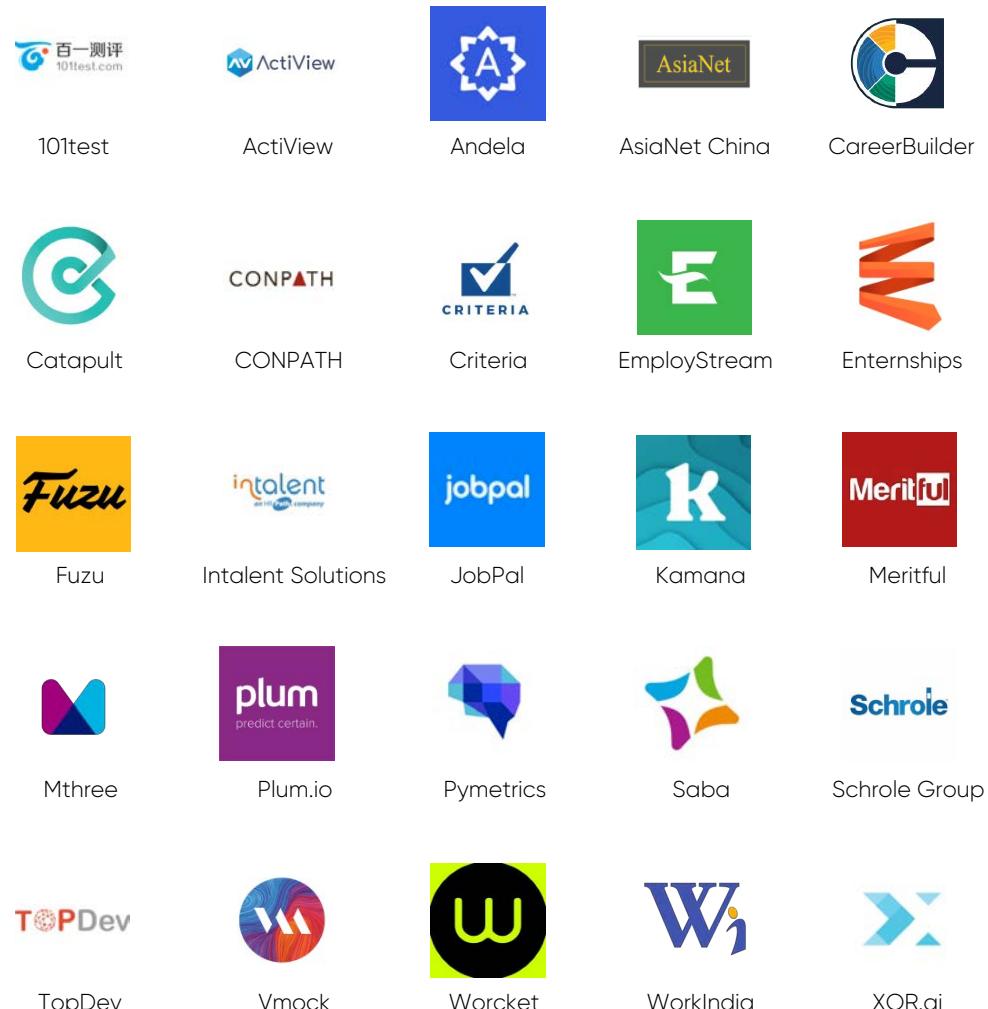
Talent Acquisition

New models that take full advantage of big data are disrupting traditional talent acquisition processes with the promise of finding better matches, lowering search and turnover costs and eliminating bias from the hiring process.

Others in this cluster are focusing on matching qualified talent by recirculating candidates who are not hired at one firm into their network of organizations or those that combine training solutions with outsourcing graduates as temp talent.

New players are prioritizing a full suite of features from on-demand video screening, mobile first interfaces to conversational AI chat-based candidate hiring.

Illustrative examples of organizations in this Cluster



Capability Development

Solutions in this category are focused squarely on supporting organizations to keep their workforce engaged and updated with the capabilities required across the company, whenever and wherever needed.

Solutions range from platforms that curate classes, conferences, coaches or content that is tailored to the identified needs of the organisation to mobile microlearning for onboarding and upskilling and others that seek to deliver a 'whole of organization' learning culture and community.

Illustrative examples of organizations in this Cluster



51CTO

Bärchen



Camcave



Course-Source



Embodied Labs



eMentorConnect



Gebaya



General Assembly



Go1



IndonesiaX



LYNX



Manfang Xueyuan



Millionlights



Mthree



NPTEL



Oilfield Basics



OpenSesame



Progate



QA



Sharpist



STRIVR Labs



Talespin



Tareasplus



Teachlr



The Experience Accelerator

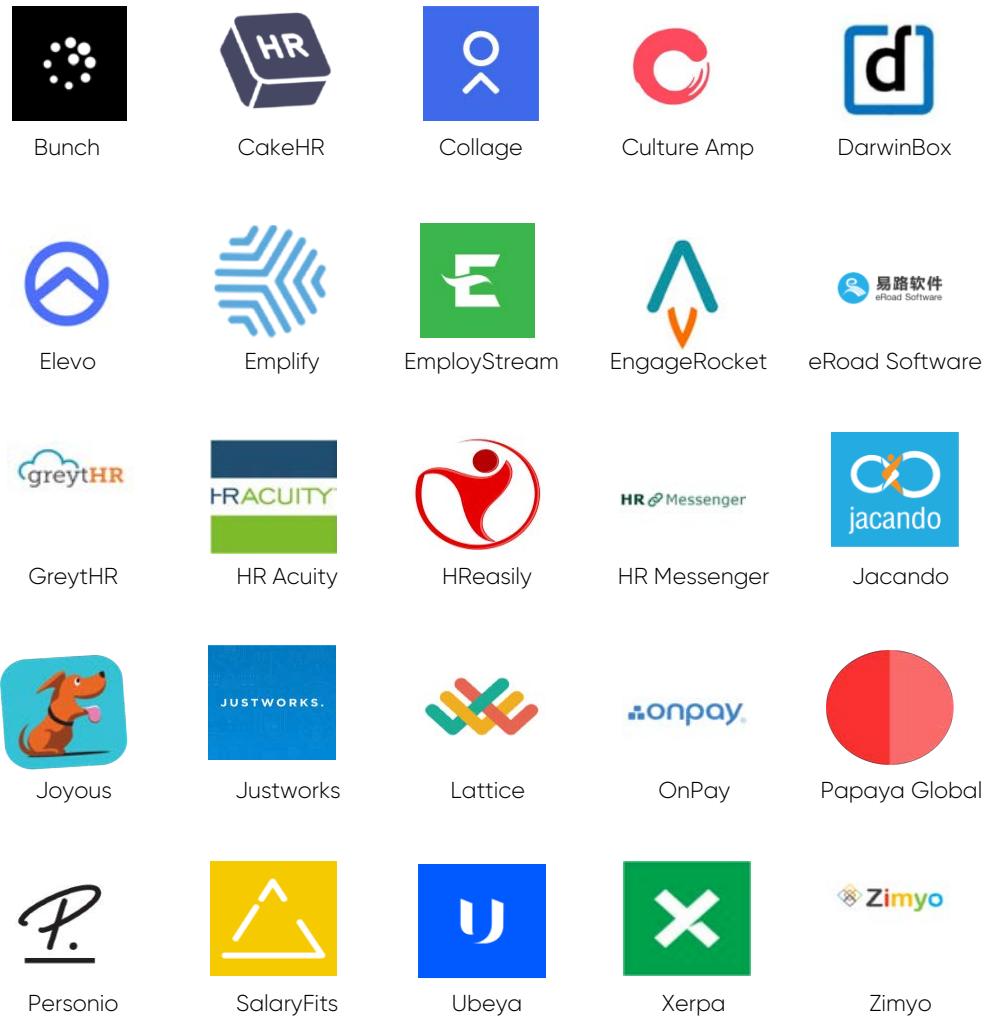
Performance Management

Rewarding, recognizing and managing performance solutions range from apps that focus on individual and team recognition for performance, to systems that provide non-salary benefits and rewards, to administrative systems for managing remuneration.

New solutions in this category aim to minimize complexity and provide a digital experience for staff as well as making full use of the data that is captured in these systems to support predictive intelligence and identify compliance issues in advance.

Other solutions focus on ensuring that organizations can easily collect and act on staff feedback to support a positive work culture and collective performance.

Illustrative examples of organizations in this Cluster



Wellness

Taking a holistic approach to staff management, solutions in this space range from re-inventing processes such as managing health benefits, to apps that support employee engagement, motivation and development through online community-building, creative challenges and health-habit improvement tools.

Integrated solutions for companies also incorporate well-being assessments, wellness coaching and biometrics screening. Other tools provide mechanisms for dealing with workplace conflict, giving tough feedback, preparing staff for performance review processes and other stressful work situations.

In K12 and Higher Education solutions are supporting cyber safety, managing bullying, physical and mental health support for kids and young adults.

Illustrative examples of organizations in this Cluster



Aduro



BrainLeap Technologies



Bravely



eMindful



GetLean



Ginger



Health IQ



Lexplore



Limeade



Meditation.live



MentalRep



Mightifier



Mind Moose



ParentCircle



Peerfit



Presence Learning



RedBrick Health



ShapeUp



Sonic Boom Wellness



StartUp Health



WellRight



Whil



WizKlub



Skills and Jobs

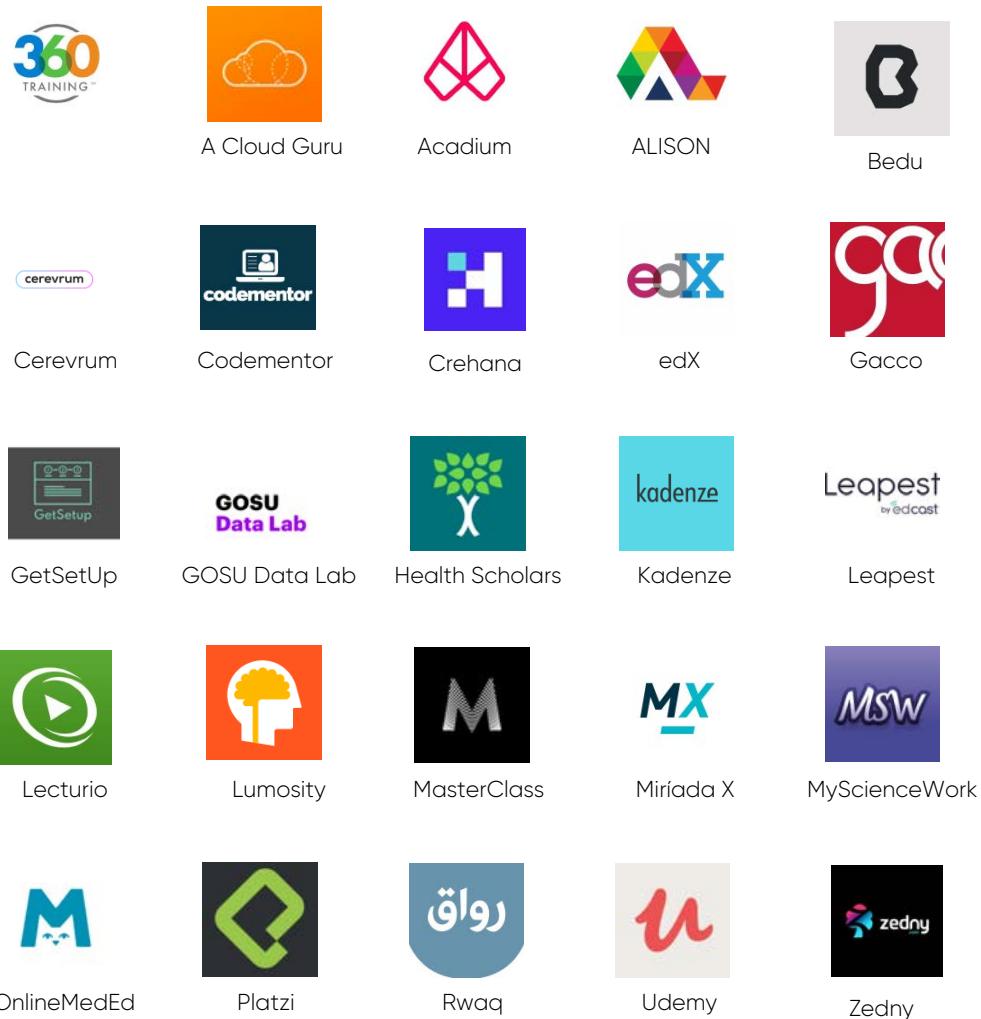
UpSkilling

As workers in the twenty first century will likely have many jobs and multiple careers through their adult lives, they will need to constantly update knowledge and skills to remain relevant and able to fulfil ever changing job requirements.

Organizations in this cluster fulfil this need with on demand training in everything from digital skills, safety and compliance to hobbies and creative pursuits. Operating B2C, B2B2C and B2B models, companies are beginning to use these providers to manage their whole workforce onboarding and training needs, attracted by the ability to add your own content or use extensive provider libraries and easy monitoring and tracking functionality.

Other peer-based platforms highlight the community and social aspects of learning, encouraging members to actively contribute and become a trainer.

Illustrative examples of organizations in this Cluster



Internships

Gaining practical experience in an area of career interest remains highly sought after by most students and universities are increasingly incentivized to provide internships as part of their programs.

However, internship opportunities are hard to find and traditionally reserved for the elite few. Platforms specializing in promoting internship opportunities help to match candidates with employers and virtual internship models go one step further, allowing students to get hands-on experience while working remotely.

These models are increasingly popular as companies become adept at managing a remote workforce and technology is able to support virtual team collaboration and workflow.

Illustrative examples of organizations in this Cluster



AMOpportunities



Awign



BAG Innovation



Bright Network



CareerLounge



Code2040



CONPATH



CRCC Asia



Edumoko



Enteranship



Handshake



InsideSherpa



Internships.com



Oliv



Paragon One



Parker Dewey



Practera



Ribit



Riipen



SG Internship



Stutern



Verzeo



Virtual Internships



WayUp



Worcket

Apprenticeships

With a long-held tradition of practice-based learning with a mentor, apprenticeships have dominated vocational education for centuries.

Over the last ten years there has been increased recognition of the importance of practical, vocational training both in traditional and in new skills that will be required of future workforces. However, conventional apprenticeship models are hard to scale and new solutions are emerging to solve the scale issue.

Combining online courses, mentoring platforms, skills assessment and on-site practice-based training, these blended models are becoming more accepted. Meanwhile, technology is now supporting significant elements of traditional apprenticeship programs such as virtual reality training and video assessment of skills.

Illustrative examples of organizations in this Cluster



Acadium



AJAC



Apprenti



Apprentice Supermarket



Apprenticeship Careers Australia



Babington Group



Bärchen



bud



CareerWise Colorado



Digital Creative Institute



Find Apprenticeships



GAN Global



GetMyFirstJob



Group Horizon



ITS Training and Apprenticeships



MEGT Ltd.



Paragon Skills



Positive Outcomes



Praxis



QA



Skills Group



Step Into Learning



SVAcademy



WeThrive



WhiteHat

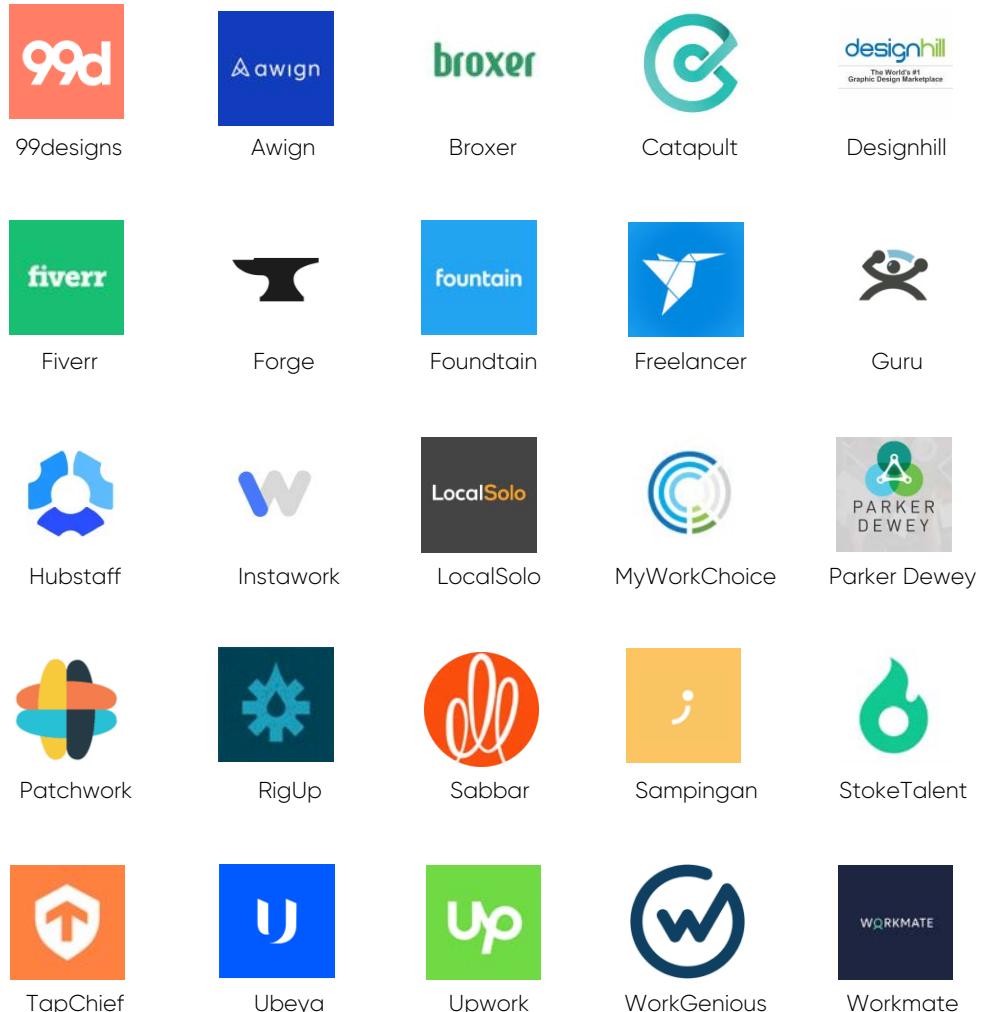
Gigs

It is estimated that more than half of the world's workforce will be contingent workers by 2030 and these platforms provide discovery, matching and quality control to support connection and transaction between 'gig' workers and those who need a project or task completed.

Like many peer platforms, typically all parties have a profile and transparent mutual ratings systems and payment ranges from flat fees, 'bidding' for jobs or per hour arrangements.

Systems such as these are likely to become a more accepted and popular way of fulfilling specific projects or tasks as skills shortages in some geographies are balanced by a large number of trained and ready workers in other parts of the world, in particular in emerging economies.

Illustrative examples of organizations in this Cluster



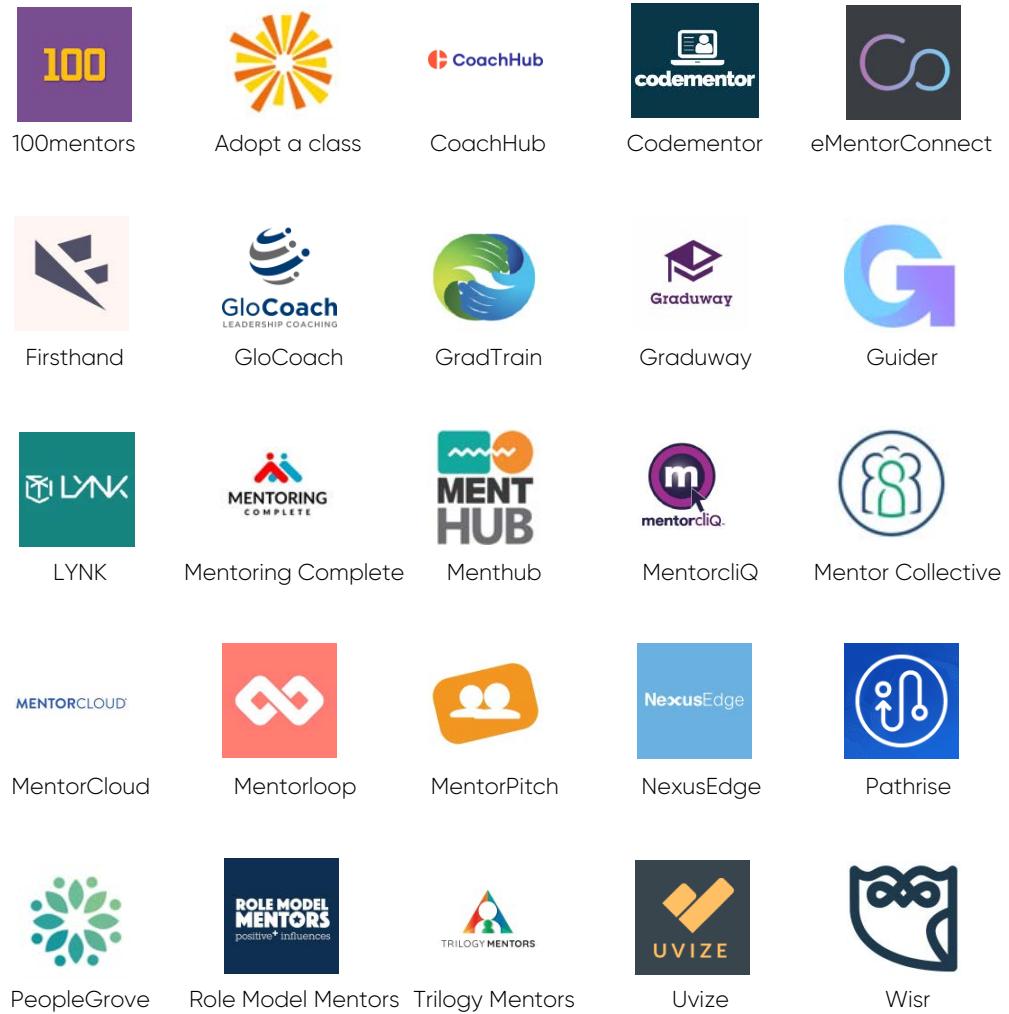
Mentoring

Peer to peer mentoring platforms connecting alumni and students are enabling meaningful connections and scale that were not possible in face to face, localized models.

Platforms enable alumni to share their story, guide and inspire students and create a virtual 'connected community' space. Other services combine structured learning with one to one mentoring, where learners work through content and are paired with a mentor already working in the field.

On demand marketplaces connect professionals in specific fields such as coding, to enable project feedback and coaching. Platforms designed to support organizational mentoring programs manage matching, workflow, communication and administration, reducing manual processes and allowing mentoring programs to scale.

Illustrative examples of organizations in this Cluster



Holon ($\delta\lambda\sigma\nu$)

In systems theory, a Holon ($\delta\lambda\sigma\nu$) is an evolving and self-organizing system. Each holon has integrity and identity on its own, but is simultaneously part of a larger system. We consider education to be an holonic system, where holons (learners, teachers, academics, schools, startups, universities, national systems) are simultaneously autonomous and co-operative.

Holonic systems are complex systems, efficient in the use of resources, highly resilient to disturbances yet adaptable to change, preserving the stability of a hierarchy while providing the dynamic flexibility of an adaptive system.

This is how we think about innovation in education. Not top-down, technology-led but rather innovating from within the system - constantly learning, cooperating and adapting. Enabled and empowered with new models that the network evolves and organizes around, maintaining a constant focus on the learner.

Holon IQ