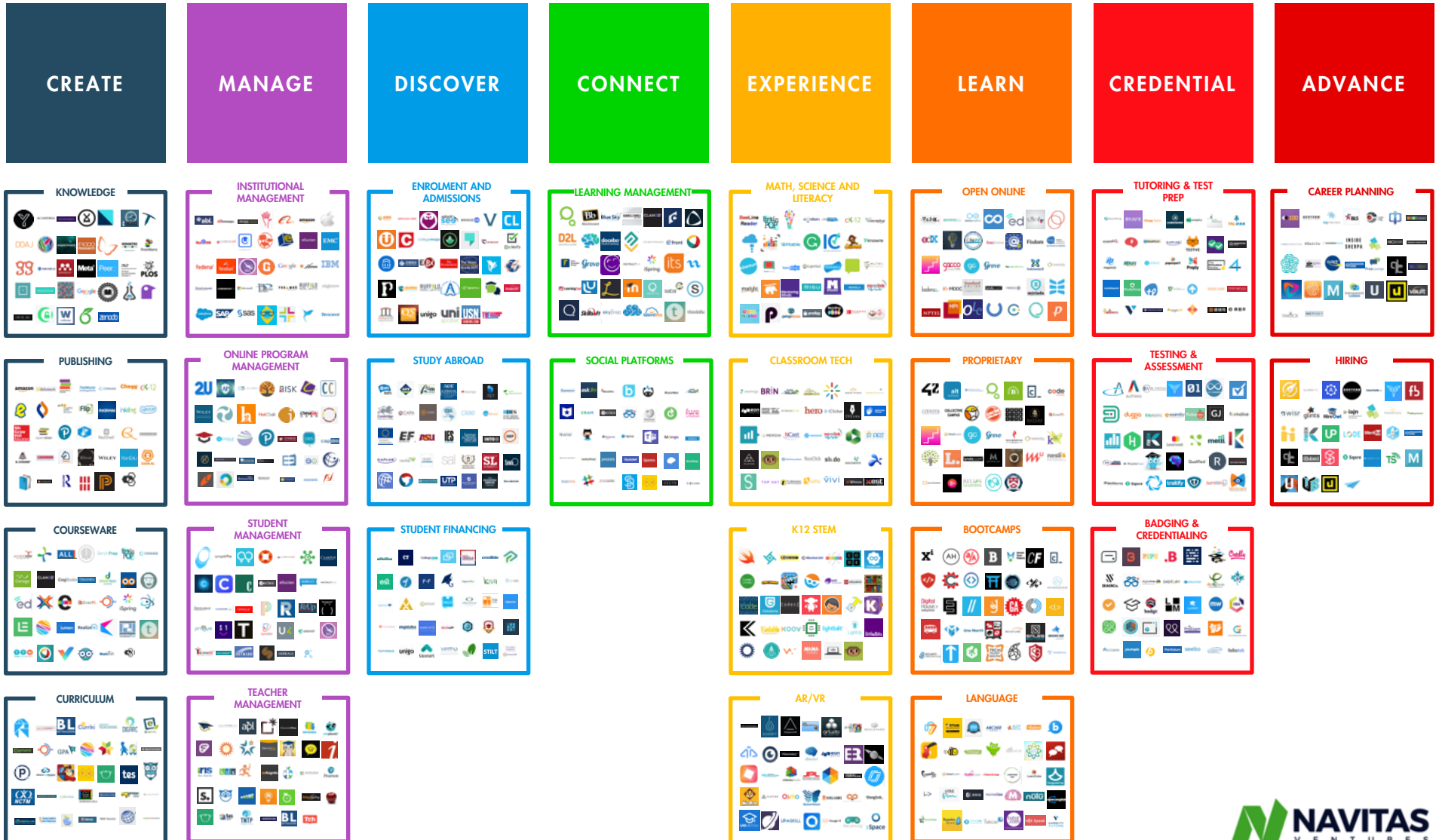


GLOBAL EDTECH

LANDSCAPE 3.0

GLOBAL EDTECH LANDSCAPE 3.0 MAPS 26 CLUSTERS OF 15,000 COMPANIES INTO EIGHT STEPS WE CALL THE NEXT GENERATION LEARNING LIFECYCLE

GLOBALEDTECHLANDSCAPE.COM



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“Project Landscape is our vision for a global, community driven map of education innovation and technology. We want to put those already exploring and pioneering on the map, and inspire those who might not have otherwise to consider their own expedition.”

Welcome to Landscape 3.0

300 days ago, a small team set out to map the emerging landscape of education innovation and technology. In just 100 days, what had started with napkins and notebook sketches was launched as an ‘MVP’ (Minimum Viable Product) on our blog, called Landscape 1.0. To say we were overwhelmed with positive and immediate feedback would be an understatement.

So we set off on another 100 day sprint, published another blog and launched Landscape 2.0 at the 2017 ASU-GSV Summit. We had over 2,000 people through the ‘Map Room’ and more feedback than we could possibly capture.

Another 100 days later, I am pleased to share Landscape 3.0. If 1.0 was an MVP, 3.0 is barely ‘beta,’ but it is slowly getting better thanks to a passionate team and an awesome global community.

We know that education is poised for significant disruption; we just don’t know when. That’s why we started Project Landscape. In higher education alone, UNESCO predicts a shortage of almost 100 million seats by 2025, creating enormous challenges and opportunities for governments and education institutions around the world. Compounding the challenge, our current education system was designed for a standardised, industrial age – not the needs of today’s learners seeking a ‘one size fits one’ model that keeps pace with their ongoing learning and work needs.

Change is a constant phenomenon – whether it’s biology, geology or the art and science of learning. However, as Project Landscape tries to visualise, neither the pace nor the direction of change is constant.

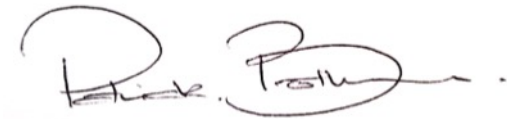
Change also often happens in tiny increments, taking place slowly and is often only recognisable after a longer span of time. Transformational change, on the other hand, appears to be abrupt and alters the fundamentals of a system.

Ernest Hemingway suggested change happens two ways: gradually and then suddenly. I can’t think of a better way to describe how we expect education to evolve over the next 10 years.

In the first formal report on Project Landscape, Landscape 3.0, we deep dive into the eight steps of the next-generation learner cycle that has emerged and focus on each of the 26 clusters and highlighting some of the major and emerging case studies so far.

True to form, we started on Landscape 4.0 the day we published 3.0. The countdown is set to 200 days to accommodate some ambitious enhancements, including a web browser app to crowdsource the landscape, a global advisory group to bring deeper and more diverse perspectives, and an interactive website or app so everyone can dig into the detail.

Finally, an enormous thank you to Maria Spies, Head of Digital Learning Futures, Peter Sahui, Venture Intern, the team at Quid, and literally hundreds of institutional leaders, education innovation and technology experts, entrepreneurs, investors, teachers and students who shared encouraging and critical feedback – which we hope keeps on coming!



Patrick Brothers
Chief Executive Officer
Navitas Ventures

Landscape 1.0

Like any lean startup, we began Project Landscape by building a Minimum Viable Product (MVP), so we could collect the maximum amount of validated learning with the least effort. From napkins, notebooks and sketches to a more disciplined, data-driven approach, Landscape 1.0 started by leveraging Quid's capabilities to surface nearly 2,000 edtech startups from around the world, with a bias to the US market.

The resulting investigation challenged and confirmed our own knowledge and perspectives, as we started to shape 16 innovation clusters. We wanted to go deeper and knew it was incomplete but the 100 day stop-watch kept us in check and we nervously published 1.0 in late January 2017. We received incredible and immediate feedback from all over the world and knew we were on to something big within days of sharing 1.0 through the Navitas Ventures blog.

The 16 clusters of 2,000 companies represented approximately US\$16 billion of investment since their inception. Even the team found it hard to connect the dots across 16 different clusters so we grouped these into six themes that felt more familiar and easier to navigate.

Content – Publishers, Content Distribution and Digital Learning

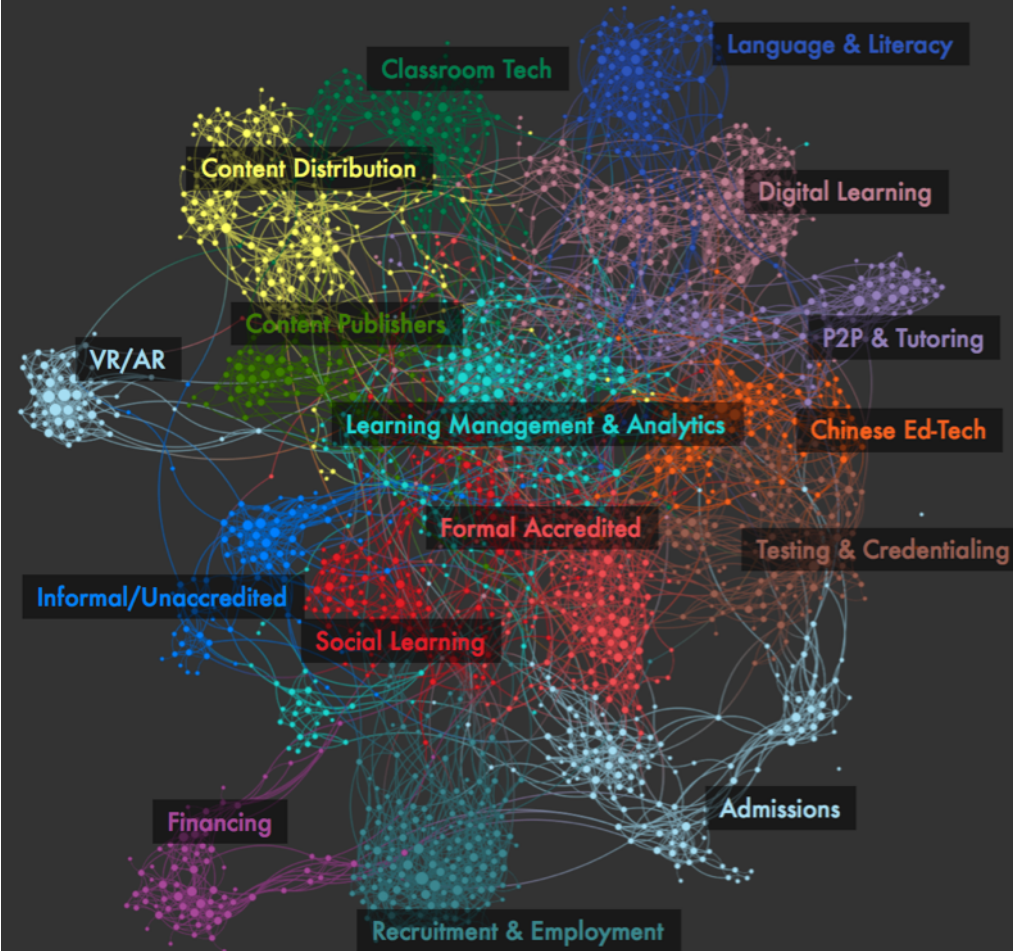
Platforms – LMS, Analytics and Social Learning

Access – Recruitment and Employment, Admissions and Financing

Immersion – VR/AR and China Edtech

Learning – Formal/ Accredited and Informal/ Non Accredited

Progression – Peer to Peer and Tutoring, Language and Literacy, and Testing and Credentialing.



Landscape 2.0

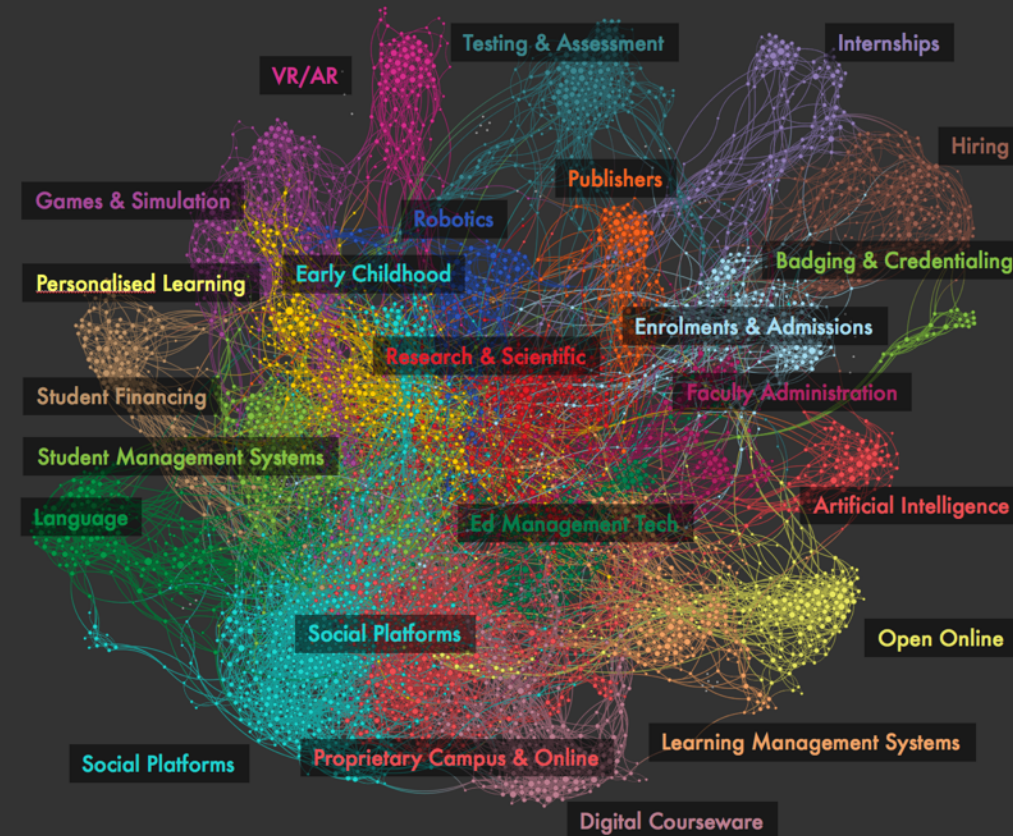
100 days after launching Landscape 1.0, we shared Landscape 2.0 at the ASU + GSV Education Technology Summit in May 2017 at Salt Lake City, USA. Over 2,000 people from around the world toured the physical 'map room' we hosted throughout the summit. The feedback was again fantastic, with great suggestions and challenging questions. By the end of the summit, we had promised the community another version of Project Landscape in another 100 days.

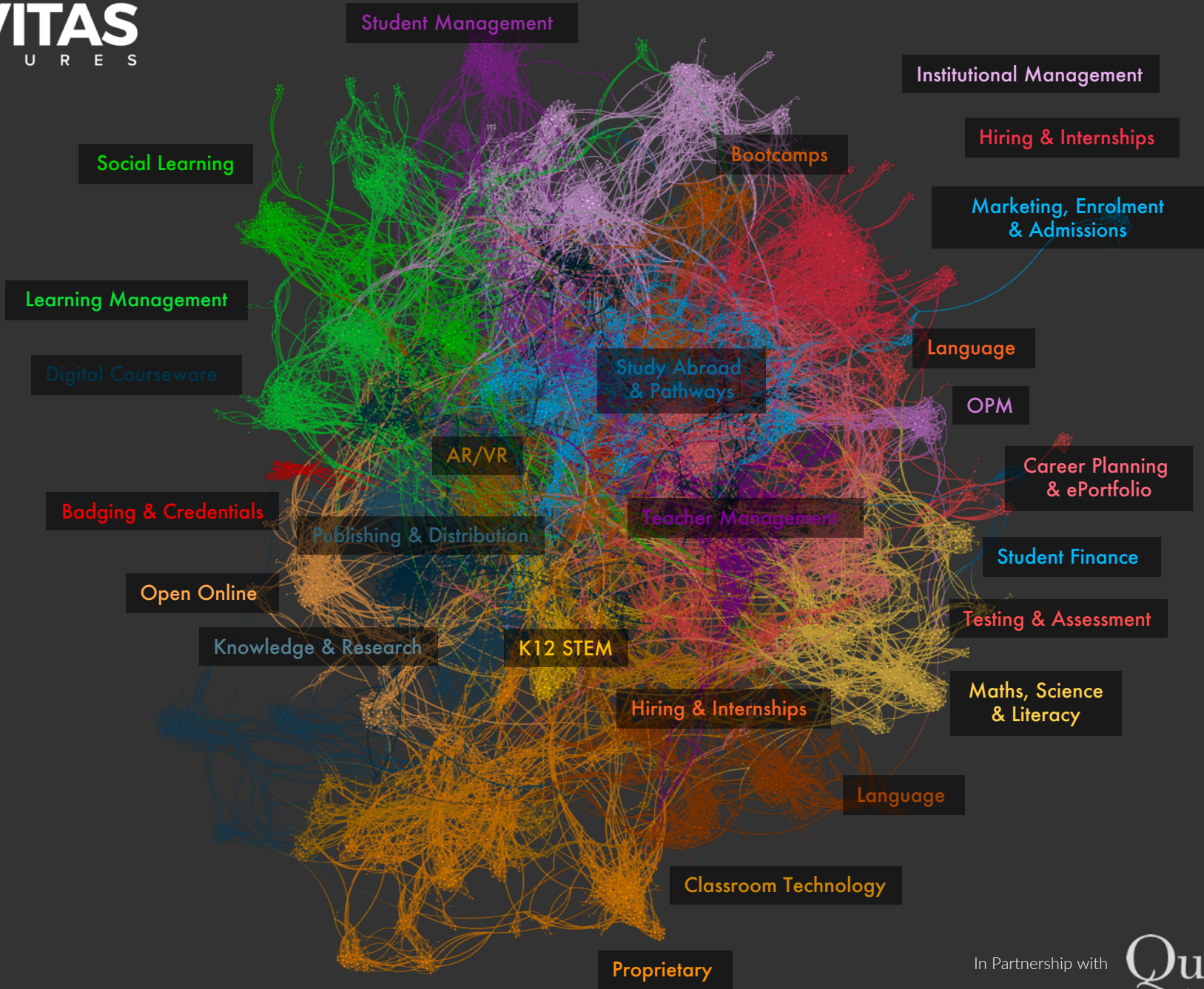
Landscape 2.0 more than doubled the scope of 1.0, mapping 5,000 companies representing \$40 billion of investment from over 50 countries. The number of innovation clusters had grown from 16 to 23, breaking the way we had previously grouped the clusters and prompting a different way of thinking.

Next Generation Learning Lifecycle



We kept asking how these clusters mapped to the learners journey or lifecycle and whether what we were finding was representative of a new lifecycle. So we expanded the six themes from Landscape 1.0 to eight themes which broadly followed the learning journey. We called the eight steps the 'Next Generation Learning Lifecycle', which sparked some fantastic conversations and really helped us and the community to explore further.





Landscape 3.0

Bottom-up and top-down

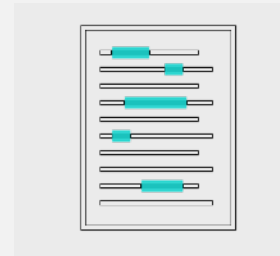
Project Landscape has always been a two-pronged approach. Machine learning lets us build a bottom-up view of the edtech market, while human expertise and intuition extracts the top down analysis. This is a popular strategy in thinking, teaching, and leadership – and seemed a suitable approach for Project Landscape.

Through our partnership with Quid, we have been able to leverage technology and take a fresh approach to mapping the future of education. This approach clusters innovation at scale, concentrates on impact and focus, and highlights the gaps through whitespace. Quid has access to millions of news articles, blog posts, company profiles and patents, and runs on natural language processing algorithms that can read and analyse massive amounts of data at one time, bringing a whole new meaning to 'least effort' for an MVP.

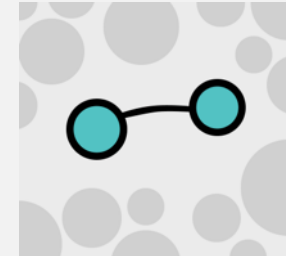
The MECE principle, pronounced 'me see', is a grouping principle for separating a set of items into subsets that are mutually exclusive and collectively exhaustive. But education is not evolving so neatly, it is in transition and more 'messy than MECE'.

Working bottom-up, Quid processed the incoming data to visualise quite complex systems. In a bottom-up approach the individual base elements of the system are first specified in great detail. These elements are then linked together to form larger subsystems, which in turn are linked, sometimes at many levels, until a complete top-level system is formed. This organic strategy may result in a tangle of elements and subsystems, developed in isolation and subject to local optimisation rather than meeting a global purpose.

A top-down approach essentially breaks down the system at a macro level to gain insight into component subsystems. Like being reverse engineered, it starts with the big picture then breaks it down into smaller segments.



Quid reads any text to identify key words, phrases, people, companies and institutions.



Then Quid compares words from each document to create links between them based on similar language.



Quid repeats the process at immense scale, producing a network that shows how similar all the documents are to one another.

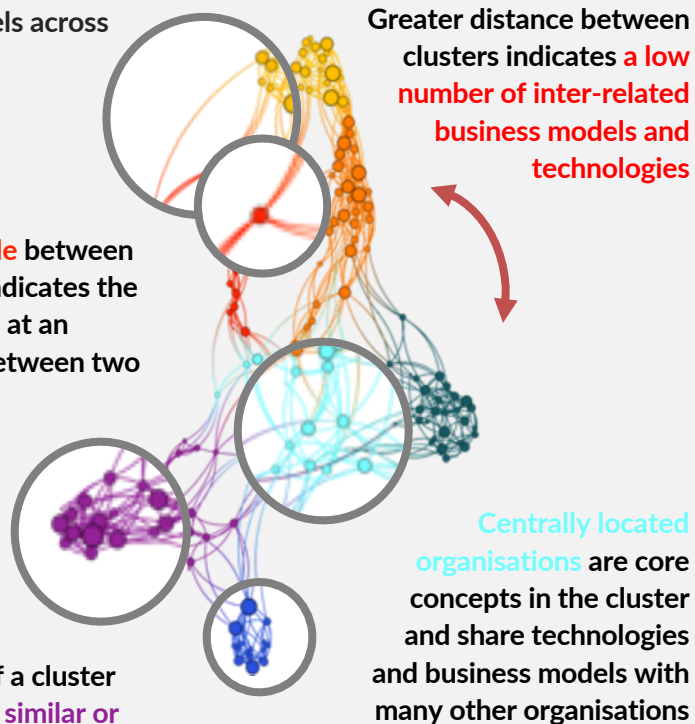
Networks like these help us visualise complex trends. This in turn lets us make comparisons, and reveals multi-dimensional relationships so we can build more accurate frameworks – and make smarter decisions.

Connections represent similar technologies and business models across organisations

A **bridging node** between two clusters indicates the organisation is at an intersection between two clusters.

The density of a cluster indicates how **similar or diverse** the organisations are within it

Peripheral clusters could represent niche takes on the education space



Interpreting networks

Networks are a powerful way to analyse and visualise complex relationships. Networks help us better understand qualitative information like emerging technologies and business models.

Nodes & connections. Each node, or circle, represents an organisation involved in education innovation and technology. Connections represent a strong similarity between the organisations, indicating that they are using the same technology or business model or operating in a similar area.

Distance & orientation. Each node is like a charged particle that wants to repel all of the other nodes, and the links are springs that keep all of the particles from spreading too far away from each other. The more similarities between two organisations, the stronger the connections.

Clusters. A cluster is a set of organisations that group together because many of them are connected due to similar technology, business models or operating in the same area of education.

Network density. The more dense a cluster appears, the more similar its nodes. Likewise, the more spread out a cluster appears, the broader its mix of nodes. A dense cluster is quick to interpret: you can assume a central node in a dense cluster will be very representative of its surrounding nodes. This implies that all companies are defining their business and market in very similar ways, and are likely direct competitors.

Bridging nodes and bridging clusters. Bridging nodes span across portions of the network and are often insightful. For example, it could indicate two mature technologies merging to tackle new problem. Similarly, bridging clusters help identify relationships and highlight gaps between specific applications and the core technologies.

Cluster measures

In Landscape 3.0 we started exploring ways of measuring and comparing clusters of innovation. Two quantitative measures also used in Landscape 2.0 are drawn directly from bottom-up analysis, while an additional two qualitative measures start to describe less tangible but important characteristics associated with each cluster. We look forward to feedback and suggestions from the community on these cluster measures.

SCALE 427



Scale. Represents the number of organisations that are counted in this cluster based on bottom-up analysis. The number shown is the quantity of organisations and the five bars show the relative size of the cluster compared with all 26 clusters in Landscape 3.0.

INVESTMENT \$646M



Investment. Represents the total investment (USD) in organisations that are part of this cluster since their establishment. The figure shown is the exact amount invested and the five bars indicate the relative investment of the cluster compared to all 26 clusters in Landscape 3.0. It is worth noting that not all organisations seek or receive investment funding.

TRACTION



Traction. Traction is a qualitative measure introduced for Landscape 3.0. This imprecise measure attempts to capture the extent to which organisations in the cluster have gained momentum in innovating traditional products, services, processes or business models associated with the part of the value chain that the cluster represents. The extent to which the traditional education sector has demonstrated a desire for these reconfigured services is also taken into account.

DISRUPTIVE POTENTIAL



Disruptive Potential. This qualitative measure was added in Landscape 3.0 to provide an indicator of the extent to which the cluster, and what it represents, has the potential to disrupt the fundamental way the ‘system’ of education is organised and operates at this point in time. While most organisations in every cluster are attempting to innovate (or disrupt) their own part of the value chain, this indicator focuses on the disruptive potential of the cluster as a whole.

CREATE

Create

This is arguably where the digital transformation of education began: the creation of learning content, from course materials and assessment sheets to textbooks.

Once the sole domain of academics and publishers, learning content is now democratised. Knowledge is, for the most part, freely available to anyone with internet access. It's also never been easier to create and curate rich, engaging content through digital platforms. This also makes sharing and building on new ideas even more effective and accessible for academic researchers, innovators, entrepreneurs and businesses.

Building a digital curriculum

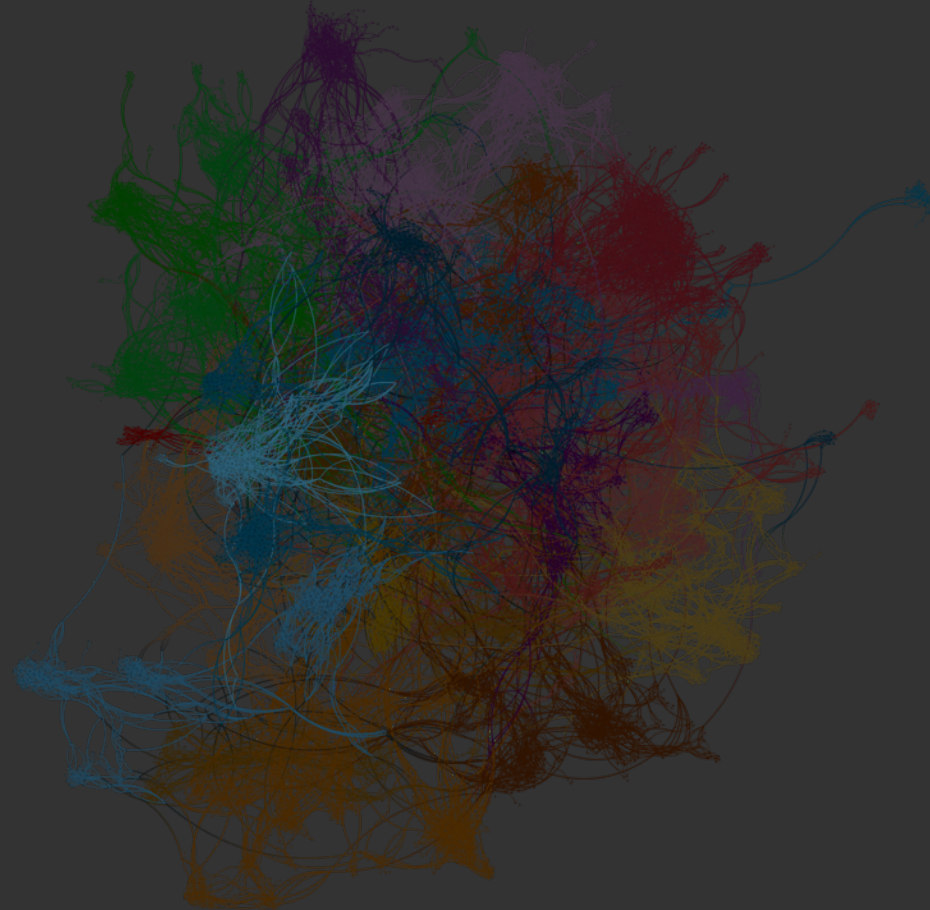
Digital tools allow teachers to design interactive online course programs, with pre-made courses ready to go and custom bundles of tech tools to support specific curriculum, such as STEM. K-12 teachers are sharing lesson plans and class activities.

Transforming publishing and research

Diverse providers can now create, publish and distribute verified, credible knowledge and ideas – and incumbent publishers are diversifying into new fields. For research academics, this area of transformation is seeing the emergence of new social networks for researchers, new models for submitting papers, and new discovery systems for academic research.

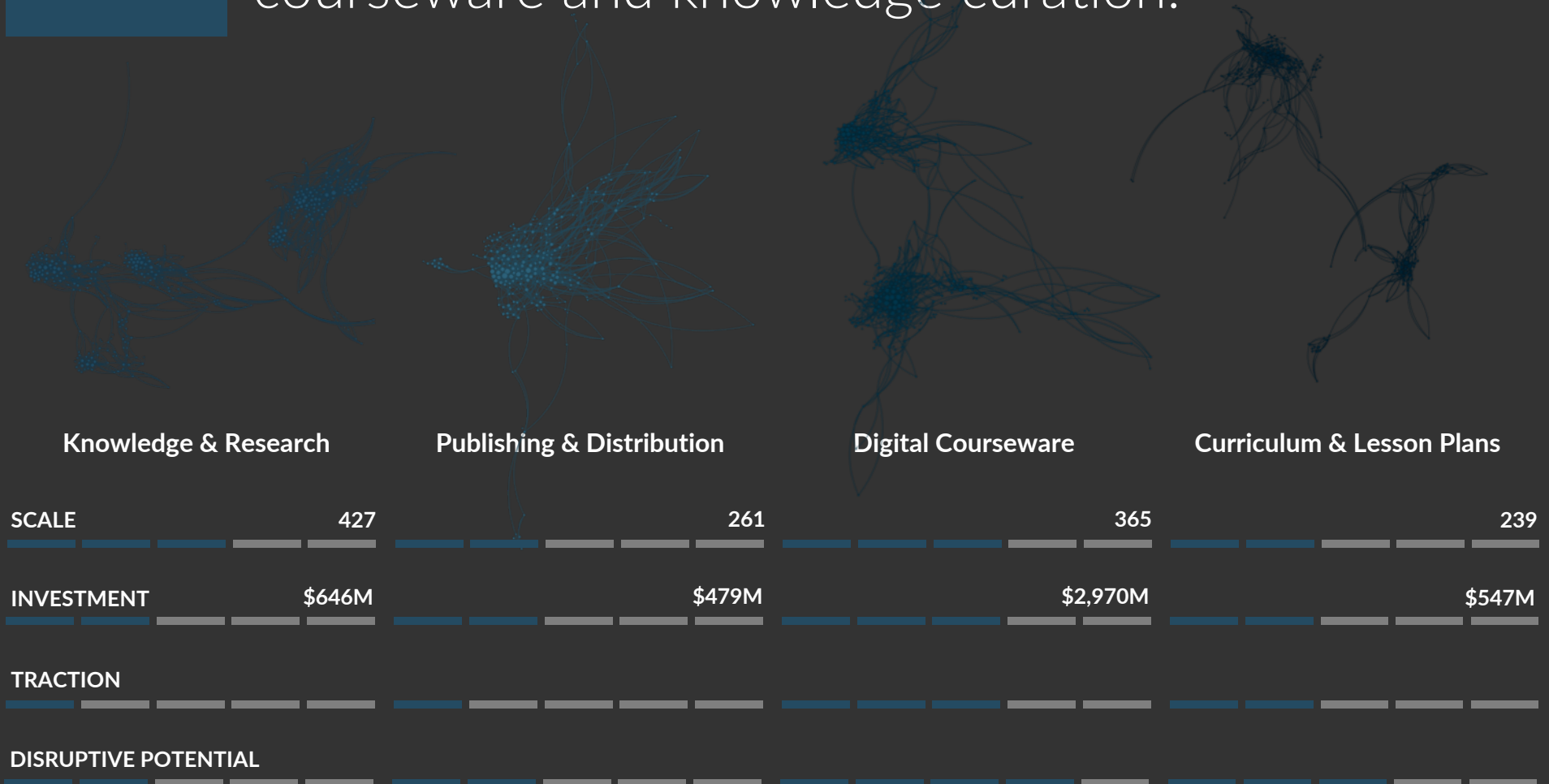
Courseware of the future

For all education providers, whether K-12 or higher education, this is an opportunity to digitise learning content and create adaptive materials to personalise instruction - potentially transforming learners' skill and knowledge acquisition, their ability to retain, recall and apply knowledge in different situations and gain a deeper engagement on topics allowing them to see connections across subject boundaries.



CREATE

Learning design. Creation, curation, curriculum and content. From the printing press to adaptive courseware and knowledge curation.



Knowledge & Research

Digital is driving the evolution of closed knowledge stocks towards open knowledge flows, but the full impact of that transformation is only just emerging. Over 20 years ago it was widely predicted that academic journals would not survive the digital age, yet today they continue in full force. Perhaps the next question is how an industry with enormous volumes of text-based data might evolve with AI and natural language technologies.

Brian Nosek, a director of the Center for Open Science, says “Academic publishing is the perfect business model to make a lot of money. You have the producer and consumer as the same person: the researcher. And the researcher has no idea how much anything costs. I, as the researcher, produce the scholarship and I want it to have the biggest impact possible and so what I care about is the prestige of the journal and how many people read it. Once it is finally accepted, since it is so hard, I am so delighted that I will sign anything. I have no idea I have signed over my copyright or what implications that has – nor do I care, because it has no impact on me. The reward is the publication.”

In recent years, the academic journal model has come under heavy scrutiny. Critics questioned why university, donor, and taxpayer-funded research is locked up behind subscription fees. Startups are taking on different parts of the research lifecycle, from what publication means to taking full articles and conveying information in smaller bite size pieces

Open access journals such as BioMed Central and PLOS (Public Library of Science), and social platforms such as Academia.edu and ResearchGate, are examples of open access, with better sharing and discoverability. A number of search tools have also developed over time, such as Sparrho, Microsoft Academic and Google Scholar. Now we see AI-powered approaches with teams such as Meta and Iris.ai. Over time, could a machine aspire to become a scientist itself?

VISUAL CASE STUDIES



about.yewno

ACADEMIA

academia

Microsoft Academic

academic.
research.microsoft



benchsci



biomedcentral



clockss



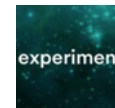
Coalfacer

DOAJ

doaj



elifesciences



experiment



f1000research



growkudos

HUMANITIES
COMMONS

hcommons



frontiers



investigga

Mendel.ai

mendel



mendeley

Meta^α

meta.science



peerj

PKP
PUBLIC
KNOWLEDGE
PROJECT

pkp



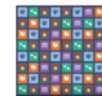
plos



portico

ResearchGate

researchgate



scholabrate

Google
Scholar

scholar.google



scholasticahq



scienceexchange



sparrho

IRIS.AI

the.iris



unpaywall



wellcomeopen
research



writelatex

zenodo

zenodo

Publishing & Distribution

Why would a school pay \$80 for a textbook that may quickly become irrelevant? The US spends more than \$7 billion every year on K-12 textbooks, according to the FCC. And college textbook prices have increased by 812% since 1978, according to the American Enterprise Institute.




































Before the internet, the kingmakers in most industries were the distributors. Connecting makers and consumers was highly complex, and hence a major source of profit. That's where old-world distributors such as media and publishing houses and broadcast networks got their power.

Once dominated by players such as Pearson, Wiley, Cengage, McGraw Hill, and Houghton Mifflin Harcourt, distributors such as Ingram, and campus retailers such as Follett, the incumbents are experiencing a well-publicised shift away from print. The old guard are re-inventing themselves to remain relevant, moving into digital content and diversifying into other areas such as Online Program Management systems (OPMs), digital courseware, and adaptive learning platforms.

Meanwhile, the escalating cost of textbooks spurred rental services such as Campus Book Rentals, Chegg, and Amazon Textbook Rentals, as well as open educational resources (OER) providers such as OpenStax. These players are already updating their business models. Chegg no longer maintains an inventory of physical textbooks, instead partnering with Ingram to operate textbook rentals while it focuses on online businesses such as tutoring, internship search and writing help.

Beyond print, and inspired by the music industry, new and old players are breaking material down into small digital parts, creating 'Spotify-like' models that allow students, teachers and institutions to pick-and-mix access to real-time content rather than waiting for the next edition of a core text to be published.

VISUAL CASE STUDIES

				
amazonNew-Used-Textbooks	bibliotech	Campus bookrentals	catalog.flatworldknowledge	Cengage
				
chegg	ck12	ecampus	follett	Holtzbrink
				
Houghton Mifflin Harcourt	iflipd	ingramcontent	inking	jekkle
				
McGraw Hill	openstax	Pearson	pustakkosh	redshelf
				
Reed Elsevier	Sanoma	schandpublishing	Scholastic	Springer
				
thecampus bookstore	Wiley	xanedu	zookal	textbookrental
				
Cambridge	Routledge	hup	Princeton	global.oup

Digital Courseware

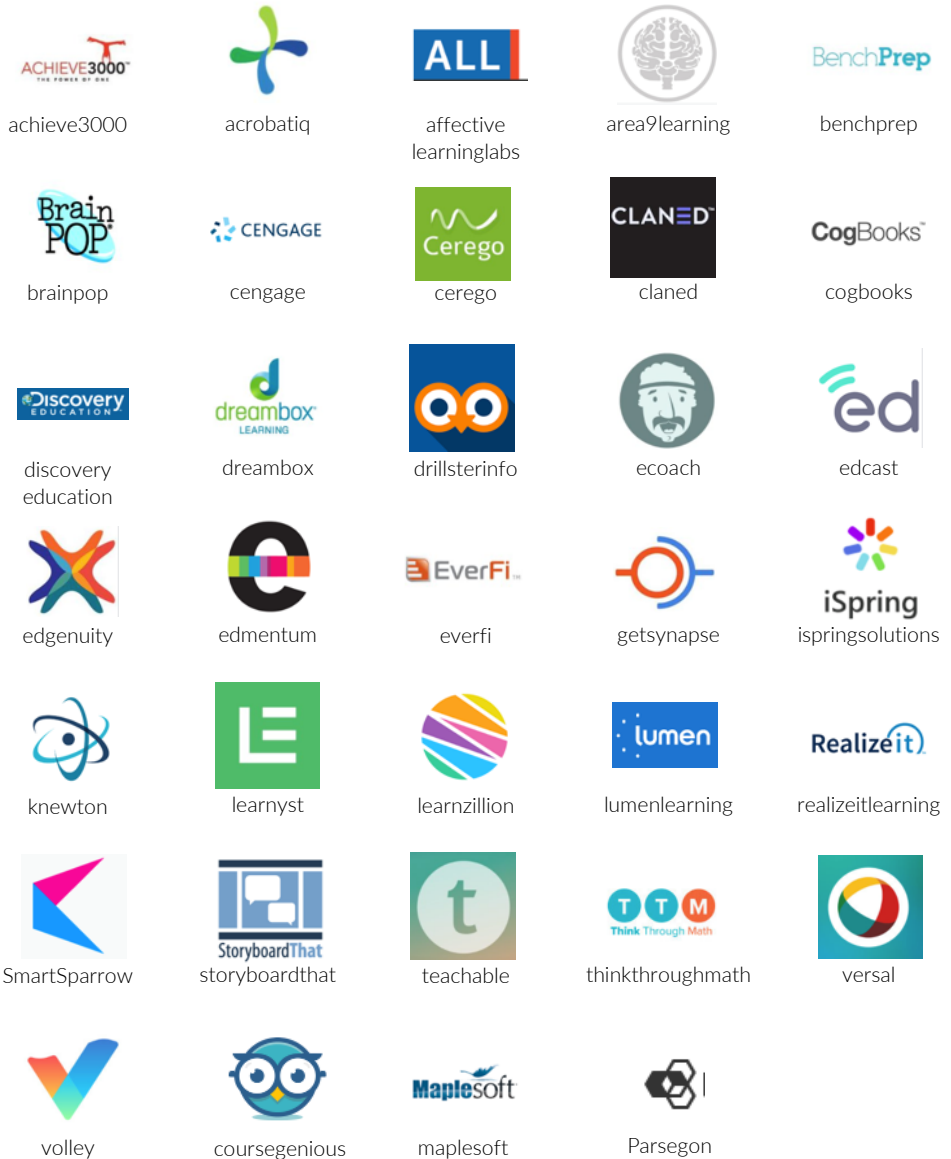
Digital courseware is a space that's still quite hard to define. The Courseware-in-context (CWIC) framework describes it as “instructional content that is scoped and sequenced to support delivery of an entire course through purpose-built software. It includes assessment to inform personalisation of instruction and is equipped for adoption across a range of institutional types and learning environments.”

Stripping back all the ‘features’, we have defined ‘Digital Courseware’ as tools to create and publish digital course materials. We think of what Computer Aided Design (CAD) did for engineering and more recently companies like Canva are doing for design; however, the search continues for amazingly simple learning design software.

Highly effective digital learning objects remain challenging to create but bring with them incredible opportunities for re-use and to capture feedback for either self-improvement or personalisation, something not possible with a traditional textbook. Most digital courseware providers offer adaptive tools, including Knewton, which licenses its technology to publishers; BenchPrep, which focuses on adaptive test prep materials; and Smart Sparrow, which provides course-building tools and assistance for instructors.

By nature, this cluster overlaps with several others. Digital courseware can be used to deliver math, science, literacy, language, and testing and assessment materials. Courseware providers often supply their own content, becoming MOOCs (Massive Open Online Courses). Many have grown to include Learning Management System (LMS) functionality and, with their orientation around learning objects, promise better learner outcomes through personalisation and adaptability.

VISUAL CASE STUDIES



Curriculum & Lesson Plans

Beyond content, and firmly in the hands of educators, are tools and models to support the curation and sharing of exceptional learning experiences.

What if we change our orientation from curriculum as a textbook to ‘curriculum as a service’ – one powered by technology and human expertise? Relying on textbooks for lesson planning, teaching and assessment has a number of limitations. Does it fit the needs of the school or the learner? Are the texts available and affordable? Do the assessments help the teacher or institution see patterns in actual learning, and then use those patterns to respond to learners’ needs?

A wave of startups are moving in to help education professionals collaborate, map and design a new type of curriculum. These can be in specialised areas such as science or coding, or offered in conjunction with the company’s own product. Examples include Mystery Science, LearnZillion, VidCode, and projects such as SolarOne’s Green Design Lab.

Meanwhile, teacher-entrepreneurs are leading the development of peer-to-peer marketplaces, driven by rising standards and the willingness of teachers to pay out of their own pockets for classroom-tested materials. These include TeachersPayTeachers, Teacher’s Notebook, and Better Lesson, as well as informal solutions such as private Facebook groups.

Some educators worry the increasing monetisation of lessons will stifle the longstanding practice of teachers freely sharing their ideas. And legal experts question whether teachers actually have ownership of the lessons they are selling.

For teachers buying the materials, however, it gives them the head space to think about the ‘how’ of delivering the content for the best outcomes for their learners, because they have not had to dedicate so much time to the ‘what’. It’s a major time-saver, allowing them to reclaim the nights and weekends otherwise spent starting lessons from scratch - and often for no more than the price of their morning coffee.

VISUAL CASE STUDIES



activelylearn



alchemylearning



better
lessonhome



curriki



designed
byteachers



digarc



eduporium



getogment



getsynapse



gpaed



learnzillion



lessoneer



memarden



opencurriculum



participate



sharemylesson



superteacher
worksheets



teachersconnect



teachers
payteachers



tes



teachwise



illuminations



lessonsplans



teachnology



leSSonS.atoz
lessons.atoz



teachers.net



edhelper



lessonsplanet



edgalaxy



teachersnotebook



teacherlingo



edrolo



senteacher



teacherplanet



readwritethink

MANAGE

Manage

This area of transformation supports the management of the three dimensions of education as an operational business: the institution itself, students and staff.

For the education provider, this includes operational management systems, including compliance and reporting. It also provides rich data analytics, supporting better decisions about staffing, course enrolments, and even individual student learning issues.

Improving operational efficiency

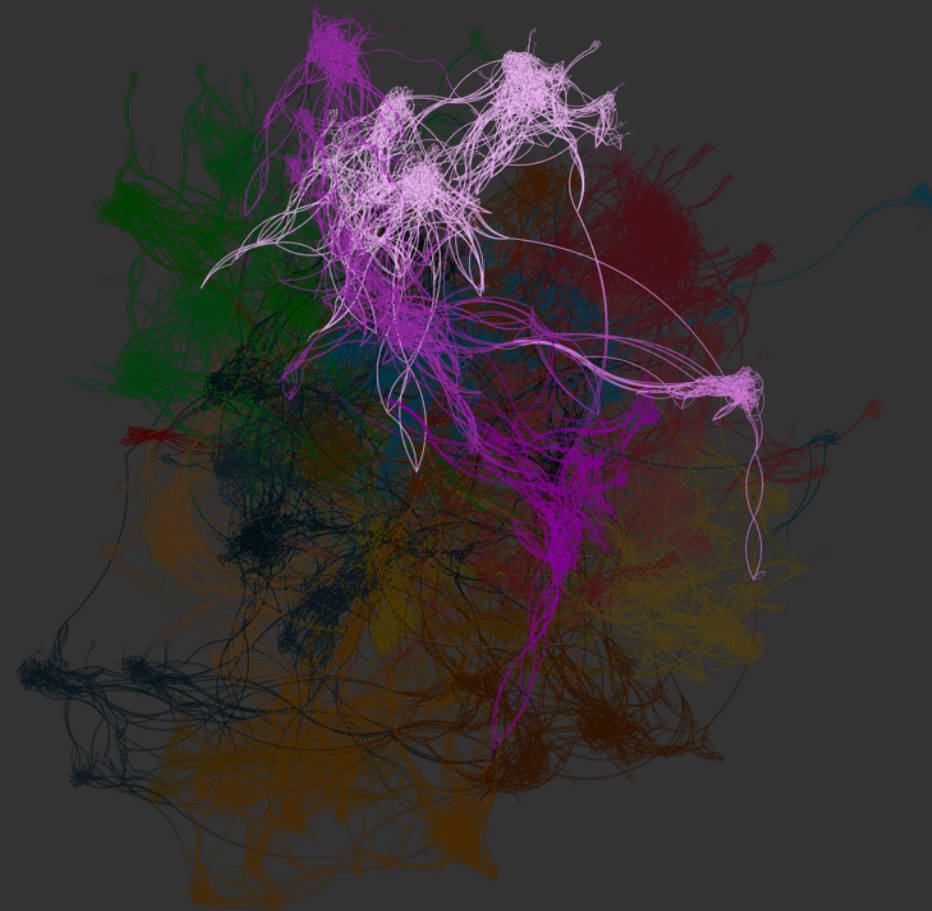
Technology can be a powerful tool to relieve the burden of manual processes. New edtech providers are challenging incumbent enterprise management systems, providing tailored solutions for specific education needs – like class planning, enrolments or degree accreditation.

Improving student management

These management platforms can also remove friction from the entire student learning journey, and use rich data analytics to improve student outcomes and retention.

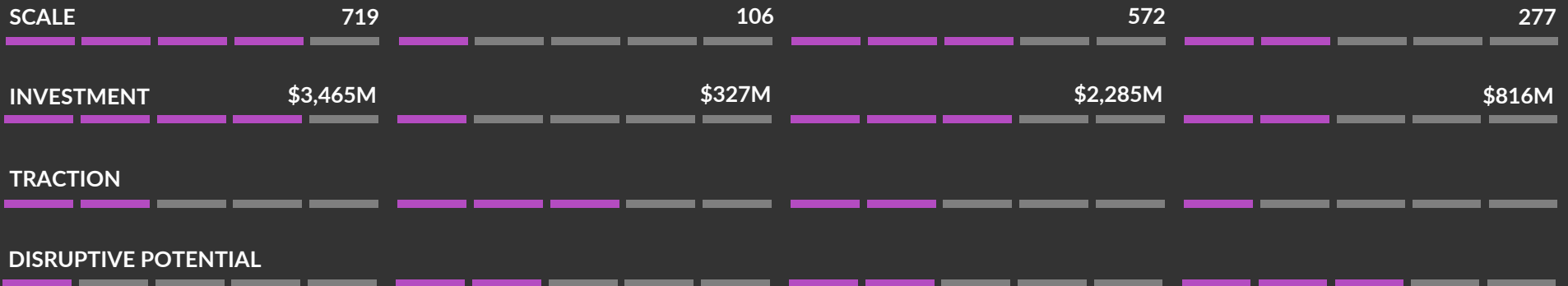
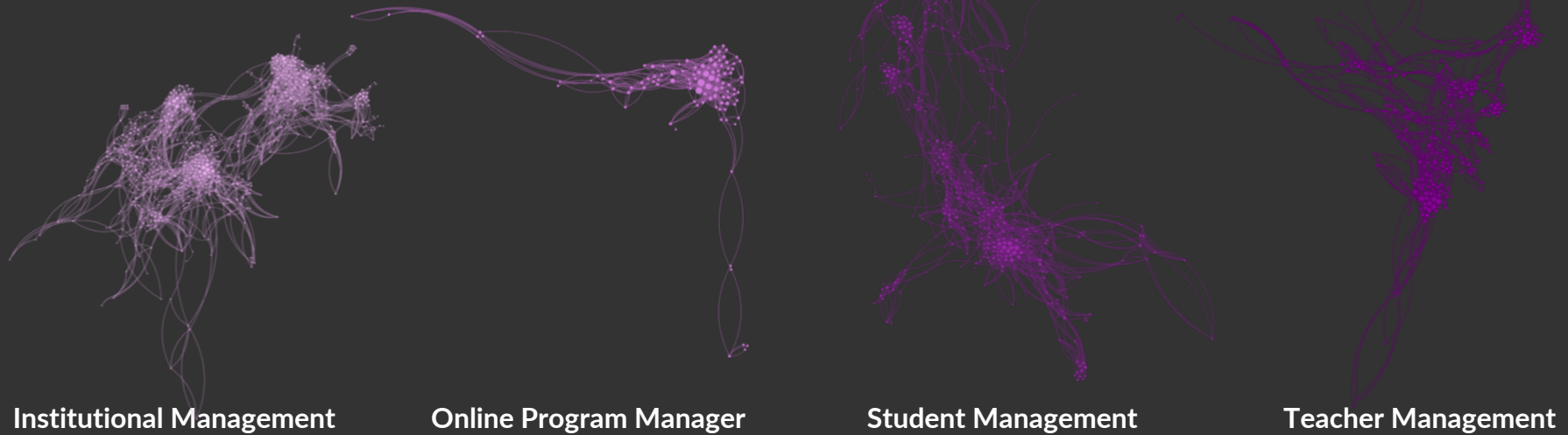
Staff recruitment and development

Technology has changed the way all organisations identify, recruit and develop their talent – and education is no exception. From managing relief teachers in schools to attracting global academic talent, new platforms are replacing traditional paper-based programs. Technology is also expanding access to scalable professional development for educators.



MANAGE

Learning management technology that drives institutional efficiency and effectiveness across operations, staff and students.



Institutional Management

Schools, colleges, universities and institutions are now enterprises with increasingly complex and sophisticated needs. From financial management, asset management and resource planning to timetabling, room booking, access control and campus security, the list is long.

By and large, this space is dominated by established vendors including large technology companies (such as Oracle and SAP) and education-specific providers (Ellucian, room-booking software providers, and donor-management software providers).

Enterprise Resource Planning, Business Intelligence and Enterprise Asset Management providers are now awakening to the enormous potential in 'education as an industry vertical'. Over the last five years, large incumbents such as IBM, Oracle, SAP, Microsoft and Salesforce have grown their education teams to fit the demand of institutions stuck between legacy systems and the dynamic needs of learners, academics and administrators.

One startup operating in this space is Abl, which offers software for school principals to manage their master schedules. Another group worth highlighting is education-specific crowdfunding sites, such as DonorsChoose, Adopt a Classroom, and SchoolsPlus. These represent a broader theme seen across digital transformation – the rise of crowdfunding and crowdinvesting, which have facilitated direct connections between those with cash and those who need it.

VISUAL CASE STUDIES



ablschools



acstechnologies
products



activeeducate
solutions



adoptaclassroom



Alibaba



Amazon



Apple



Baidu



campuscafe
software



classwallet



donorschoose



edval



ellucian



EMC



fedena



foradian



gibbonedu



givecampus



Google



Huron



IBM



Jenzabar



learningseat



Microsoft



praxipower



renweb



Ruffalo Noel Levitz



sagencelearning



Salesforce



SAP



SAS



school-time



schoolsplus.



skyward



Tencent

Online Program Management

OPMs design, run and market online education programs for institutions, typically receiving a percentage of a student's tuition fees or profit share for compensation. In today's competitive higher education market, more schools are turning to online education to meet student expectations, enhance the student experience and provide alternate revenue and growth.

The appeal of OPMs is two-fold. First, they provide services that historically lay outside the competency of traditional universities (which were geared towards face-to-face education). Second, OPMs typically bear the upfront costs of setting up the program. For institutions, this represents the opportunity to create a new revenue stream at limited cost to themselves. Five companies reportedly control about half of the \$1.1 billion OPM market in the US: 2U, Academic Partnerships, Bisk, Pearson Embanet and Wiley Education Solutions. It is a fast growing space with new entrants launching around the world almost every week. MOOC providers such as Coursera and FutureLearn are also expanding into this space, partnering with universities to offer online degrees.

OPMs differ across dimensions such as business model, range of services and scope of programs they deliver. For example, 2U focuses on US-based graduate programs, principally works with 'brand-name' universities, and offers small class sizes, often with a 'hybrid' model (for instance, sourcing practical placements for degrees in nursing and social work). Recently, it diversified into short courses with the acquisition of South Africa-based GetSmarter. Meanwhile, Orbis Education works with academic and healthcare partners to provide hybrid courses combining online, face-to-face, and experiential learning.

OPMs almost always operate on a tuition-splitting basis, but a new OPM model is emerging, based on a flat fee for services.

VISUAL CASE STUDIES



2u



academic partnerships



allcampus



avagmah



bisk



capitaleducation



comcourse



edservices.wiley



everspringpartners



helixeducation



hotchalk



integrated solutions



ir.chinaedu



keypathedu



learninghouse



noodle-partners



orbiseducation



Pearson



synergiseducation



oes



capdm



knowlura



emergeedu



integratededsolutions



meteorlearning



elevatehigher ed



extensionengine



greenwoodhall



laureatepartners



idesignedu



relearnit



blackboard



apollidon



coursera



instructional design

Student Management

Often called Student Information Systems (SIS), this cluster of models sits between management of the institution as an enterprise, and the delivery of education through learning management systems.

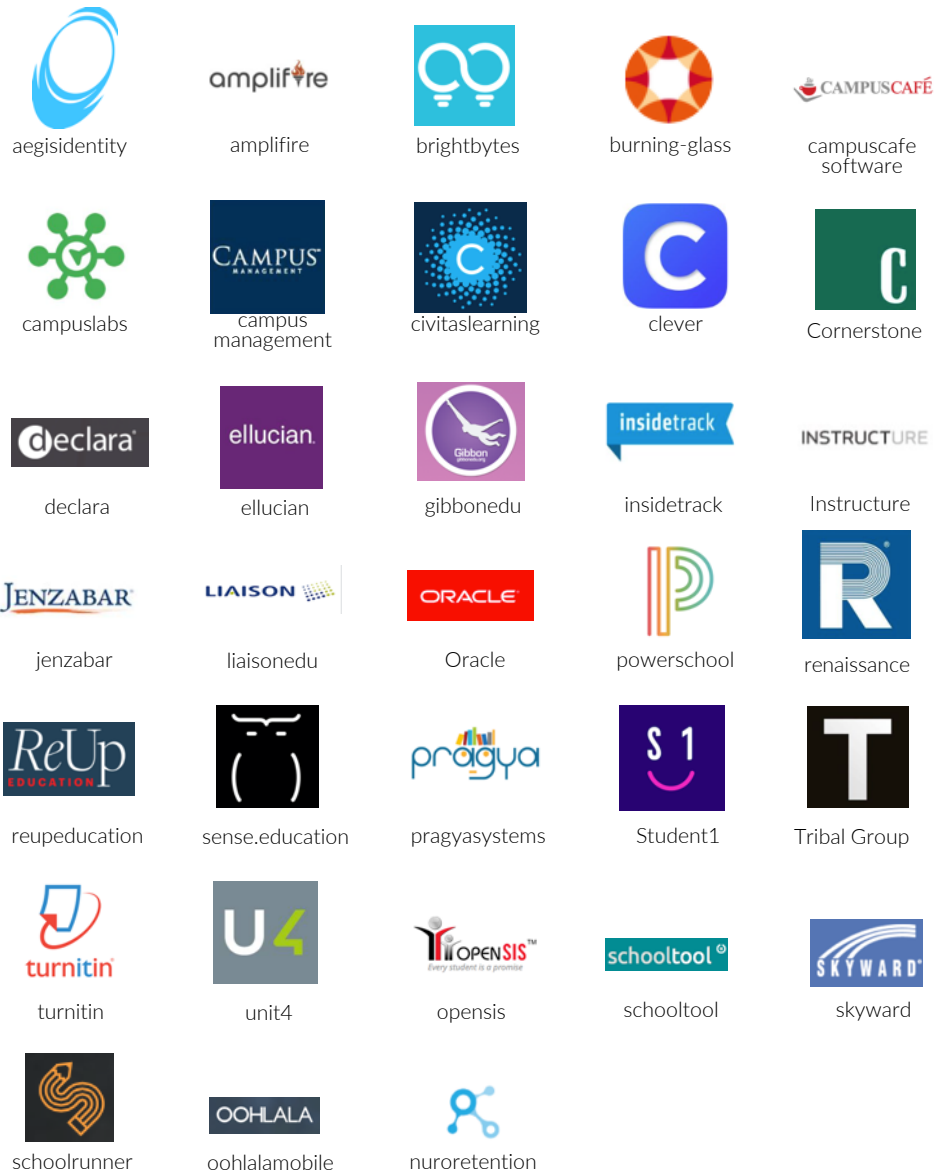
Technology teams in institutions are challenged to provide the data needed to inform decisions and improve student success. This means capturing and unifying data from class management, attendance, enrolment and grades through to engagement and learning behaviors from the LMS or digital courseware. In addition, regulators are looking for more robust reports and management of student experience and outcomes.

Traditionally SIS have been provided by education-specific companies such as Ellucian and Jenzabar. Recently, cloud-based SIS have begun to appear, such as that provided by Unit4.

The key theme in this cluster has been the rise of solutions for ‘student success’ – improving student retention and graduation rates. Using predictive analytics, educational institutions such as Georgia State University and Arizona State University can identify students who may be experiencing academic or financial trouble, then refer them to human advisors.

Another segment has emerged looking to unify existing systems rather than displace or replace. Teams such as Civitas Learning are taking a data-centric approach that integrates with multiple sources of information to connect and unify diverse systems of record, enabling precise interventions and outreach.

VISUAL CASE STUDIES



Teacher Management

Talent management and professional development for educators is arguably under-developed compared with other industries.

As the academic labour market evolves, we've seen the emergence of a global marketplace for talent, increasing casualisation of the academic workforce, and a rise in online and cross-border delivery. This environment demands a better way to find the right person for the job. The first wave of innovation comprised industry-specific job sites that allowed candidates to search by criteria such as category (faculty or administrative), discipline, and full-time or part-time status. Examples include UniJobs, SchoolSpring, AcademicKeys, HigherEdJobs and HERC Jobs.

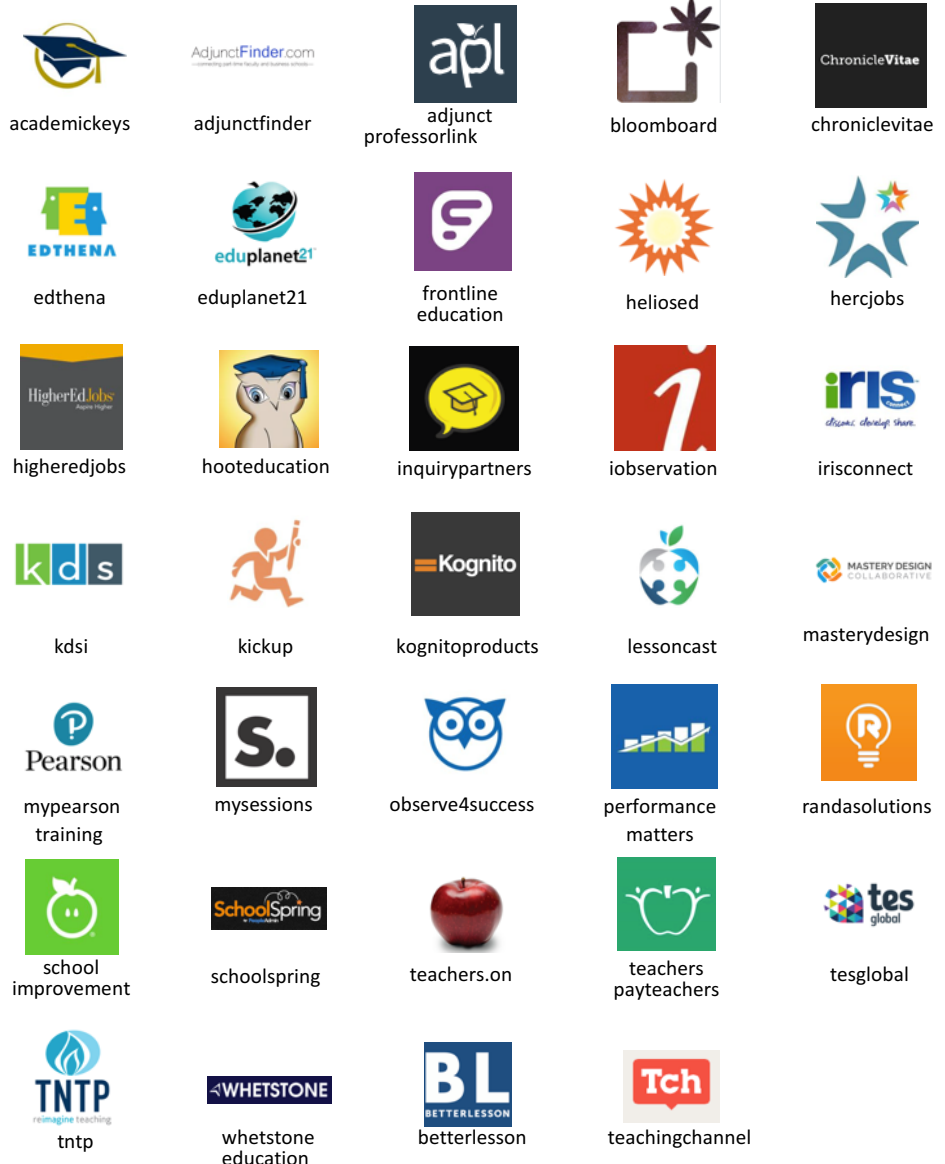
Now, edtech is empowering the 'gig economy'. Platforms like Sessions, AdjunctFinder and AdjunctProfessorLink allow institutions to find and manage adjuncts (part-time or casual academic staff), at a relatively early stage. Adjunct academics can register themselves on these sites and record details including their skills, location and availability.

The K-12 market is very different from higher education – hiring is much more local – and as such, the K-12 equivalent, ClassCover, solves a different problem. It allows schools to hire and manage relief teachers, avoiding the inconvenience of manually contacting and scheduling them when they are needed.

Educator professional development solutions are largely concentrated in the K-12 space, such as Edthena and Bloomboard. Professional development for higher ed teaching has been grassroots and ad-hoc, often driven by individual institutions.

Regulation (such as excellence frameworks) has the potential to drive market growth and encourage industry-wide brands for professional development in learning and teaching. Examples include Epigeum, which offers lessons to academics on research, teaching, studying, and administration.

VISUAL CASE STUDIES



DISCOVER

Discover

This step in the education journey helps prospective students find the right program or pathway for their needs, allows them to apply online, and also helps them understand their options for funding their study.

Technology offers new platforms for recruitment, admissions and enrolment – as well as financing program fees – that put the learner in control.

Making admissions easier

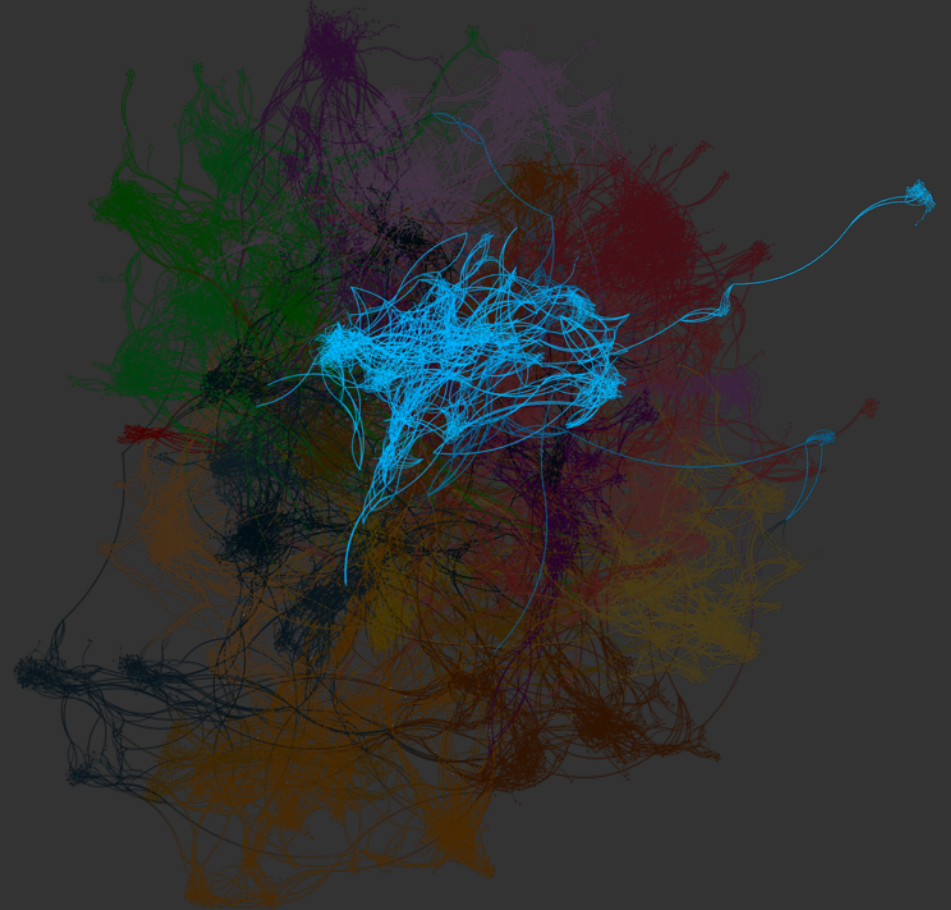
By removing the paperwork and streamlining the enrolment process, technology can improve the student (or parent) experience and reduce the time it takes to process applications. This also has implications for international agents, as AI chatbots can effectively guide a student through the process.

New international pathways

College preparation and pathway programs provide greater access to traditional education programs, and will increasingly be delivered through multiple channels. Admissions consultants and mentors, such as MBA coaches, could also scale their services via video and other advice or tutoring platforms.

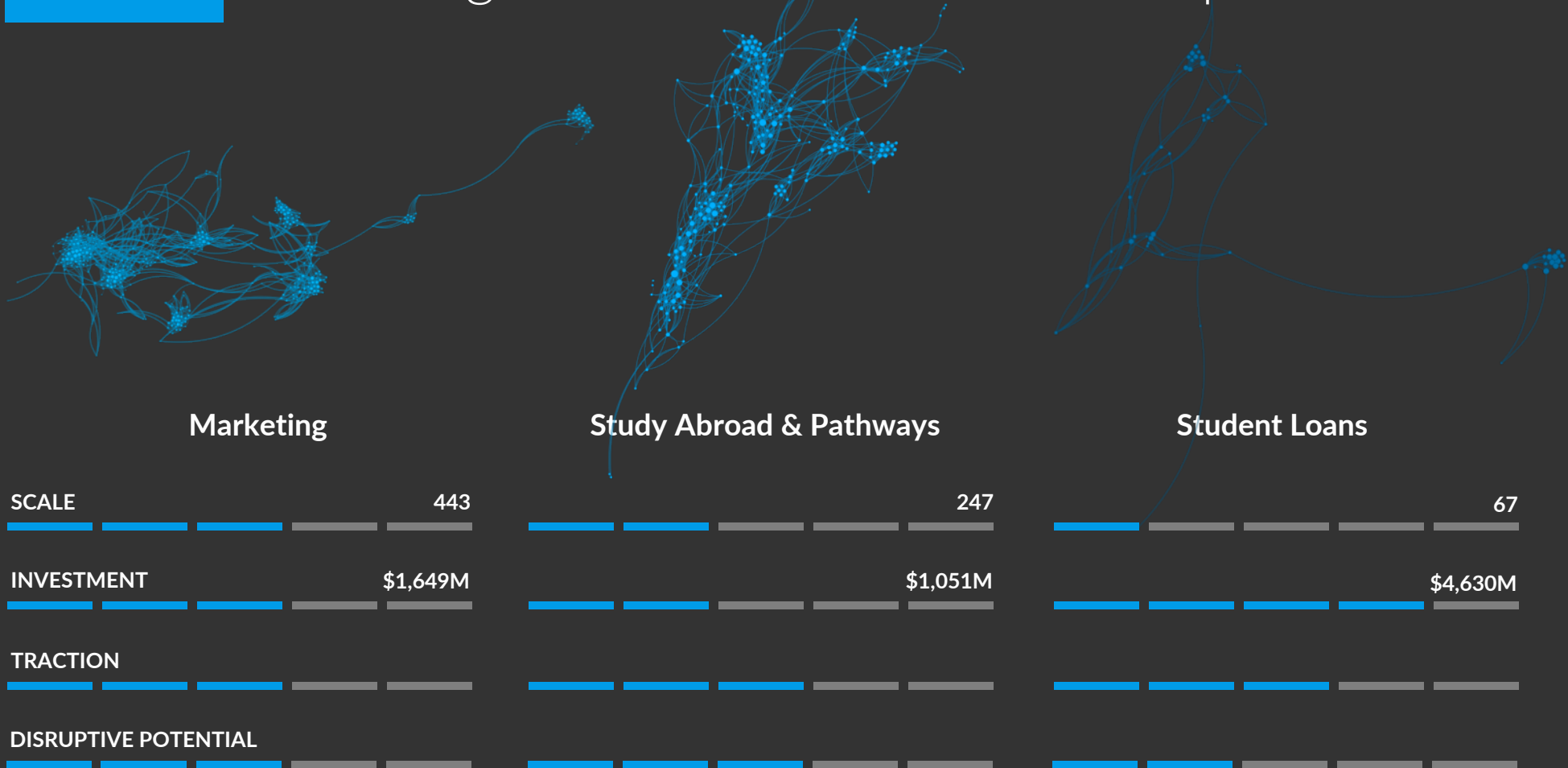
Student financing

Removing a roadblock for some prospective students, new platforms make it easier to find and apply for alternative funding models for education - from student loans to grants and scholarships. Tools can also help providers digitise forms and match verified details for financial aid or grant approval. With increasing concern around affordability and return on investment (particularly in the US, where a lot of this edtech's funding is directed), this is an interesting cluster to watch.



DISCOVER

From push to pull, the new pathway to learning puts the learner in the driver's seat. Discovering and being discoverable in a world of options.






































Enrolment & Admissions

The student's journey often starts by searching for, and learning about, an institution and the courses and learning opportunities it offers, before applying and moving through an often painstaking admissions process. For decades this process has been dependent on brochures and open days, but is now rapidly moving to online and social channels, adopting sophisticated consumer sales and marketing strategies.

Portals such as Unigo and MastersPortal have been around for some time now and allow students to search across multiple institutions and scholarships. AdmitHub offers universities a chatbot that can answer questions about undergraduate admissions (when is my student aid application due?) to supplement human advisors. Meanwhile, StudyLink, Bridge-U and CampusLogic offers SaaS (Software as a Service) tools for universities to digitise the admissions and enrolment process, manage verification, match student profiles against scholarship criteria, and more.

Finally, the so-called 'near-peer' approach to admissions coaching draws upon current university students for advice. One example is CollegeVine, which uses tertiary students and recent graduates to provide mentorship, admissions advice and essay editing, and SAT tutoring to school students. Another is AdmitSee, which allows successful university applicants to upload LinkedIn-style profiles that include their exam scores, extracurricular activities, and essays, in exchange for commissions based on the number of people who view their profiles.

VISUAL CASE STUDIES

 51liucheng	 admissiontable	 admithub	 admitsee	 app.visitdaysproduct
 bridge-u	 campuslogic	 capturehighered	 careers360	 collegemojo
 collegevine	 creer	 crimsoneducation	 e-verify	 eab
 eiceducation	 enrollmentrx	 execed.economist	 fenyuanmao	 gooduniversitiesguide
 kiratalent	 masterstudies	 plexuss	 quero.education	 ruffalonl
 shanghai ranking	 signalvine	 studentbridge campus-bubble	 studylink	 studyportals
 timeshigher educationworld- university-rankings	 top universitiesqs-world- university-rankings	 unigo	 unispotter	 usnewseducation

Study Abroad & Pathways

Innovation often occurs on boundaries and borders. The path from K-12 to post-secondary, especially for international students, has been a source of many new models over the past decade.

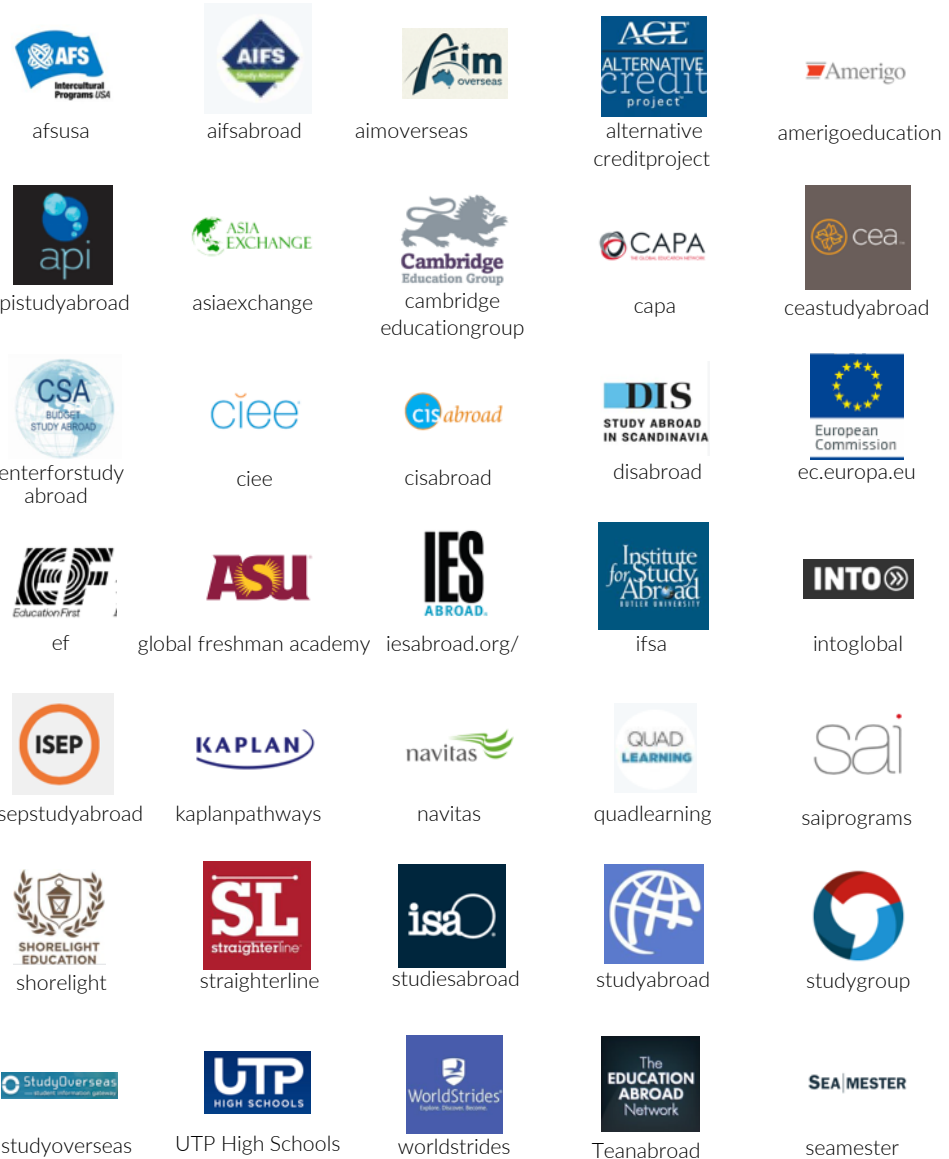
The pathway model emerged in the 1990s and has grown significantly in the last 10 years. University partnerships such as Navitas, Study Group, INTO and Shorelight support the internationalisation of campuses around the world, and the success of their international students.

The model is increasingly being applied to domestic students who also benefit from the high-touch, supportive approach. QuadLearning's American Honors program, which works with community colleges, provides honours programs that allow their students to transfer into 4-year degrees at universities.

More recently, the pathway model has evolved, again with several organisations seeking to take their teaching online. StraighterLine and Arizona State University Global Freshman Academy (a partnership between ASU and edX) provide online first-year courses that can then be credited towards a degree, often with the goal of improving affordability.

There are a large number of Study Abroad programs. Recognising the importance of international literacy, governments have sought to encourage student mobility with initiatives such as the Fulbright program (US), ERASMUS (EU), and the New Colombo Plan (Australia). Recent years have seen increased student interest in short-term programs, instead of the traditional semester or year-long model.

VISUAL CASE STUDIES



Student Loans & Finance

Education is often a major expense for families around the world. Invested well, it can deliver a sound financial future for the next generation and potentially upward social mobility for generations to follow.




































As a result, a new generation of tech-enabled startups are reimagining how students finance their education, and make the financial transition from college to career. Higher education's transformation is, in turn, fueling a trillion-dollar convergence of fintech and edtech that aims to blur the line between learning and earning – and will force students, colleges and financial institutions alike to think differently about return on education investment.

In the US, student lenders have attracted significant funding. The most striking example is online lender SoFi, which raised US\$500m in 2017 alone. Other examples include CommonBond (US\$30m in equity during 2016) and College Ave (US\$30m in 2017). Outside the US, Prodigy Finance is a lender targeting the high end of the market – graduate students at ‘brand-name’ universities studying engineering, law, public policy, or business administration. Its founders saw a gap in the market: the difficulty international students faced in obtaining loans. Peer to peer online micro-funding is also finding traction with students in emerging markets.

In the K-12 space, EdStart in Australia provides loans for parents to fund private schooling for their children. A number of different services also exist to help students discover scholarships. One interesting example is Raise.me, which works with universities to offer ‘micro-scholarships’ to high school students, based on criteria such as their grades, the classes they take, and their extracurricular activities. Others include university search sites such as Unigo and dedicated scholarship sites such as ScholarshipPortal.

Finally, there are organisations like Flywire that help colleges process payments from international students – taking on giants like Western Union and diversifying into other education payment processing opportunities.

VISUAL CASE STUDIES

 Alltuition	 Coderstrust	 collegeave studentloans	 Commonbond	 Credila
 Credible	 Dollarship	 Earnest	 Flywire	 Futurefinance
 Gyandhan	 Higherone	 Kiva	 Lendedu	 Lumni
 Mpowerfinancing	 Nelnet	 Nextgenvest	 Opentap	 Qifang
 Raise	 Scholarshipportal	 Simpletuition	 Simplifi	 Sixup
 Selfscore	 Skolafund	 Sofi	 tuition	 unigo
 Upstart	 Vemo	 Vittana	 stilt	 Student financeafrica

CONNECT

Connect

Technology platforms are also connecting students with study resources, with their teachers, and with each other.

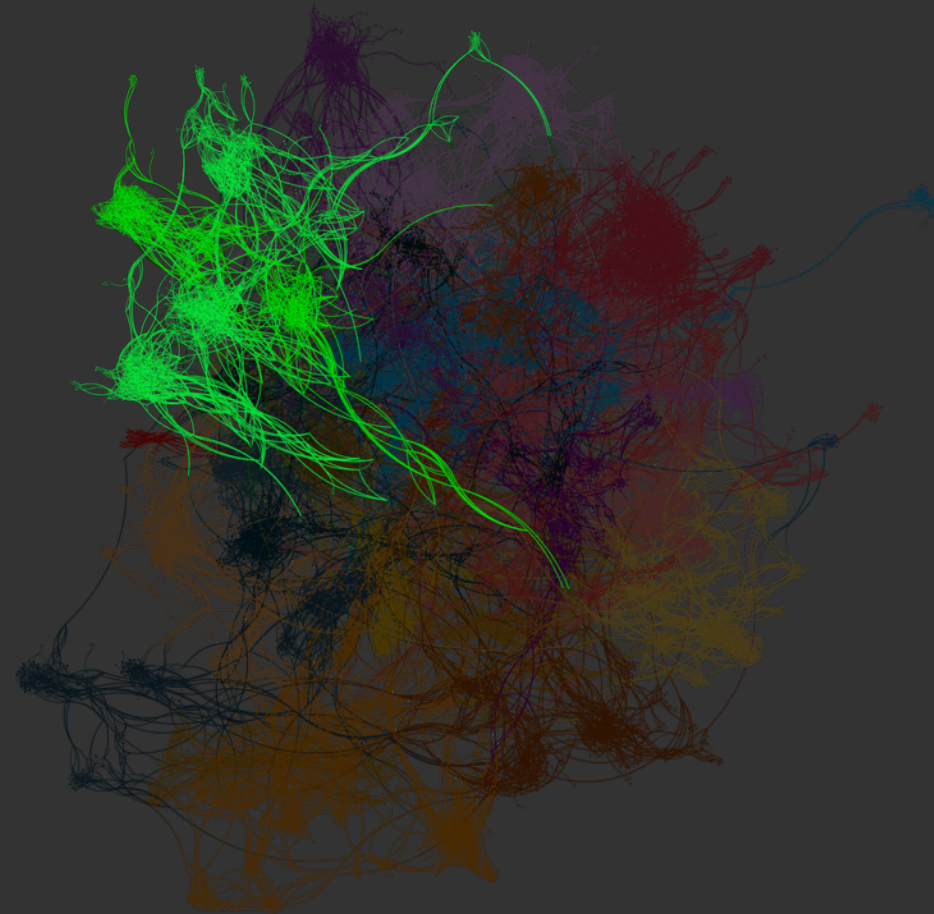
Open, social and mobile native, these digital environments put learner experience at the core to enhance learning processes and class interaction. These ecosystems can replicate the advantages of a physical lecture theatre or classroom, but at scale.

Shifts in learning management systems

Incumbent learning management systems (LMS) such as Moodle and Blackboard have made great inroads in both schools and higher education, but the market is turning towards open APIs to create interoperable systems.

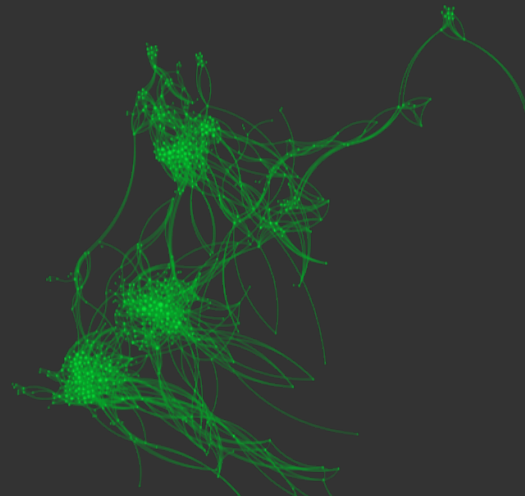
Learning gets social

Other platforms are emerging to connect students and teachers through virtual meetups – and have the potential to bring together alumni, parents and other stakeholders.

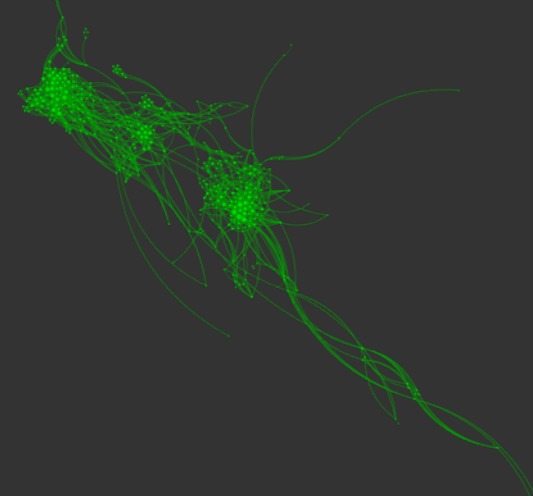


CONNECT

Platforms that build ecosystems. From learners to teachers and peer to peer. Open, social, mobile and competing on learner experience at the core.



Learning Management



Social Platforms



Learning Management

Learning Management Systems (LMS) administer, document, track, report and deliver learning. They generally focus on online learning delivery but support a range of applications, acting as a platform for fully online courses, as well as several hybrid forms such as blended learning and flipped classrooms.

To some extent, the structure of the LMS market reflects the broader structure of the education system in that separate providers generally specialise in K-12, higher education or corporate training, although some solutions do cross over.

The dominant platforms are Blackboard, Moodle, and Canvas, with Blackboard having the largest market share in North America, Moodle leading in the rest of the world, and Canvas rapidly gaining ground. The smaller end of the market is consolidating – for example, universities are transitioning from systems such as ANGEL and Sakai, and Pearson is withdrawing from the LMS market.

K-12 LMSs generally offer more features related to management, including absence reporting and communications between the school, the student, and the parent. While data on the K-12 LMS market share is limited, notable players include Schoology, Canvas, Edmodo and SEQTA. Large tech companies are also playing in this space via Google Classroom and Microsoft Classroom.

Corporate LMS suppliers include Saba, Cornerstone, SkillSoft's SumTotal, and large enterprise software providers such as SAP and Oracle, introducing a fair amount of overlap between corporate LMSs and HR tech.

Since LMS began as simple communication/file transfer platforms in the late 1990s, they've acquired more sophisticated features. Recently there has been greater emphasis on interoperability with other software packages (through APIs), the move to the cloud, and the importance of design and user-experience. In 2015, the EDUCAUSE Learning Initiative proposed the 'next-generation digital learning environment', a 'Lego approach' of modular, interoperable systems.

VISUAL CASE STUDIES



axonify



blackboard



blueskylearn



bneloudcloud



claned

cornerstone
ondemandcrossknowledge
technologies

d2l



didacte



docebo



e3learning



Google Classrooms



efrontlearning



enterprise.versal



fariaedu



Grovo



infomentor



instructure



ispringsolutions



itslearningwelcome



kannu



learningcart



learnupon



lessonly



moodle



OpenLearning



saba



schoology



seqta



Skillsoft



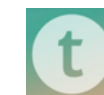
skyprep



SmarterU



talentlms



teachable



thinkific

Social Platforms

If the original goal of the LMS was to connect a student with content in a structured way, social platforms principally focus on connecting learners with each other. The fundamental design principle is peer-to-peer, covering both synchronous and asynchronous formats. Social platforms seek to address the challenge of teaching and assessing learning outcomes that are nuanced, nonlinear and deeply human.

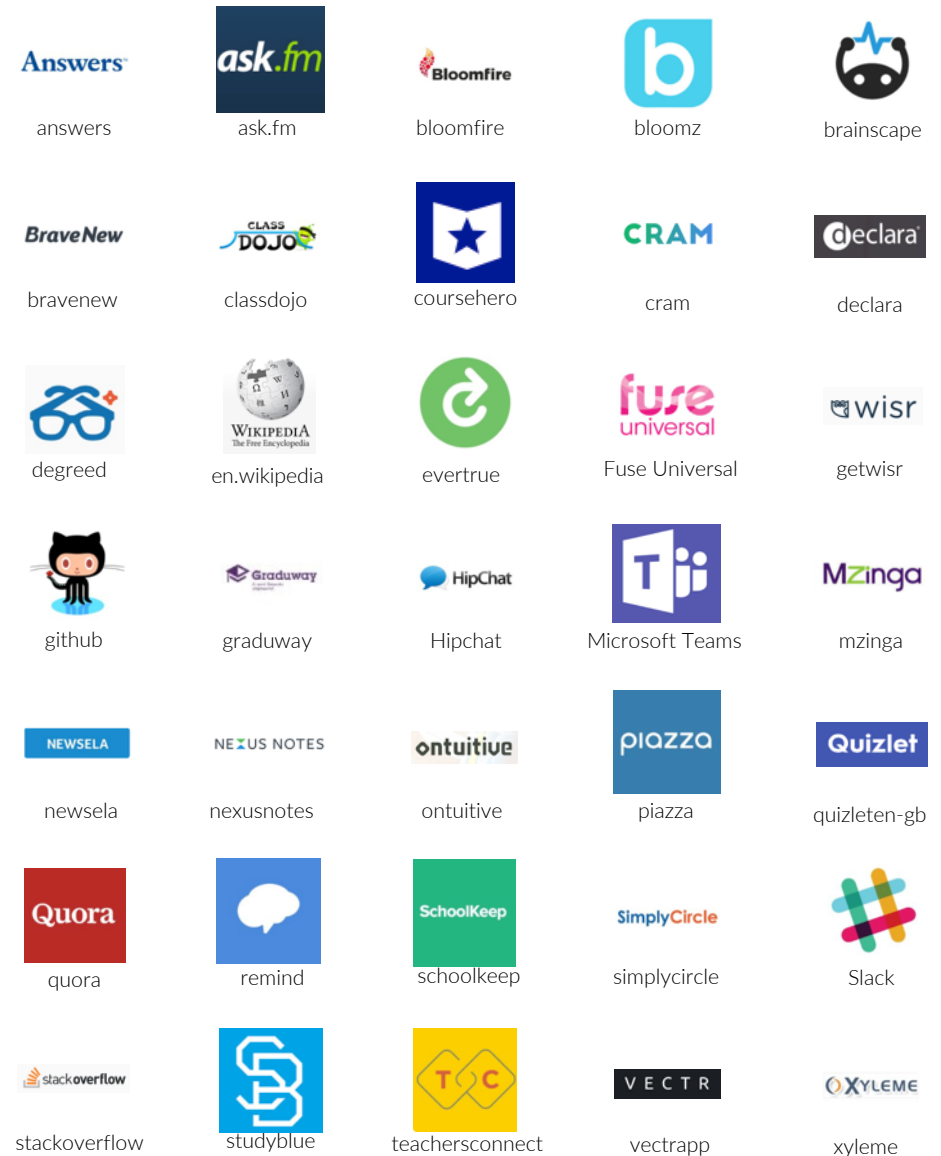
In K12, social platforms are being used to connect students and educators to other stakeholders, such as parents and alumni. ClassDojo, Remind, and Brightwheel for example connect parents with their child's learning. They support stronger communities and evidence better outcomes.

In the higher ed space, Wisr allows universities to connect with their alumni and connect alumni to current students. Packback offers an online student Q&A platform for open-ended discussion questions, while sites such as Course Hero and Study Blue facilitate students sharing class material and study resources.

Social Q&A platforms are having an enormous impact on informal learning, with players such as Quora as well as developer's resources such as Stack Overflow now making their way into formal curriculum as means of teaching students to access knowledge and skills from the community in real-time work environments.

Finally, we have seen collaboration platforms such as Slack and HipChat talked about as the next evolution of the LMS. Where learning outcomes require multiple points of view and nuanced conversation, proponents argue we don't need platforms that automate, adapt or operate solely by algorithms. The ability to pivot between large-group, small-group and solo learning starts to feel more akin to the seminar classroom than the lecture hall.

VISUAL CASE STUDIES



EXPERIENCE

Experience

Teaching the next generation of learners to think creatively, solve problems and collaborate in new ways requires immersive, engaging learning tools.

Through games and simulations, robotics and artificial intelligence (AI), the learning experience will be increasingly dynamic.

Getting the basics right

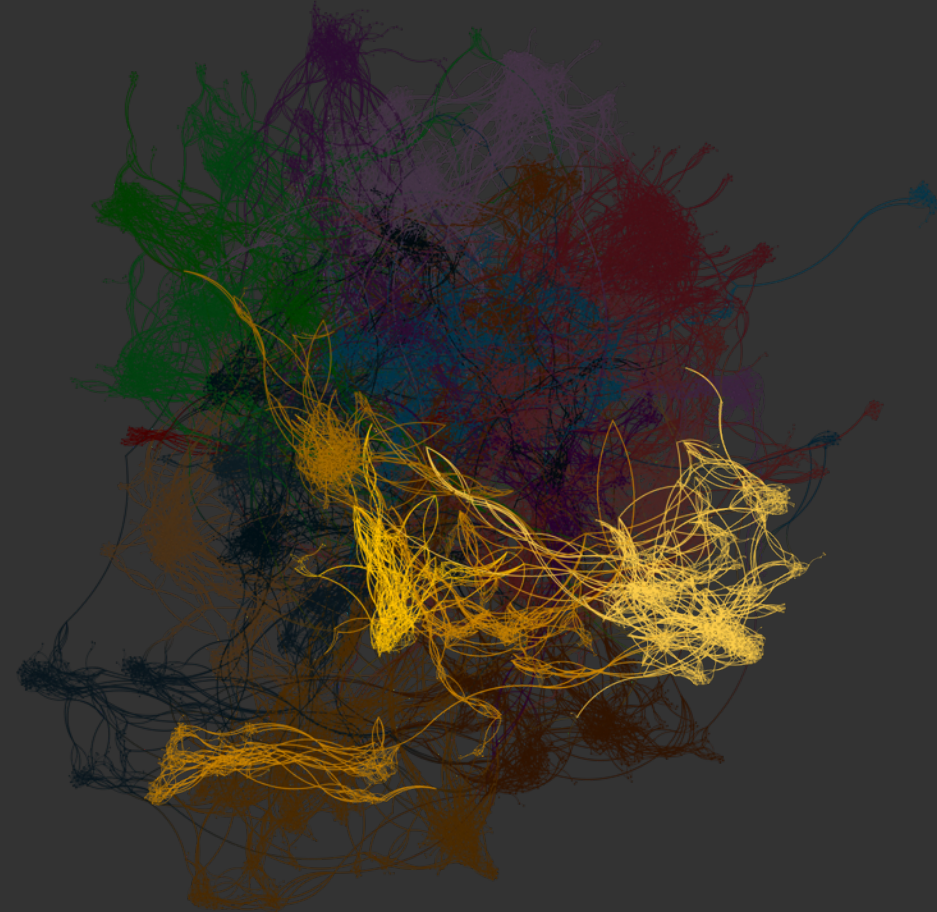
New tools are making it easier (and more fun) to get the foundations in place – including math, science and literacy. Pop quizzes are more engaging (and interactive) in a digital dimension.

Immersive classroom technology

Different skills are absorbed and retained more effectively in different ways. For specialist skills, like coding or robotics, students (including young children) are using tech platforms to learn through play – and in the process learning valuable life skills.

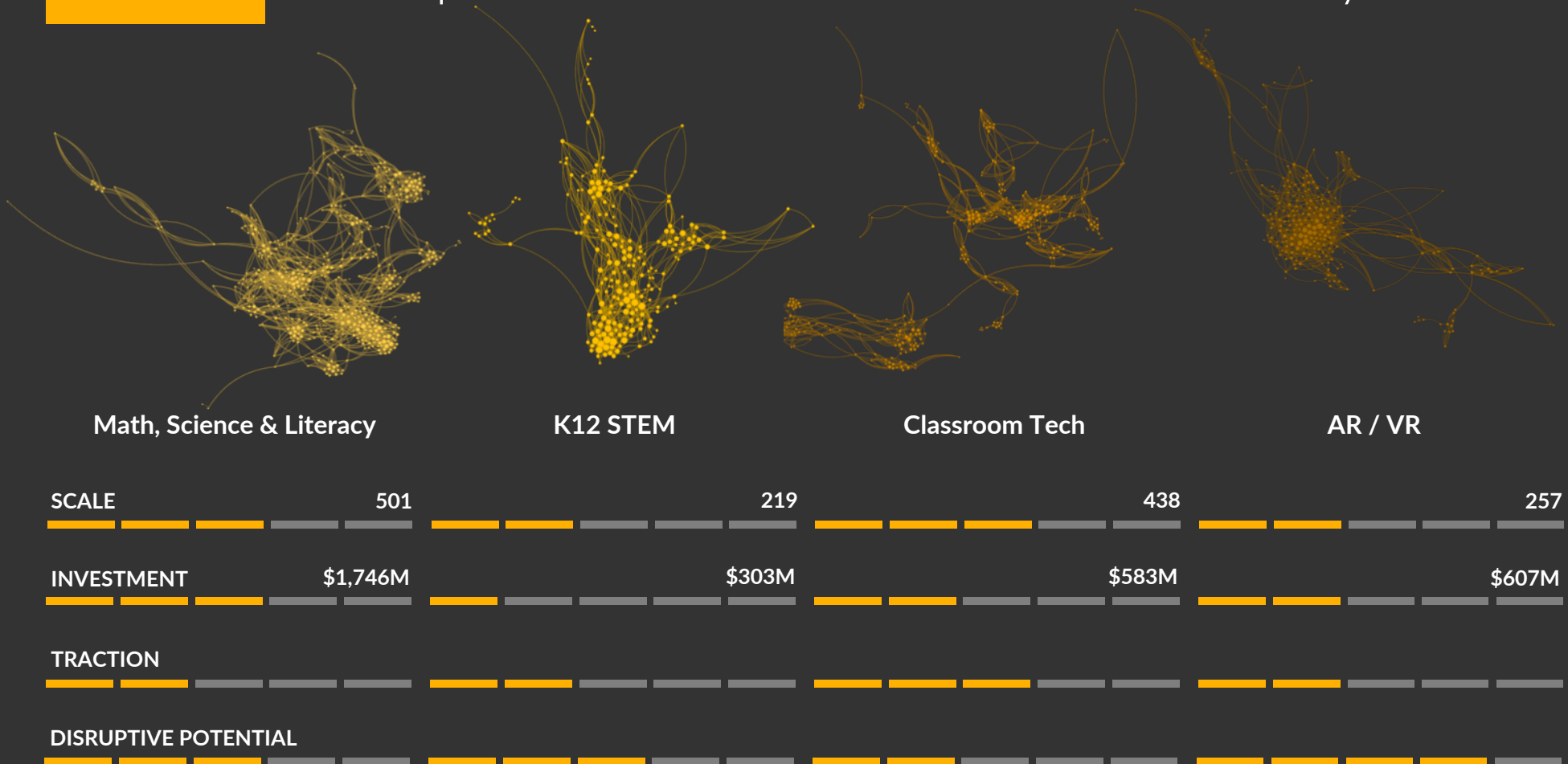
Virtual and augmented reality

Virtual Reality (VR) technology is still emerging, but educators are already using it to share 360-degree video tours, including virtual excursions. Augmented reality (AR) is already gaining traction as a way of gamifying learning and bringing science to life.



EXPERIENCE

Channels that immerse and engage the learner dynamically, challenging them to think creatively, solve problems and collaborate in new ways.



Math, Science & Literacy

Math, science, and literacy technology is one of the longest standing and largest areas of edtech. Particularly prominent in early childhood and K-12 and overlapping more recently with AR/VR and digital courseware, many of these approaches are games with an educational component (or outright ‘edutainment’ software, such as that provided by The Learning Company).

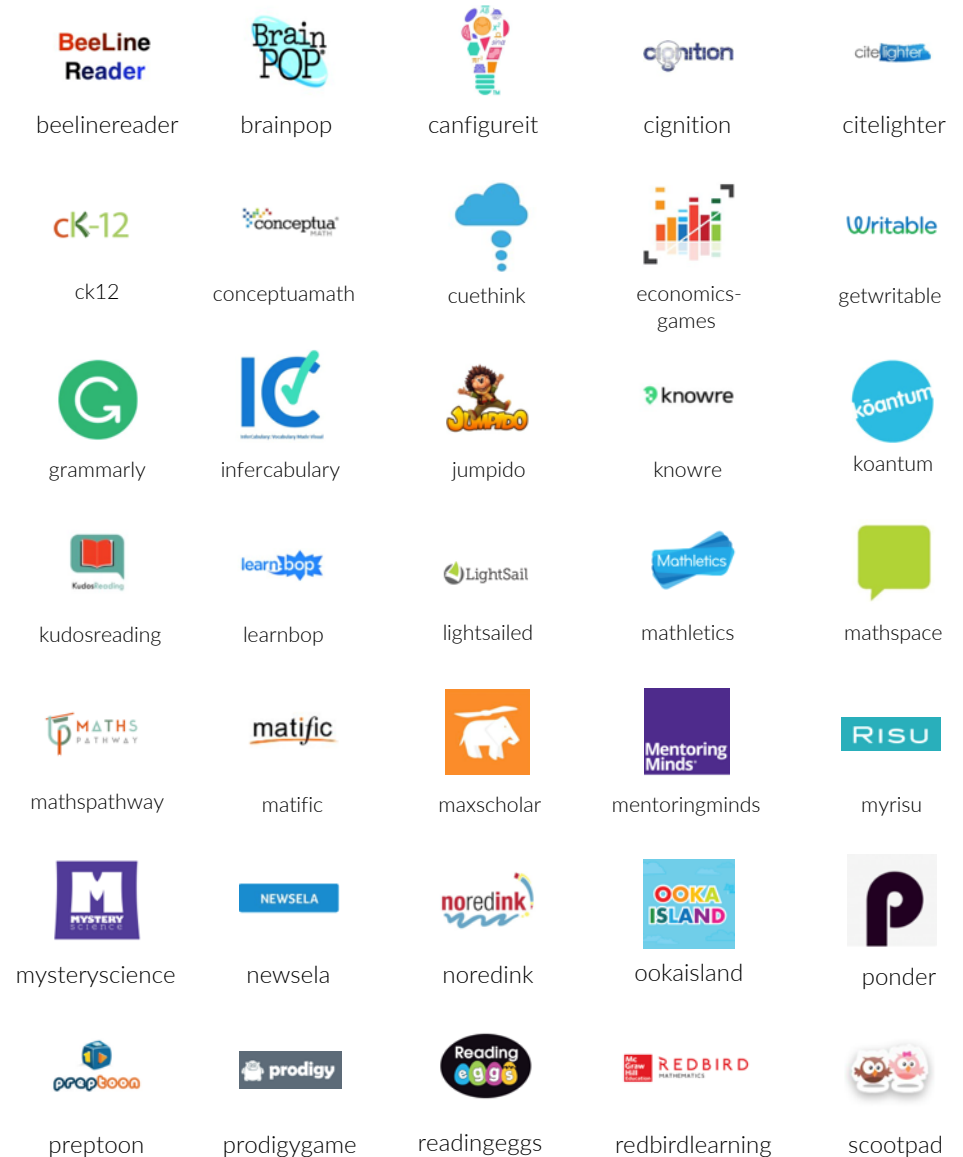
The math category reflects a broader trend in edtech – adaptive tools. Adaptive math software providers include DreamBox, KnowRe, Carnegie Learning, Mathspace, and Imagine Learning (all aimed at K-12), plus SOWISO (aimed at higher education).

Software has the power to bring science concepts to life in a way that printed material cannot. In the K-12 space, one example is Tinybop, which develops science education apps for children. In the higher ed space, many of the courses running on Smart Sparrow’s technology (see Create: Digital Courseware) are science-related, while Labster offers browser-based ‘virtual labs’. Meanwhile, games such as Kerbal Space Program are built around realistic physics simulation.

Technology has facilitated several different approaches to reading and literacy. Newsela adapts news stories and non-fiction articles to multiple reading levels, and then combines this with exercises such as quizzes and writing prompts. Meanwhile, services such as Epic!, Speakaboos, and FarFaria offer access to a library of digital children’s books on a subscription basis. Grammarly offers a real-time, online spell-checker that might not feel like edtech but genuinely drives literacy skills in practice.

One interesting approach uses technology to facilitate in-person instruction. For instance, Mystery Science offers online K-5 science lessons that can be delivered by generalist teachers, while BookNook offers tools to facilitate in-person, early childhood reading instruction.

VISUAL CASE STUDIES



K12 STEM

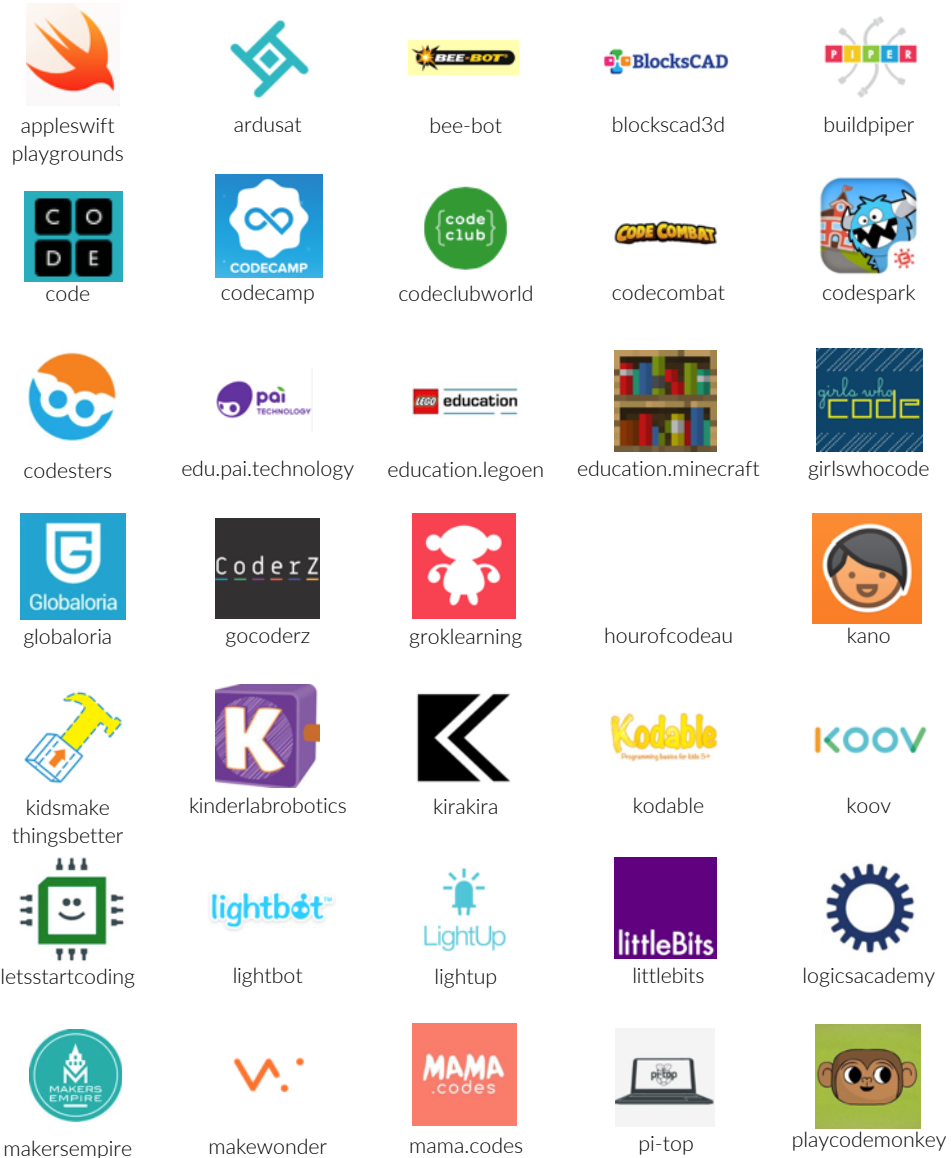
This cluster reflects broader trends in society: the rise of STEM, coding, electronics, robotics and the maker movement. In the higher and vocational education space, adults are going to bootcamps and brushing up on their technical skills. In the K-12 space, these trends are manifesting in the launch of hardware, software, and initiatives aimed at filling holes in the traditional school curriculum.

Toys, electronics kits, and robots are all being used to support hands-on learning by children. For instance, Osmo sells educational ‘mixed reality’ games for children that combine the iPad camera with physical toys. LittleBits sells electronic kits whose modules can be snapped together to produce devices ranging from camera clickers to musical instruments, and companies such as pi-Top and Build Piper sell computer assembly kits for children. Incumbents are also competing in this space, via products such as Sony’s KOOV and Lego’s Boost and WeDo.

Children also have many options to learn about coding. These include commercial products such as CodeMonkey, Kodable and CodeSpark; initiatives such as Code.org’s Hour of Code; and Scratch, a coding language and online community developed by MIT.

Boundaries in this category are not hard and fast. Many hardware products also aim to teach children the logic behind code. For instance Osmo offers two products called Coding Jam and Coding Awbie, littleBits offers a Code Kit, and robots such as KOOV and Kibo are explicitly marketed on the strength of their ability to teach code.

VISUAL CASE STUDIES



Classroom Technology

There is a long history of using technology as an aid in teaching: examples include overhead projectors, PowerPoint slideshows and hardware-based clickers. The most recent crop of tools reflects a number of broader technological trends: software fulfilling tasks that would traditionally have been done by hardware, the ‘bring your own device’ (BYOD) movement and the ease of connecting disparate devices.

For instance, while polling the classroom was historically done by students putting their hands up (or using a physical clicker), a range of new solutions use student devices instead. These include Kahoot (quizzes), as well as Top Hat, Nearpod, and Zeetings (interactive presentations). Similarly, by facilitating screen sharing, vivi.io represents a digital version of asking students to show their work on the board.

Hardware itself is becoming more mobile – both in the BYOD sense and in experimentation with wearables. For example, Swivl allows educators to record interactive lessons by wearing a tracking device and attaching their own tablet to a dock. The dock then swivels to follow the teacher around the room, recording interactions and ‘observing the lesson’ – a simple alternative to existing lecture capture systems.

In the K-12 space technology is being used to assist in tracking and managing pupil behaviour. Hero K12 and ClassDojo (also mentioned under ‘Connect: Social’) allow teachers to award ‘points’ for good behaviour – a digital version of traditional forms of recognition such as stickers and stamps.

While the solutions change, educator needs – supporting interactivity and group work, encouraging good behaviour – remain familiar. This space will no doubt continue to evolve along with technology.

VISUAL CASE STUDIES



about.zeetings



brin



classdojo



classgrounds



corp.kaltura



digital-nirvanaservices



echo360



eonreality



essayjack



getclasskick



herok12



iclicker



inkerz



meetingpulse



mentimeter



meridiaarsstudent



ncast



nearpod



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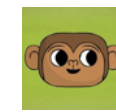
panopto



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turningtechnologies



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vivi



winnovsolutions



xest

AR/VR

While the educational applications of virtual and augmented reality are in their infancy, early examples hint at rich possibilities.

VR encompasses a range of experiences and technologies, from less interactive (360-degree videos where the user's input is limited to the ability to look around) all the way to truly interactive, room-scale VR where the user is fully immersed in a virtual world.

In education, universities are using VR to produce 360-degree video tours of their campuses. Developers such as Immersive VR Education take users to exotic settings, such as the Titanic and the Apollo 11 mission. Finally, a number of projects aim to use the medium to build empathy, with examples ranging from diversity and inclusion training in the workplace to strengthening medical professionals' communication skills.

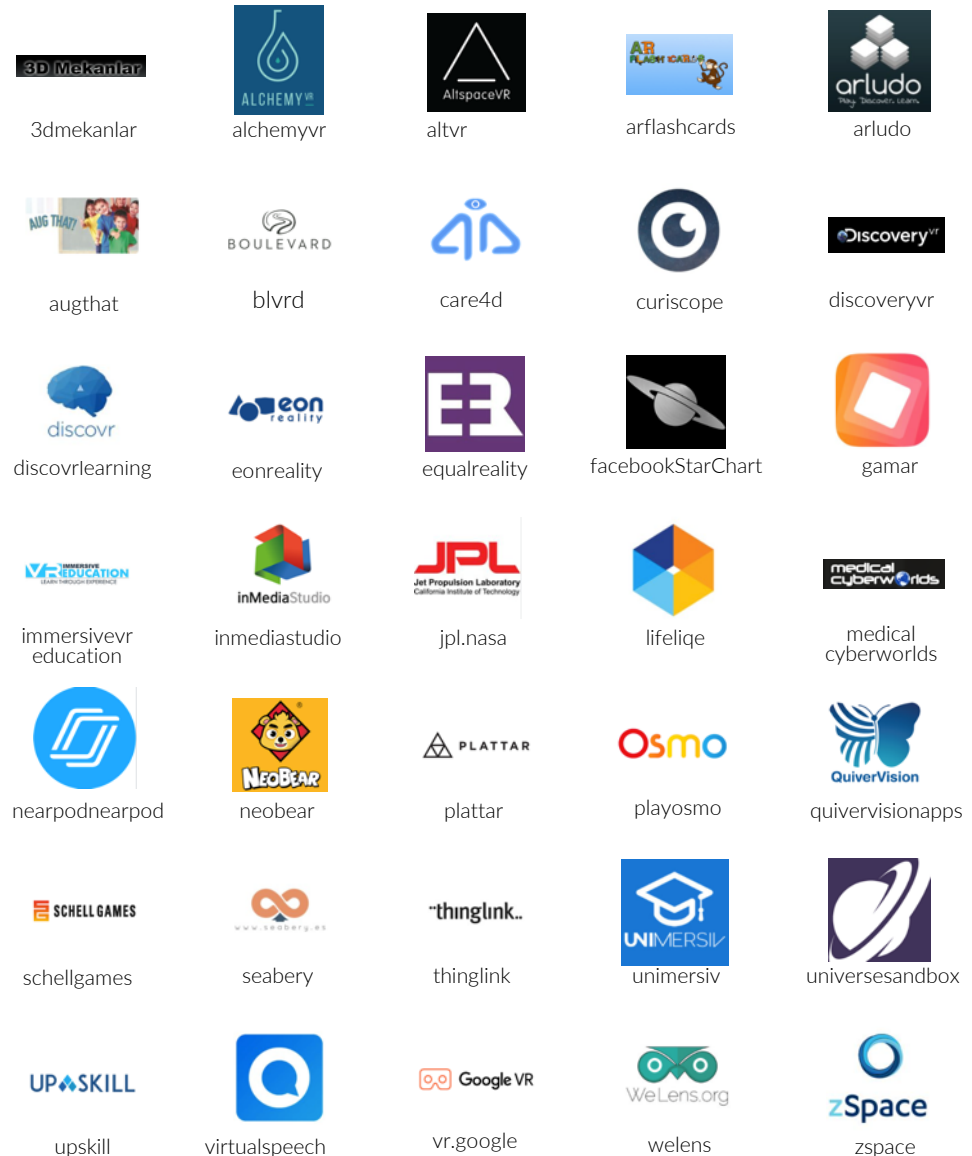
The current cost of hardware and a lack of VR content remain potential barriers to more widespread VR adoption in education settings.

Whereas VR remains a 'longer-term' story, AR has already achieved its first breakout hit (mobile game Pokemon GO), and observers such as Digi-Capital predict that it will become substantially larger than VR.

AR has already been adopted by educational toymakers such as Osmo and Neobear – for instance, Osmo's 'learn how to code' games combine the iPad camera with physical toys. AR also seems well-suited to bringing science concepts to life, for instance, through Lifeliqe's interactive 3D models or Daqri's periodic table.

Finally, AR may also be relevant to workforce training and lifelong learning, as workers access lessons in real time.

VISUAL CASE STUDIES



LEARN

Learn

Old and new models of learning are combining to create a blended, flexible approach tailored to specific student and program needs.

Both physical and digital platforms provide students with context and substance, challenge their ways of thinking, and address changing workforce priorities. These tech-powered models can also operate outside traditional regulatory or geographic boundaries, and interesting new revenue models are emerging – such as taking a proportion of graduate pay rather than an upfront fee, or subscription models.

Open or proprietary online platforms

MOOCs (massive open online courses) have evolved from free programs to paid courses and branded credentials. They have also expanded into other languages and regions. Some platforms here are directories of available courses; we define these as ‘open’. Others create, brand, and deliver their own material; we consider these ‘proprietary’. In both cases, specialised skills, including language and workplace training, are being delivered.

On-demand skills training

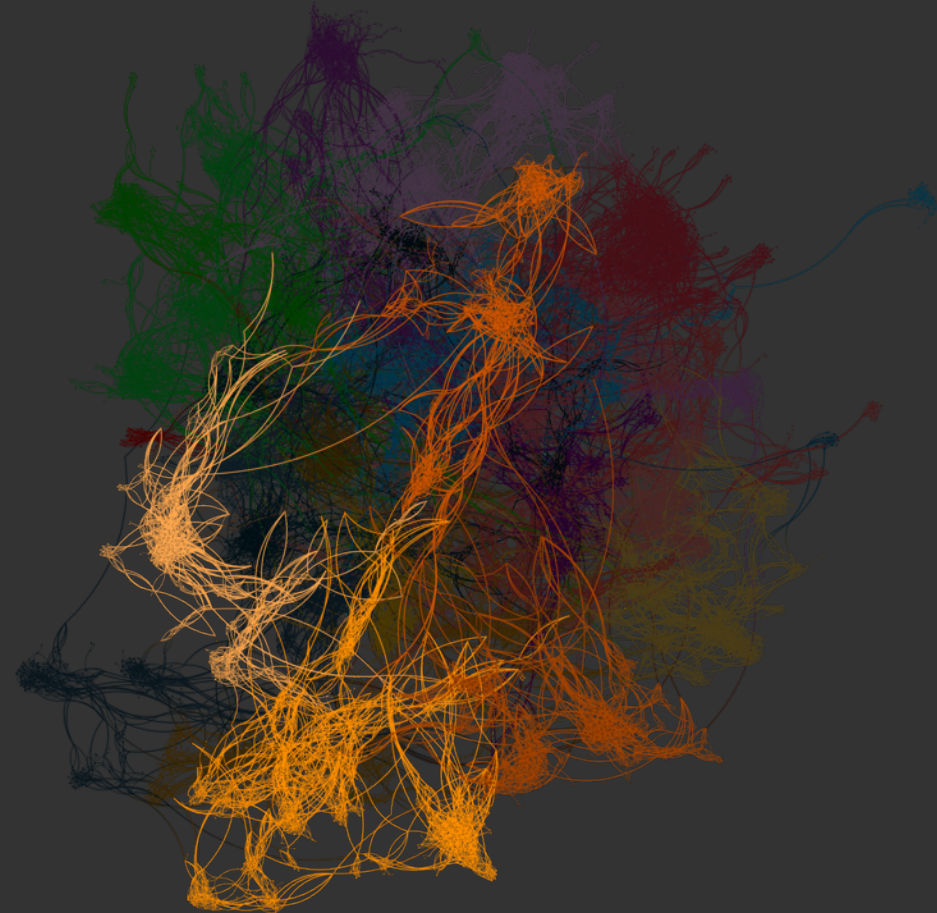
Private tuition can now happen at scale, and vocational skills such as coding and programming are now available through intensive bootcamp programs. These have shifted from in person to online delivery (or a combination of the two).

In person teaching can also be innovative

New learning models can still be physical – smaller, selective educators are flipping traditional teaching practices with highly personalised tuition.

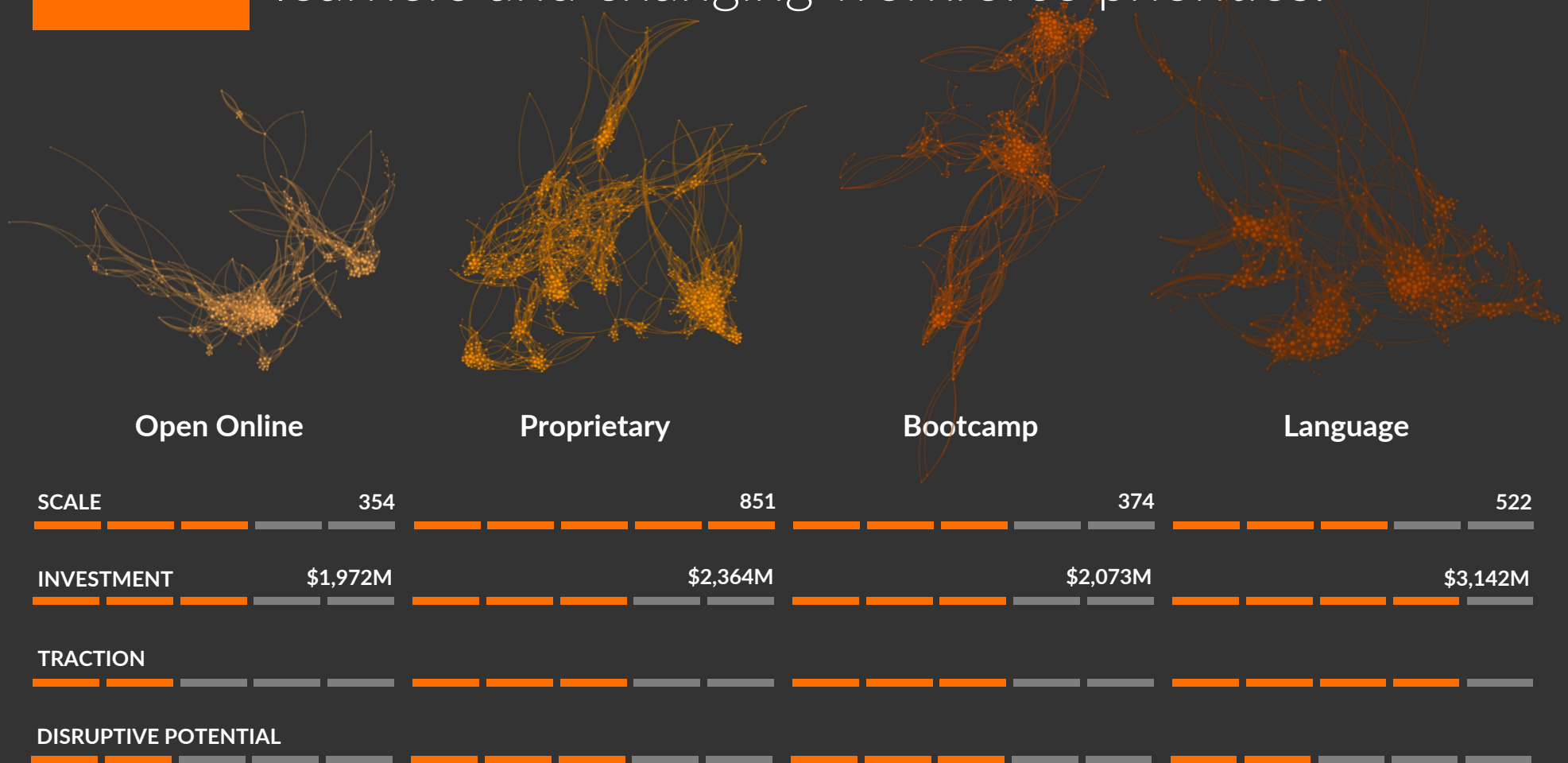
Language connects students beyond borders

Language learning platforms are increasingly interactive and scalable, replicating the traditional ‘teach yourself’ model via apps, or providing guided language tutoring through video conferencing. Some interesting global players are emerging here, particularly in Asia and Latin America.



LEARN

Learning through different models. Old and new colliding to meet the needs of demanding global learners and changing workforce priorities.



Open Online

We define open online providers as catalogues or platforms for third-party content. In the last few years, this has become one of the most prominent and best-funded areas of edtech, encompassing Massive Open Online Course (MOOC) providers and online course marketplaces.

While educational material has been online for a long time, the sector burst onto the scene in its modern form in 2011 when several Stanford academics posted free, public online courses. These were the forerunners of MOOC providers Coursera and Udacity, which launched in 2012. In the same year, they were joined by edX, an initiative launched by Harvard and MIT.

Since those early days, MOOCs have evolved significantly. Speculation they would replace traditional university education has not come to pass; instead, MOOC providers pivoted towards professional education. Udacity went the furthest, becoming what we consider a 'proprietary' provider. Coursera and edX have reduced the features available for free, instead emphasising paid courses and proprietary credentials.

The MOOC sector has continued to grow. According to MOOC directory Class Central, over 58 million students registered for at least one MOOC between 2011 and 2016, universities posted over 6,850 courses, and over 700 universities took part. 2016 alone saw 23 million students sign up for the first time. MOOCs have also become more geographically diverse, with regional providers emerging around the world. These often cater to local languages and may be backed by national governments. The third-largest MOOC provider (by number of registered users) is China-based XuetangX, backed by Tsinghua University, while the fourth-largest is UK-based FutureLearn, backed by the Open University.

Besides MOOCs, marketplaces such as Udemy allow individual creators to upload and sell their courses. This is another example of the way technology has democratised the creation and distribution of education content.

VISUAL CASE STUDIES



chineseemoooc



cnmoochome



coopacademy



coursera



edcast



edraak



eduopen



edx



edx.prometheus



ewant

ExecOnline



federica

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futurelearn



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novoed



onlinecourses.
nptel



open.hpi



open.netlearning
japan



openedu.ru



openedu.tw



openlearning



pathgather

Proprietary

We define proprietary providers as those that create, brand, and deliver their own content, either online or face-to-face. Thus, Coursera and edX, which rely on university partners for their courses, are open online. By contrast, Udacity began as open online before pivoting to proprietary.

As this definition suggests, companies in this cluster often compete directly with universities – the original proprietary providers of education. This is a difficult area to tackle and new players attempt to distinguish themselves by some combination of their delivery method, revenue model, specialisation, and approach to teaching.

Perhaps the most ambitious is Minerva, which aims to re-invent undergraduate education by providing a 21st-century take on liberal arts. Minerva’s program sends a small, hand-picked cohort around the world, relying on seminars instead of lectures, travel instead of athletics facilities, and live, remote faculty instead of either face-to-face or recorded classes. It represents innovation at the selective end of the higher ed market – as at the time of writing, Minerva’s admissions rate is 1.9%.

Other examples include the philanthropic project Ecole 42, a free coding school characterised by its extremely competitive entry process and peer-to-peer instructional model; as well as the new revenue models represented by MissionU and Holberton School, which take a percentage of graduates’ pay for 3 years instead of charging up-front fees.

At the niche end of the spectrum are domain-specific providers, including Singularity University (short executive courses about advanced technology), Craftsy and CreativeLive (creative skills), and MasterClass (instructional videos by celebrities). In the K-12 space, long-standing alternative proprietary models include Montessori and Steiner schools. If anything, compulsory schooling has been an even more difficult market to crack than higher education.

VISUAL CASE STUDIES



42.us



altschool



asam



axonify



bridgeinternational
academies



codecademy



codeinstitute



cognitaschools



collectivecamp



connectionsacademy



craftsy



creativelive



ducere



everfi



futurelearn



globalenglish



go1



grovo



holbertonschool



iversity



k12



khanacademy



learoy



lynda



masterclass



minerva



missionu



nesli



opensesame



pluralsight



reliaslearning



skillshare



stairfordschools

Bootcamps

Bootcamps are short, full-time programs (typically 9 to 12 weeks) that teach digital, technical, or other career-focused skills. Pioneered by companies such as General Assembly, Galvanize, The Starter League (now part of Fullstack Academy), App Academy, and HackReactor, today there are over 400 bootcamps listed on industry directory Course Report. Enrolment has grown 10 times between 2013 and 2017.

The success of bootcamps can be attributed to what they promise students: employability. For inexperienced students, bootcamps offer a way to quickly acquire skills (such as coding) needed to secure jobs in the technology industry, without the time and expense of years at university. More experienced students use bootcamps to brush up on specific skills or pivot their careers.

While the classic bootcamp revolves around full-time, face-to-face delivery, part-time or online courses are now available. An increasing number of skills, such as sales, cybersecurity and product management, are on offer. And the model has taken root around the world: new providers include Le Wagon (France), World Tech Makers (Latin America), and Moringa (Kenya).

Increasing maturity in the bootcamp industry has also brought consolidation, as bootcamps merge, are acquired or shut down. Dev Bootcamp was acquired by Kaplan in 2014, only to announce its closure in July 2017 due to concerns about the model's viability, and long-term sustainability and low barriers to entry. Inevitably, with such rapid growth, quality issues have come to the fore. Several initiatives are underway to define standards for bootcamp providers.

The bootcamp model itself is evolving, often in collaboration with universities. For example, Trilogy Education is partnering with universities to deliver bootcamps for them. Universities themselves, such as Northeastern University, are developing their own bootcamp models. Other providers are strengthening their focus on employability; online bootcamp Thinkful provides career coaching, interview preparation and a job guarantee.

VISUAL CASE STUDIES



academyxi



alwayshired



appacademy



bloc

bootcamps.
worldtechmakers

careerfoundry



codecademy



codefellows



codercamps



codeschool



codingdojo



cyber-academy



designation



DEVMOUNTAIN



digitalhouse



evolveacademy



flatironschool



galvanize



generalassemb



hackreactor



laboratoria



lewagon



makeschool



onemonth

opencloudacademy
.rackspace

revature



salesbootcamp



secureset



securityinnovation



startupinstitute



teamtreehouse



techtalentsouth

thefirehose
project

thesoftwareguild



thinkful

Language

Language learning is one of the best-funded categories within edtech, as technologies such as ubiquitous smart devices and video conferencing enable more interactive, convenient, or scalable versions of what was possible. Historically it comprised face-to-face instruction, resources such as books and cassettes, and practice (or immersion).

Technology has added two new categories to this list. The first is purely app/software-driven – essentially, 21st-century versions of teaching yourself using books and cassettes. Examples include Duolingo, Babbel, Busuu, Liulishuo and veteran contender Rosetta Stone. Companies tout their method’s advantages – for instance, Duolingo gamifies the process to keep learners motivated. Revenue models range from freemium (Duolingo) to paid subscriptions (Babbel, Rosetta Stone).

The second category uses technology to facilitate live contact with a human instructor – something that would previously have been impossible to scale up. Generally, these companies use video-conferencing to pair children or adults learning English with English speakers in other countries. Examples include iTutorGroup, VIPKid (China-US), ABC360 (China-Philippines), and Open English (Latin America-US). Like traditional tutoring, students (or their parents) are charged per session, with the company then paying the teacher and keeping a margin for itself.

There is a geographic element to this cluster – most of the software-based solutions are based in the West, while most of the human-instruction solutions are based in Asia. The two best-funded Asian players, iTutorGroup (US\$315m) and VIPKid (US\$325m), have raised significantly larger amounts than any of their Western peers (the best-funded of which is Duolingo, at US\$108m), underscoring that language learning is not just a developed-world story.

Finally, B2B language learning providers offer additional features to meet enterprise needs. These include customisation, definition of KPIs, assessment, and reporting, as well as language instruction itself.

VISUAL CASE STUDIES



17zuoye



51talk



abaenglish



abc360



alo7



babbel



busuu



cambly



chatterbug



colingo



duolingo



ellevation education



elsaspeak



englishcentral



fluentify



globalenglish



italki



itutorgroup



languagezen



learncube



linguatrip



lingvist



littlepim



liulishuo



memrise



mindsnacks



nulu



openenglish



PandaTree



rosettastone



speakingpal



thetalklist



tutor



usespeakeasy



varsitytutors

CREDENTIAL

Credential

With the constant need to re-skill over a lifetime, we'll require new ways of recognising and verifying knowledge and skills. These new credentials will be flexible, portable and personalised, and recognised globally by both education and industry sectors.

Modular learning programs can now be stacked into tailor-made credentials, allowing students to select the skills they need at any given time. Tutoring can take place online, in real time, while traditional notions of exam and essay assessment through to resumes and interviews could be turned upside down.

Scalable test preparation

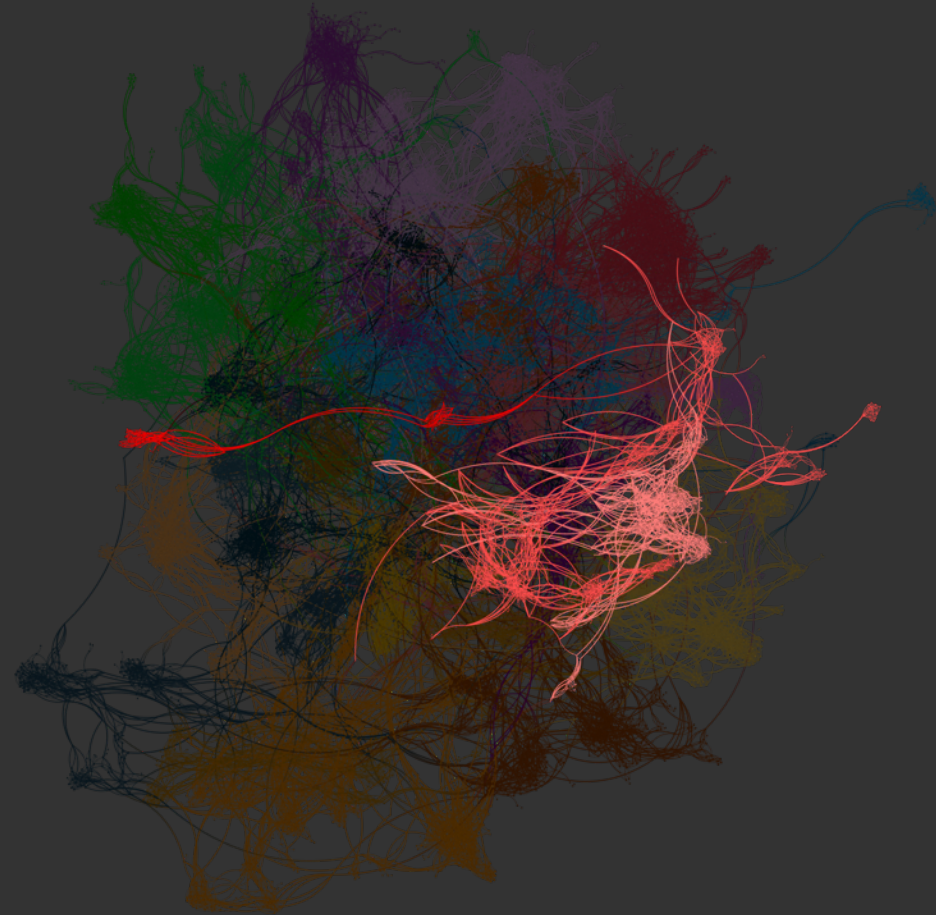
Online tutor platforms are flourishing. They help students prepare for study in another language, or for specific tests such as SAT and GMAT. Online videos and adaptive questions and course materials can help students improve.

New testing techniques

Alternatives to incumbent language tests such as IELTS are already emerging, using technology to measure skills and capabilities. These assessment platforms can also help education providers assess course or scholarship applications, and help HR identify and evaluate new talent.

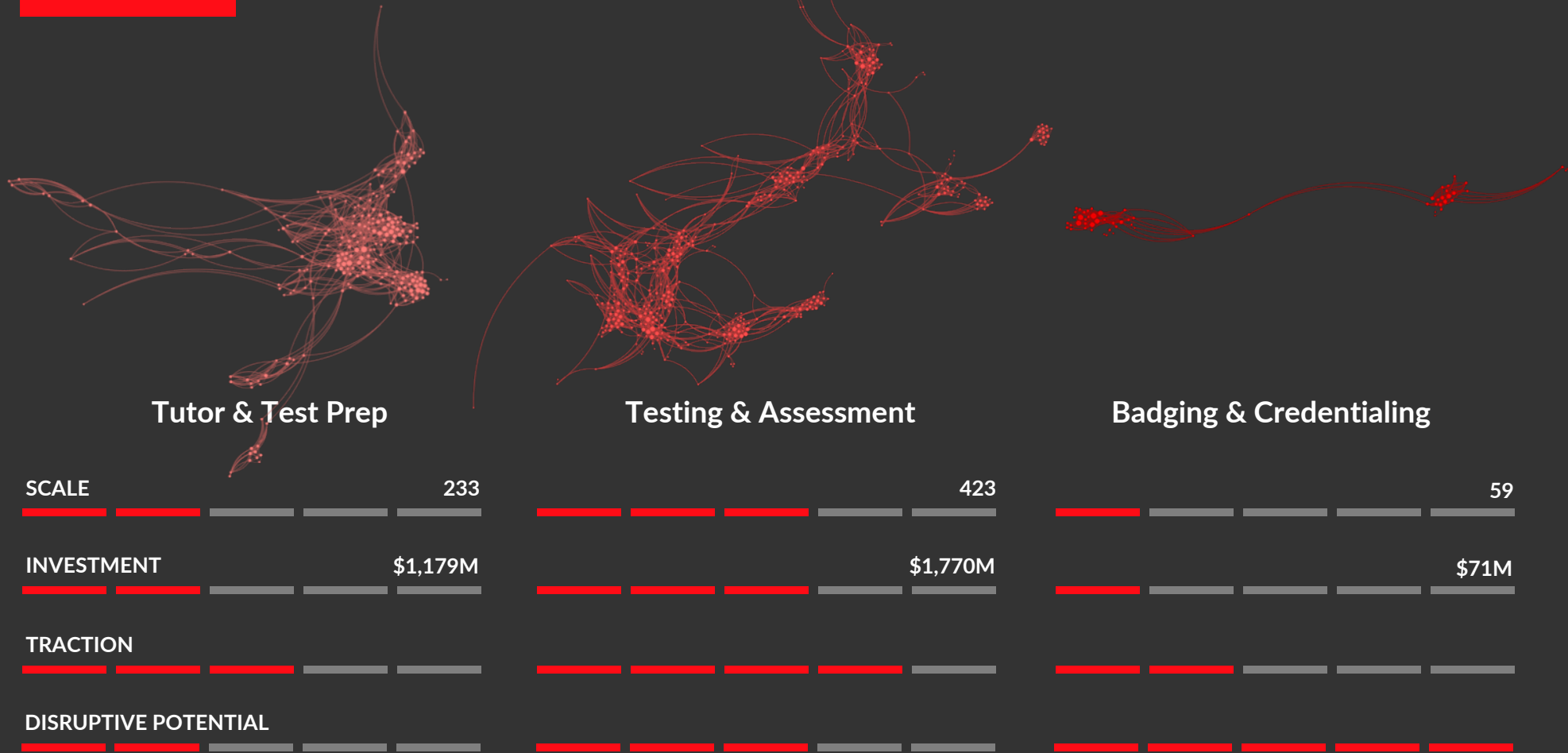
Unlocking the value of credentials

This area also forces institutions to rethink the traditional currency of their programs. New platforms are emerging to store and share digital certificates and diplomas, as well as providing flexible 'micro-credentials'. Both formal and informal sources of knowledge may be recognised in future credentials - from watching podcasts to on-the-job experience.





New ways of recognising and verifying knowledge and skills. Credentialing ecosystems that are open, flexible, portable and personalised.



Tutoring & Test Prep

The tutoring and test preparation sector shares a number of common features with language learning. First, their subjects overlap: tutors and test prep solutions may be employed to build language skills or prepare for a language test. It is also characterised by large, well-funded players in emerging markets -- and technology has enabled richer, more scalable versions of traditional solutions.










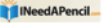

























This cluster is characterised by its prominence in emerging markets, particularly China. Potential explanations for this gap include differences in educational systems (especially the role of entrance exams) and cultural differences.

Yuanfudao has raised over US\$240m and offers online live tutoring to K-12 students in China. Xiaozhan Jiaoyu (US\$101m) focuses on test prep for Chinese students who want to study abroad – exams covered include the SAT, GRE, GMAT, TOEFL, and IELTS. BYJU's, India's best-funded edtech startup, has raised more than US\$200m from investors such as Tencent, the Chan Zuckerberg Initiative, and the IFC. It offers test prep and K-12 educational resources for students in India. And Descomplica, which has raised US\$14m, offers online test prep videos to high school students in Brazil.

Technology can either replace or enhance traditional face-to-face instruction and printed practice material. Sometimes, it offers a more scalable alternative: the founder of BYJU's began with offline exam prep lectures before switching to online videos. And sometimes, technology allows for a solution that would be impossible offline. Companies such as ExamPal hold up their adaptive practice questions as a superior alternative to printed question books, and traditional publishers are partnering with groups such as BenchPrep to develop their own adaptive material.

Finally, tutoring marketplaces such as WyzAnt and Varsity Tutors use technology to facilitate 1:1 instruction.

VISUAL CASE STUDIES

 benchprep	 byjus	 chegg	 codementor	 descomplica
 edupristine	 en.100tal	 exampal	 geekie	 ineedapencil
 kaptest	 learn.testive	 magoosh	 manhattanprep	 megastudy
 neworiental	 noodle	 popexpert	 preply	 princetonreview
 ready4	 scorebeyond	 sitonthesaten	 takelessons	 theknowledge roundtable
 toppr	 tutor	 tutormatching service	 tutorz	 varsitytutors
 veritasprep	 wyzant	 xueda	 yuanfudao	 yuantiku

Testing & Assessment

Assessment is a vital step on the journey to awarding credentials and moving individuals from study to work. The solutions in this cluster encompass technology-enabled solutions for exams, new forms of assessment, and companies that link assessment to other steps on the student journey.

In the first category, technology can be used to power the exam. For instance, Learnosity provides underlying assessment tools (via an API) that other companies can incorporate in their software. Newer providers can use technology to challenge incumbents; for instance, language learning company Duolingo has introduced the Duolingo English Test, an alternative to exams such as the IELTS. And multiple online exam proctoring companies have sprung up to meet a world of online studies, including ProctorU, Examity, Verificient's Proctortrack, and Proctorio.

Problems with traditional exams include relevance (*can you assess critical thinking with a multiple choice quiz?*) and scalability: any form of assessment requires human judgment. In response, several companies are using technology to measure new areas such as skills and personality traits. For instance, PyMetrics uses neuroscience games to assess personality traits, make career recommendations, and filter job applicants. Authess places candidates in life-like scenarios, captures data on how they interact with its platform, and compares this against other individuals of varying skill levels.

Finally, several assessment providers are explicitly linked to scholarships (See 'Discover') or recruitment (See 'Advance'). Examples include PyMetrics; Sqore, a website where organisations can create, promote, post, and manage assessments that unlock career and scholarship opportunities; and Raise.me, which works with universities to offer 'micro-scholarships' to high school students, based on criteria such as their grades, the classes they take, and their extracurricular activities.

VISUAL CASE STUDIES



apperson



authess
authess



bvirtualinc



codefights



codility



corp.whoknows



criteriacorp



digitalassess



dugga



edulastic



examity



flubaroo



gapjumpers



goformative



gradescope.



hackerrank



joinkoru



learnosity



masteryconnect



mettl



onlineproctoring



panpowered



proctortrack



proctoru



pymetrics



qualified



respondus



scantron



skillsurvey



sqore



theanswerpad



traitify



trueability



turnitin



verificient

Badging & Credentialing

Formal education programs culminate in the award of a credential to recognise the student has successfully completed the course. Traditionally, this has usually meant university degrees (and to a lesser extent, professional qualifications conferred by industry bodies) These were lengthy and all-or-nothing: failure to complete the entire course resulted in no credential at all.

Recent years have seen a number of new solutions appear, including new educational institutions that provide their own credentials, organisations that provide credential management services to others, and attempts to re-imagine the very idea of credentials.

In the first category fall MOOCs, with their own proprietary credentials, typically comprising a series of linked courses on a given topic. While individual courses may be free (or available on a freemium basis), the credential itself requires a fee. Examples include nanodegrees (Udacity), MicroMasters, professional, and X-series certificates (edX), and specialisations (Coursera). The edX MicroMasters certificates also provide credit for further studies at several partner institutions – in other words, they are ‘stackable’.

In the second category, a range of organisations provide e-portfolio and credential management services. These include Parchment (digital university transcripts). Accredible and Credly (designing, issuing, and managing digital badges) and Pathbrite (e-portfolios). One technology to watch is blockchain, which Learning Machine intends to deploy to store tamper-proof, easily shareable records such as academic records, micro-credential, and certificates of employment.

Then there are modular credential initiatives, where students can receive credit for previous studies, mix courses from different institutions or receive interim credentials (like a certificate) en route to earning their degree. Spanning these categories is Degreed, which aims to be a one-stop shop where individuals record and track what they have learned, from formal learning (courses) to the articles they read.

VISUAL CASE STUDIES



accreditable



badgecraft



badges.p2pu



bestr



blockcerts



credential.me



credly



DEAKINCo.
deakinco



degreed



digitalme



digitary



educhain



edurecords



factory.cancred



forallrubrics



gradba



badgr



learningmachine



lyceum.network



makewav.es



openbadgeacademy



openbadges



openbadges.org



parchment



peerism



proexamvault



redcritterteacher



sonyged



youracclaim



youtopia



pathbrite



portfolium



seelio



cirkledin



foliotek

ADVANCE

Advance

Post-secondary education plays a crucial role in developing the skills and capabilities employers need. So, the final step in the lifecycle aims to bridge study and work.

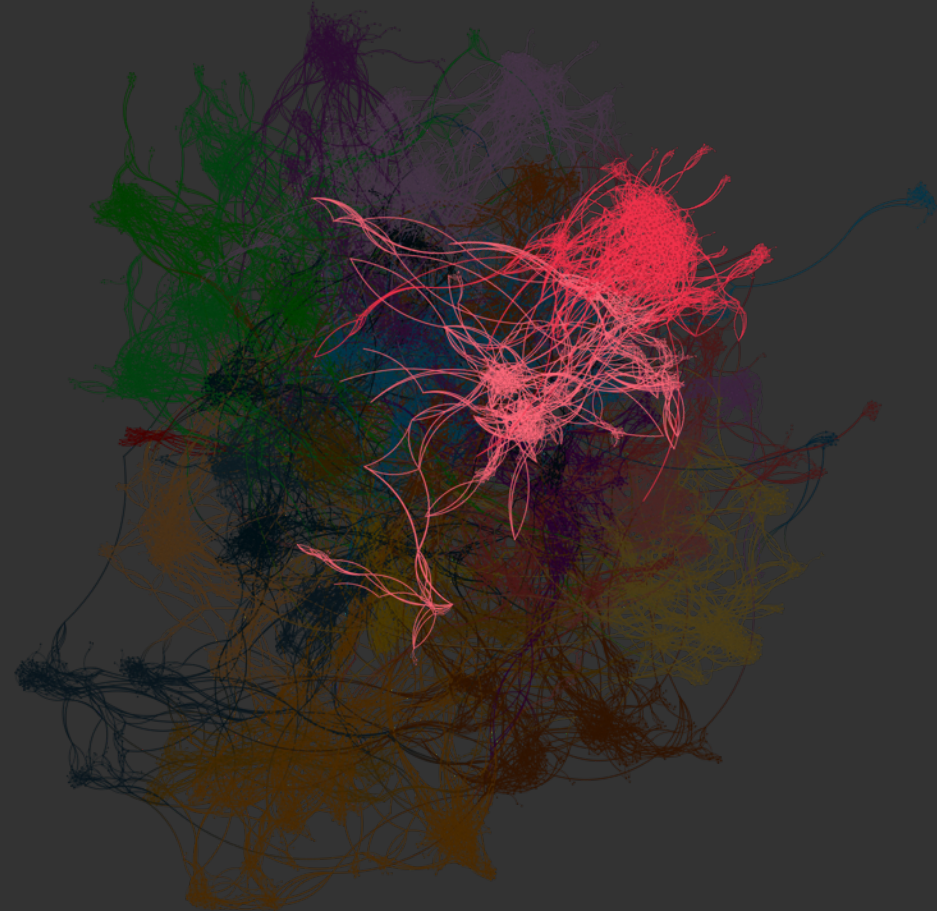
Students are increasingly concerned with the tangible outcomes of learning – the opportunities to realise their goals and ambitions. New approaches aim to overcome the limitations of traditional methods such as university career offices, employer graduate recruitment programs, job websites, and face-to-face networking.

Identifying graduate talent

From internships to graduate recruitment programs, new technology provides real-time 'jobs boards', industry-focused networking platforms and innovative project-based internships to bridge the gap between study and work experience. New assessment tools also enable remote graduate testing, so potential skills gaps can be identified and addressed.

A lifetime of careers, not a career for life

The traditional resume and interview process is also being re-thought, along with further workplace education in an age that demands lifelong skills development. This will impact career centres and coaching, as well as industry talent assessment and recruitment agencies.



ADVANCE

From learning to work. Helping learners realise their goals and ambitions by connecting talent and skills with work and opportunities.



Career Planning



Hiring & Internships



Career Planning

Beyond the academic and technical skills they learn in class, students can benefit from career preparation – mentoring, career coaching and industry-specific advice. Traditionally, these services were difficult to scale: handfuls of university career advisors struggled to provide advice across entire institutions, and by its nature, networking is face-to-face, offline, and dependent on personal contact.

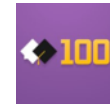
The companies in this cluster aim to solve this problem using online technology and new approaches, often eroding the barriers between training and work.

The first wave of solutions comprised websites offering career advice, resources and industry-specific prep material and courses. Two tech trends were key: the ‘one-to-many’ power of the internet, and the increasing simplicity and affordability of setting up a website. These range from generalist career advice sites such as The Muse to industry-specific websites such as Mergers and Inquisitions, a resource for aspiring financiers.

A new wave of solutions is using technology to facilitate one-to-one matches between individuals who can provide advice and those who seek it. For example, Paragon One offers an ‘online college career centre’ that includes job readiness assessment, data and machine learning to match students with career coaches and industry mentors, and 1-to-1 online coaching. Meanwhile, LinkedIn is rolling out a new service to pair users with mentors.

Finally, several startups are reimagining the internship, providing new, often remote options for students to get ‘hands-on’ or ‘real-world’ experience. For example, Austern International offers international trips that combine workshops with a company project challenge. QLC.io offers remote, short-term projects with startups as a way for individuals to gain experience beyond their day job.

VISUAL CASE STUDIES



100mentors



austerninternational



biginterview



bls



careerleader



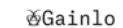
caseinterview



evisors



firmsconsulting



gainlo



homepage.
modernguild



insidesherpa



intersective



joboutlook



mersersand
inquisitions



myfuture



myidp.
sciencecareers



onetonline



paragonone



PrepLounge
preplounge



qlc



skillsroad



startprofile



steppingblocks



themuse



transparentcareer



uncollege



upstartacademy



vault



vmock



wetfeet

Hiring & Internships

Hiring often represents the final stage of the student journey. Getting it right is crucial, both for learners and employers. It is also ripe for improvement. Traditional solutions such as resumes and interviews have well-documented limitations such as bias, information overload, and lack of predictive power. The companies in this cluster aim to meet this challenge with a combination of technology and innovative concepts and business models.

The first point to note is that demand remains strong for technology-enabled versions of traditional solutions. For example, employers can post graduate jobs to multiple universities at once using services such as career management platform Handshake or student jobs board WayUp. Over 350 US universities have signed up to Handshake, which links students, university career offices, and employers, while WayUp contains more than 3 million profiles of students and graduates; employers can precisely target the desired criteria for jobs.

When it comes to identifying and assessing talent, new alternatives are emerging. For instance, PyMetrics uses neuroscience-based games to assess applicants' personality traits and recommend jobs. Meanwhile, student Q&A platform Packback has announced Packback Experiences, which uses students' question portfolios to identify candidates for internships and job opportunities.

A final point is that, reflecting their raison d'être, non-traditional education providers are emphasising services such as career coaching, interview prep, and jobs guarantees. One innovative solution is Udacity Blitz, a recently launched service to connect Udacity graduates to employers with short-term projects.

VISUAL CASE STUDIES



aftercollege

ALUMNIFIRE

alumnifire



andela



austern international

CareerGuide.com

careerguide



codefights



tullbridge



getwisr



glints



hireowl



ia-jn



intersective



stellaremploy



jobspeaker



joinhandshake



joinkoru



learnup



lode



meritful



paddljobs



paragonone



qlc



qubededucation



smartly



sqore



symplicity



talentsonar



themuse



uncollege



universitybeyond



upstartacademy



wayup

TOWARDS 4.0

Towards Landscape 4.0

Determined to fulfill our mission of connecting the global edtech community, we are already planning a few changes to our approach for 4.0. Our overall objective for Landscape 4.0 is not necessarily more scale, but more community, more depth and more transparent data and insights.

Firstly, one thing we have learned developing Project Landscape is that the scope of what we are mapping expands exponentially each time we iterate and 100 days just isn't enough time to manage quality while building so much more depth. We are setting the countdown to just over 200 days and shooting for the second quarter of 2018 for Landscape 4.0.

Secondly, we would like to leverage the global community to crowdsource the 'bottom-up' identification and clustering. Over the next quarter we plan to launch a simple browser app that will let anyone in the community 'clip' and classify new edtech teams and technologies to the landscape and share their own views on clustering and taxonomy. This will give us a powerful community-driven perspective to augment the machine intelligence driven bottom-up. We should also start to build a data set which we have the rights to share under creative commons.

This crowdsourcing approach will also include a global advisory board of experts and leaders to guide the top-down process. We are holding workshops at edtech conferences over the next quarter in Beijing, Singapore, New York and beyond to source expert views.

Finally, we hope to launch an interactive Landscape. With Landscape 3.0, we took the opportunity to publish a report rather than just a blog – and for 4.0 we have aspirations of an interactive dataset. This would bring new insights without replicating the CrunchBases or AngelLists, but bringing new insights.

We are already in discussions with teams around the world on a similar journey, to combine our resources and deliver better results for the community at large. Working in education, we also know that activating change in the space is more effective if we join forces and work together.

Unlike many industries, we are a community – a system of connected individuals, organisations and institutions. We already know it's a sprawling landscape out there, and it's evolving quickly. Plotting this landscape will only work if it is approached multi-directionally and if it is a community effort.

That's why we're calling on all of edtech to claim their spot on the map. So we know where we are headed – and how best to reach our destination.

To find out how you can be part of this collaborative community, please get in touch at hello@globaledtechlandscape.com