

Media & Impact Investing

Investing in Education

What are your kids up to?

ESG

Sustainability Research



Education: an underinvested space

USD4.6trn is spent every year on education globally, second only to healthcare, and more than defence and R&D combined. Most of the money goes into salaries, making education an underinvested space. The global investable market cap is USD70bn, versus USD4.0trn in healthcare and USD370bn in defence. We explain why a U-turn may be near.

Pressure to improve efficiency of spending

In this report, we show how an unaffordable system is forcing governments to experiment with new solutions to do more with less. The US market is the world's largest, and its educators are increasingly committed to delivering better outcomes at more reasonable prices. This is opening up new pockets of growth.

Invest in solutions allowing for cost-effective education

Technology is the enabler of this long-term transformation. A flurry of new services has come to the market from established companies such as Pearson (rating upgraded from Reduce to Buy), as well as newcomers. We provide investors with a roadmap to navigate their way through the changes and spot the best-positioned investments.

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All opinions on companies and securities in this report reflect the view of Kepler Cheuvreux's analysts.

A glossary is provided at the end of the general section of this report.

The investment universe is provided in the section "The investable space".

Executive summary

In this report we go back to school to investigate the challenges educators face, and how targeted investments could help them. We find the best opportunities in solutions improving the effectiveness of education, rather than pure upselling or access, in order to tackle the high cost of schools and their poor track record in promoting excellence. A flurry of such products has come to the market from both established companies such as Pearson, and newcomers. We hope you will enjoy our guide to investing in a more knowledgeable future.

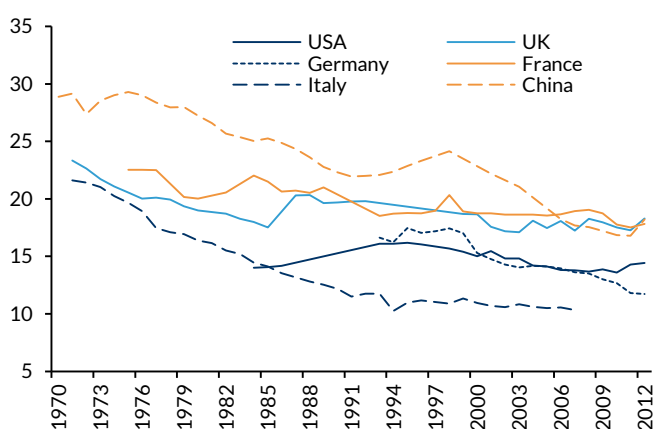
Wake up! It's time to go to school... (7:30am)

The previously sleepy world of education has suddenly entered a period of transformation. For now, such change is mostly affecting the US (the focus of this report). However, developments there provide a pattern for future global dynamics. The initial part of this report analyses the tensions that have led to the change: 1) long-term unaffordability of education, driven by poor public policies, mostly focused on reducing the class sizes; 2) the ineffectiveness of those policies in promoting excellence; and 3) the regulatory and technological answers being developed.

...and don't forget your iPad! (8:00am)

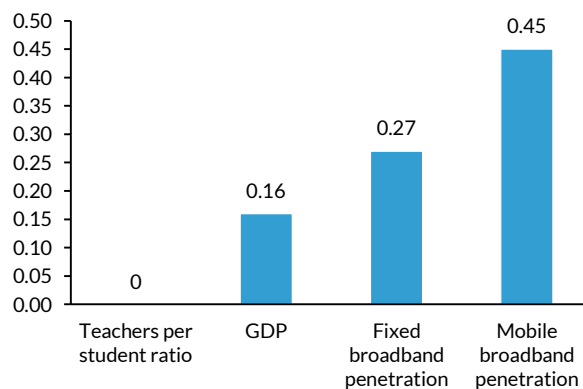
Secondly, we provide a critical review of the evidence that technology leads to better and more cost-effective outcomes for both schools (automated testing, competency-based education, enablers) and students (through adaptive learning, MOOCs, etc.). Public policies are the main driver of educational systems, and their focus is clearly shifting towards effectiveness and measurable outcomes ("Race to the Top", "STEM", Common Core").

Chart 1: Classrooms getting smaller (# students/teacher)



Source: Kepler Cheuvreux

Chart 2: Country correlation (R2) of top PISA score vs. ...



Source: Kepler Cheuvreux

Discuss yesterday's video session in class (8:30am)

In primary and secondary schools (K-12), teachers and students are showing increasing awareness of and comfort with adopting mobile devices and classroom-based software curriculum as a result of investments in digital learning hardware, software and basic content.

K-12 in investment phase: hardware, software, testing and content

The book decides what I need to read (9:45am)

In higher-ed, subscription solutions counter the erosion from book rental and open content. The next and most promising step is likely to be a wider adoption of adaptive learning (AL) technology, targeting faster, more effective learning via a better understanding of students' existing knowledge and pace (use of student data). A growing wealth of findings suggests that AL can effectively back the value proposition of publishers' content.

When I'm a doctor, I'll be studying law (11:00am)

At the post-secondary and vocational level, competency-based education (CBE) allows for more flexible learning, and has appealing features for working professionals: no set class meeting times, personalisation, more direct connection with employers, and lower overall cost. A rising number of highly-regarded universities provide it through technological "enablers" (Embanet, 2U, Deltak), easing the trade-off between access and quality.

A bit of games theory on the Xbox (4:00pm)

The potentially most-disruptive models of open educational resources (OERs) and massive open online courses (MOOCs) seem to be held up either by the lack of a business model, or by uncertainties on their commercial viability, as well as a wide range of limitations. Innovations tend to complement each other over time, though, e.g. with recognised organisations validating the credentials of MOOCs (e.g. Udacity's 'nanodegrees').

Going to bed: early risers have profitable days (10:30pm)

Emerging market hotspots (China and Brazil), and rapidly swelling small pockets like Africa, promise substantial long-term upside derived from technology use in education, notably mobile learning. In impact investing, the case for catering to underserved populations globally is encouraged by the ramping up experiments of social impact bonds (SIBs).

Nightmare: teacher is watching me (02:00am)

Data privacy concerns, while far from being eradicated, may become more manageable if governments and companies step up their efforts to show greater transparency and consistency, which could alleviate concerns over misuse of data.

Higher-ed: longer-term opportunities in adaptive learning

Vocational: competency-based education our favourite innovation

MOOCs, open content: disruptive models still look non-investable

Chart 3: Investing in a lower total cost of education and improved social outcomes

Aim	Variable	Innovation	Investment universe
Lower Total Cost of Education	Broader access	✓ Online enablers ✓ Distance tutoring / preparation ✓ Mobile education	✓ Innovative publishers (incl. Pearson) ✓ Blended learning in emerging markets ✓ Telecom services & equipment (long-term)
	Higher effectiveness	✓ Adaptive learning ✓ Competency-based education ✓ Digital learning platforms (DLP), software	✓ Innovative publishers (incl. Pearson) ✓ Blended vocational learning ✓ Pure play DLPs, software
	Complement to existing models	✓ Massive Open Online Courses (MOOCs) ✓ Social learning	✓ MOOCs (venture capital, donation) ✓ Listed social learning networks
	Disruptive new models	✓ Textbook rental ✓ Open content	✓ Textbook rental companies ✓ Self-publishing platforms

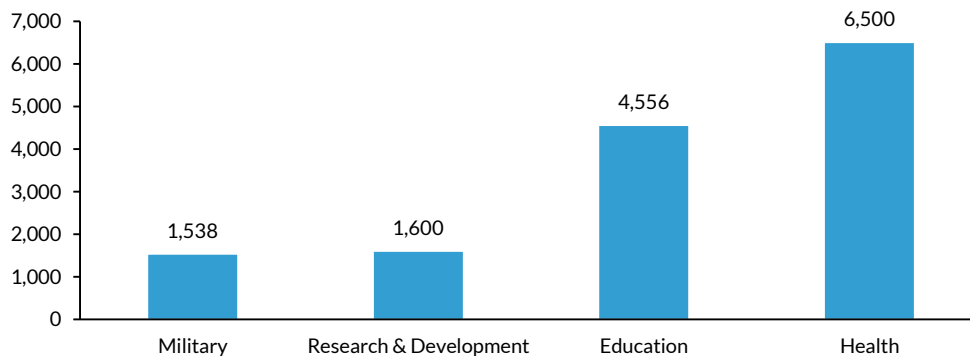
Source: Kepler Cheuvreux

Education market size at a glance

Spending in education: larger than military and R&D combined

Global spending in education mostly originates from governments, and totals c. USD4.5bn a year (source: GSV Advisors). It is the second largest government-driven spending item after healthcare, and is larger than military and research & development combined.

Chart 4: Global government-driven spending by macro area (USDbn)

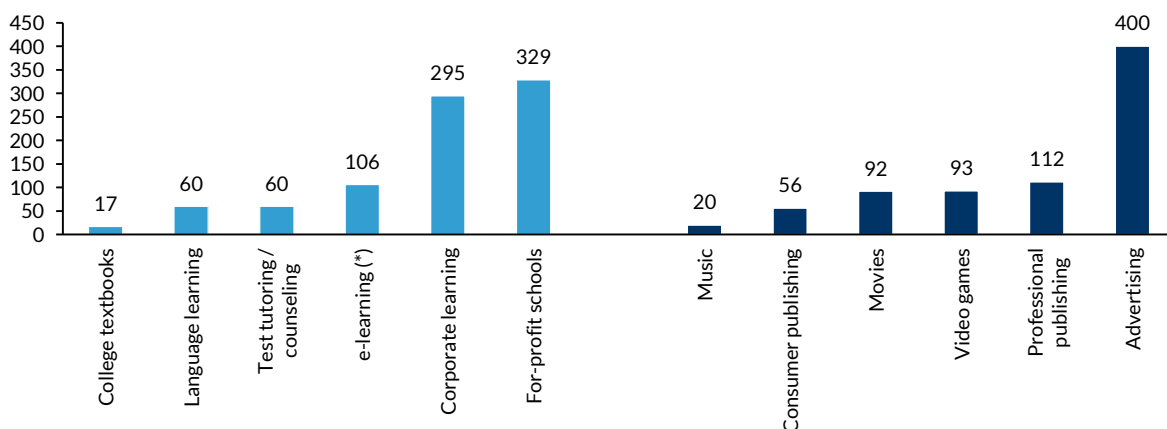


Source: IHS for Military (2013), Batelle for R&D (2013), GSV for Education (2013), WHO for Health (2011). Kepler Cheuvreux

Addressable market size: comparable to the size of the media sector

When estimating the commercially addressable size of the market, we need to exclude direct public spending in salaries, K-21 facilities, and items that cannot be realistically expected to become revenues for private companies in the foreseeable future. Even under this reduced definition, the global educational market appears about as big, in dollars, as the rest of the media sector.

Chart 5: Addressable educational market size compared to other media segments (USDbn revenues), 2013



(*) incl. e-learning, mobile learning and edu-gaming, social learning. Source: GSV Advisors, Gartner, IBIS, Kepler Cheuvreux

Investable market size is only 1.5% of annual spending

The total market capitalisation of listed educational stocks represents only 1.5% of the yearly global spending in education. In other words, for every dollar of listed market cap in education 65 dollars is spent every year in the sector. The proportion is very small in absolute terms as well as relative to the closest macro areas of health, the most equity-intensive (1.6 dollars spent for every dollar of market cap), and defence (4.1 dollars spent for every dollar of market cap).

The low investment intensity of education is a legacy of its history, as traditionally the overwhelming majority of the growth in educational spending has been taken up by salaries. We argue in this report that even a very small shift in the balance of spending towards other factors, and technology in particular, would have a very large positive impact on the size of the investable space, and on the return on investment of the most well-positioned existing companies. We see such change starting to happen: most strongly in the US, but gradually extending to other mature and emerging countries.

Table 1: Investable market cap (USDbn) compared with yearly spending

Rank	Education	USDbn	Health	USDbn	Defence	USDbn
1	Pearson	14.93	Novartis AG	254.9	United Technologies	61
2	Kroton Educacional	10.86	Roche Holding AG	251.4	BAE Systems	14.4
3	Graham Holdings	4.09	Pfizer Inc	186.7	Rolls Royce	19.2
4	Estacio	3.76	Merck & Co Inc	175.3	Safran	17.1
5	New Oriental	3.53	Gilead Sciences Inc	163.6	Airbus	30.6
6	Benesse Education	3.52	Sanofi	146.3	Boeing	55.1
7	Lagardère	3.49	Novo Nordisk A/S	123.4	Northrop Grumman	16.3
8	Apollo Group	2.97	Bayer AG	113.6	Raytheon	18.6
9	DeVry	2.76	GlaxoSmithKline PLC	112.3	General Dynamics	25.7
10	Houghton Mifflin Harcourt	2.71	Amgen Inc	105.7	Lockheed Martin	34
	Others	17.4	Others	2342	Others	79
	Total Education	70	Total Health	3975	Total Defence	371
Total yearly spending		4556			6500	1538
Spending/market cap (USD)		65.1			1.6	4.1

Source: Kepler Cheuvreux

Bright global market outlook on the back of secular drivers

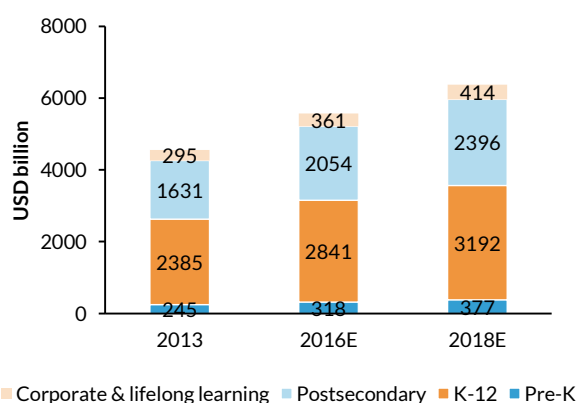
The global educational market benefits from a set of demand macro-drivers, which have been detailed in-depth by economists and industry participants in recent years:

- **Ever-increasing global government spending in basic education.** The number of children of primary school age not attending school fell from 103m in 1999 to 57m (of whom 31m girls) in 2011. The UN Millennium Development Goal (MDG) to provide Universal Primary Education (UPE) by 2015 is, however, set to be missed (source: UNESCO).
- **Fight against illiteracy.** Over two-thirds of the world's 793m illiterate adults are found in only eight countries (India, China, Bangladesh, Pakistan, Nigeria, Ethiopia, Brazil and Egypt). Of all the illiterate adults in the world, two-thirds are women.
- **Growing global market for higher education.** Global tertiary enrolment more than doubled between 2000 (84m) and 2013 (180m). Pearson expects it to reach 300m by 2013 and 500m by 2040, or almost six times the size of 2000 levels.

- **Growth of the global middle class.** In Asia alone, 525m people can already count themselves as middle class – more than the European Union's total population. Over the next two decades, the middle class is expected to expand by another 3bn, coming almost exclusively from the emerging world (source: E&Y).
- **Advances in technologies disrupting the world of work.** Forty-seven percent of US jobs are "at risk" of being automated in the next 20 years (source: Pearson). *"Now comes the second machine age. Computers and other digital advances are doing for mental power – the ability to use our brains to understand and shape our environment – what the steam engine and its descendants did for muscle power"* (E. Brynjolfsson and A. McAfee, *The Second Machine Age* W.W. Norton, 2014)
- **Increasing focus on results and continuing education in mature countries.** *"We know ... that education has to start at the earliest possible age," [...] "We know that while not all of today's good jobs are going to require a four-year college degree, more and more of them are going to require some form of higher education or specialized training."* (US President Barack Obama at the FY 2015 budget presentation at Powell Elementary School in Washington, D.C.)

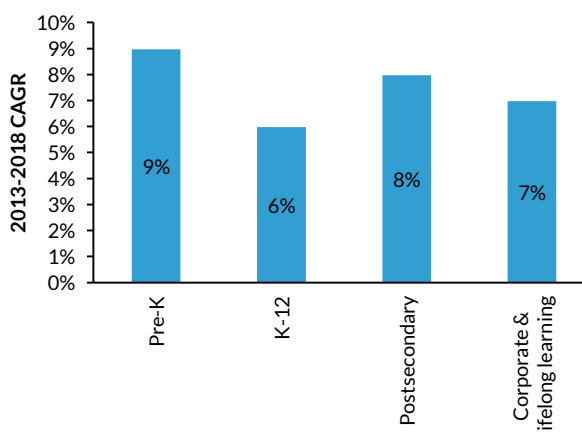
Based on estimates from GSV, these macro drivers should allow the global educational market (including both public and private spending) to post a CAGR of c. 7% over 2014-18.

Chart 6: Global educational expenditure 2013-18



Source: GSV Advisors

Chart 7: Global educational expenditure CAGR 2013-18

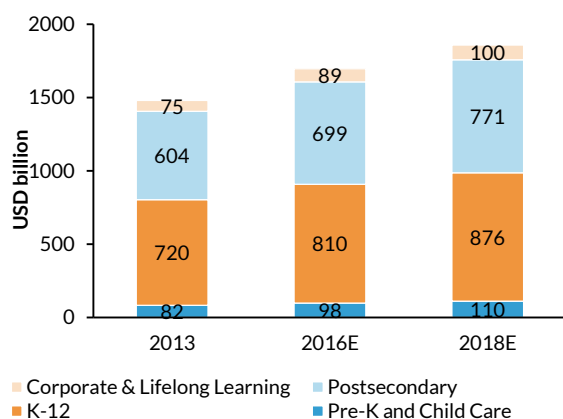


Source: GSV Advisors,

US educational expenditure to post 5% CAGR through 2018

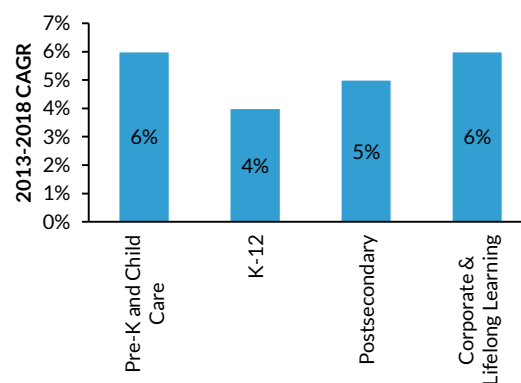
While emerging educational markets (China, India and Brazil) are outgrowing western economies, the US is also expected to post a CAGR of c. 5% due to a mix of cyclical uplift (higher spending per student after the 2009-13 crunch), increasing adoption of technology, and a continuous focus on results and on lifelong learning.

Chart 8: US educational expenditure by segment



Source: GSV Advisors

Chart 9: US educational expenditure by segment

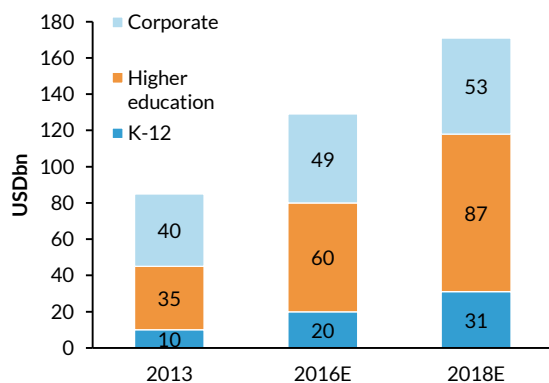


Source: GSV Advisors

Online learning markets to surge amid pressure on public funding

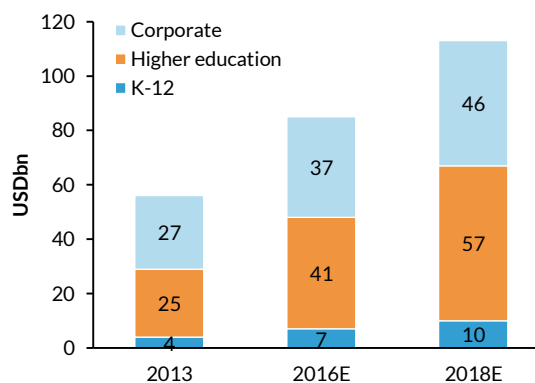
The e-learning market is projected to lead the pack among education subsectors; with a 15% CAGR projected from 2013 to 2018 in both the US and globally, amid pressure on public spending, a surge in internet users, booming take-up of mobiles and corporates' focus on continuous education. We would emphasise an especially positive dynamic for vocational education, which could be made more financially accessible, more transparent and more flexible by blended and online tools and courses.

Chart 10: Global elearning market



Source: GSV Advisors

Chart 11: US elearning market



Source: GSV Advisors

Other educational market's hotspots: ELT, mobile, gaming, social media

While the large global market for-profit schools (USD51bn as of 2013) is forecast to experience relatively modest growth compared with other industry segments (8% 2013-2018 CAGR), language learning, particularly English language training (ELT), test preparation and tutoring, and the smaller but swelling mobile learning, education gaming and social media portions are attractive niches, making inroads with double-digit CAGRs.

Table 2: Global education market forecast: subsets (excluding online)

	2013	2016E	2018E	2013-2018 CAGR
For-profit Postsecondary	51	52	60	8%
ow Postsecondary LMS	4	5	6	10%
ow Postsecondary Textbooks	17	19	20	3%
Social learning/communities	10	14	18	12%
Mobile Learning	5	9	13	22%
Edu gaming	6	12	18	25%
Global IT Spending	70	79	85	4%
Language learning	60	84	106	12%
ow Global English Language Learning	40	61	80	15%
Test preparation/tutoring	60	84	106	12%
For-profit	329	438	560	10%

Source: GSV Advisors

US market dynamic segments: post-secondary and charter schools

In the US, for-profit post-secondary schools (10% 2013-2018 CAGR) as well charter schools (11%), whose total number surged over the past ten years, are expected to continue on a strong upward trend. They are likely to remain the practical alternative to students and families searching for more effective and flexible alternatives to existing methods. Their offer in higher-education and vocational training is being enhanced by a number of well-known bricks-and-mortar institutions coming to the market for blended and distance learning, setting up digital courses autonomously or through partnerships with enablers (Pearson, 2U, Deltak, etc.).

Table 3: US education market forecast: subsets (excluding online)

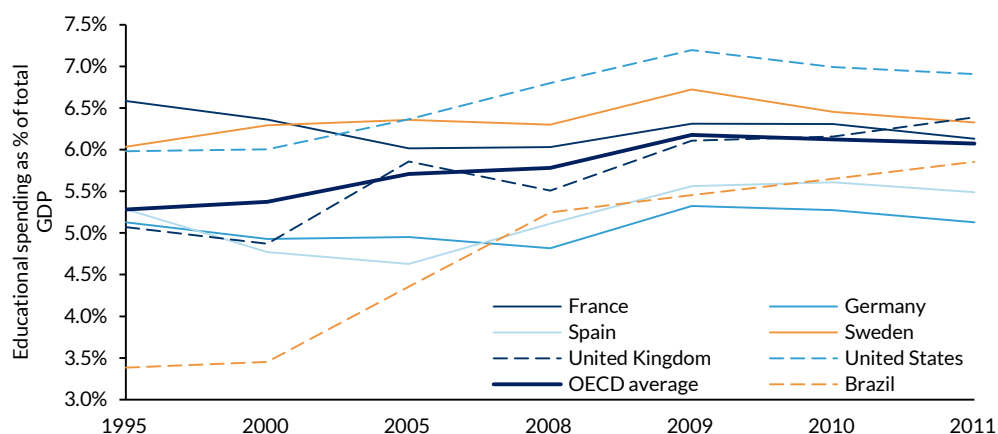
	2013	2016E	2018E	2013-2018 CAGR
Government spending on education	941	1,058	1,145	4%
For-profit postsecondary	25	33	40	10%
ow postsecondary LMS	1	2	2	15%
Textbooks	11	12	13	3%
ow eTextbook	1	2	5	50%
Test prep / tutoring / counselling	11	12	13	3%
Charter schools	16	22	27	11%
Social learning / communities	5	6	7	6%

Source: GSV Advisors

Emerging market education mammoths: Brazil, China and India

The underlying decline in government spending relative to GDP in many OECD countries over the past few years, including in the US, contrasts with Brazil's fierce catch-up, which propelled a market estimated to be worth USD75bn (source: US Department of Commerce). Data for the other overriding emerging markets, although not comparable, show a robust rise too: USD153bn in China as of 2012 (source: Marketsandresearch) and USD56bn India in 2014-15 (source: India Ratings and Research Pvt).

Chart 12: Total educational spending as % of GDP (selected countries and OECD average)



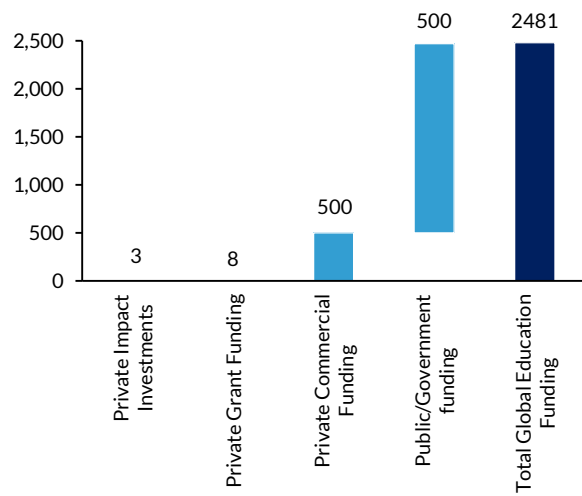
Source: OECD (2013), Education at a Glance 2013: OECD Indicators, OECD Publishing, <http://dx.doi.org/10.1787/eag-2013-en>

Impact investing in education: a niche within a niche

Education has so far attracted fairly limited interest from impact investors¹, with a mere USD3bn devoted globally compared with USD2.5trn of total funding (source: D. Capital Partners, Open Society Foundation). This is likely to change, though, considering the enormous need for financing to advance education, constrained governments budgets, the development of innovative commercial approaches addressing underserved customers (so-called "inclusive business models" e.g. low-cost private schools), compounded by the growing development of this nascent but dynamic investment niche comprised of socially-motivated investors (USD10.6bn invested in 2013; source: J.P. Morgan, GIIN).

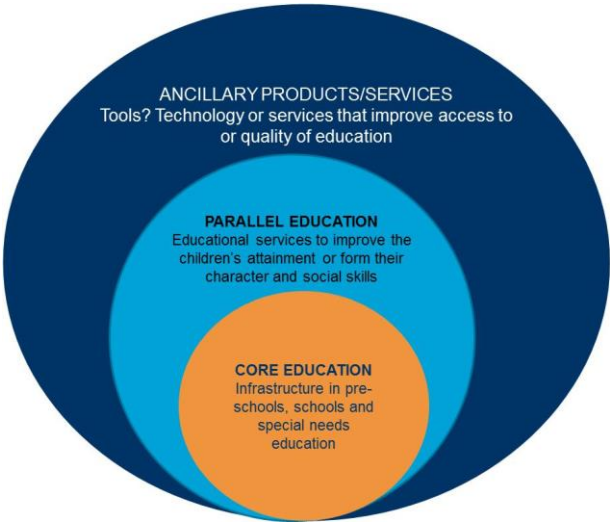
¹ Impact investments are commonly defined as 'investments in companies, organisations and funds with the intention of generating measurable social and environmental impacts alongside a financial return. Impact investments can be made in both emerging and developed markets, and target a range of returns from below-market to market rate, depending on the circumstances' (source: GIIN). Development finance institutions, family offices and HNWI's have been typical sources of funds for impact investing but a growing number of institutional investors are entering – or looking to enter – the space. See also our report *Investors' Impact Integrated = I3* (November 2013).

Chart 13: Global Education II funding (USDbn)



Source: D. Capital Partners , Open Society Foundation

Chart 14: Education market segments



Source: Impact in Motion, adapted from Kaizen Private Equity

1) Unaffordability: how we got there

"If you think education is expensive, try ignorance." (Derek Bok, former President, Harvard)

The US is the largest educational system in the world, and home to most innovation in the field. Still, its expensive public policies until recently have left little room for innovation. A combination of factors, such as the affordability crisis, aggravated by the recession, has become a trigger for change, which is being met by experimental teachers and schools and engendering a technological revolution. We see the best investment potential in companies that offer more cost-effective educational solutions.

Affordability of education for governments and students is a political priority in mature and developing economies. The increasing costs of education, the equality of chances for students from low-income families, the cost of dropouts have come under close scrutiny.

In the US, the affordability debate has been exacerbated by US students' poor showing in international rankings and by the increase in dropouts, compounding a secular increase in spending per student (albeit the latter trend has reversed since 2009). An inefficient educational system results in lower national income (there is a USD1m lifetime earning gap between a college graduate and a dropout) and a loss of competitiveness of the nation's workforce.

Governments lowering the teacher-per-student ratios

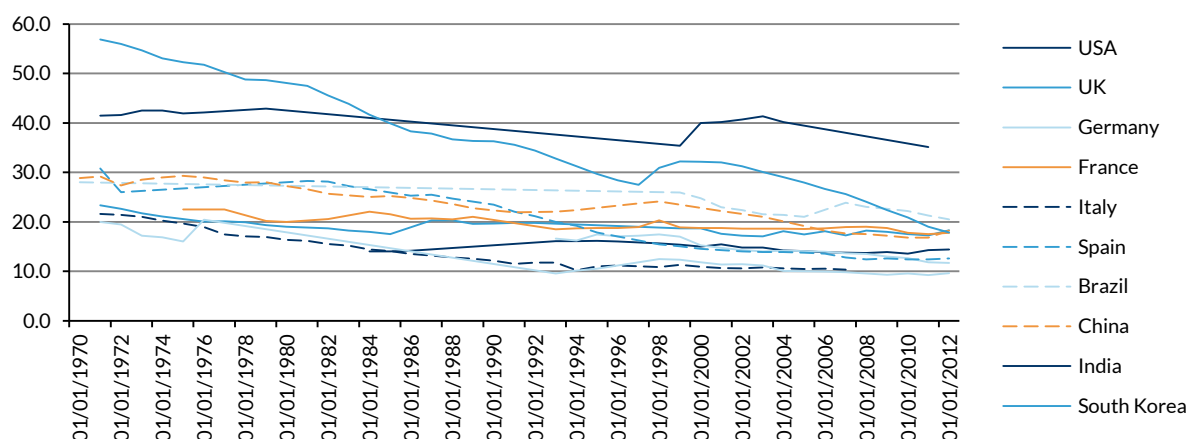
Our analysis shows that global educational policies historically prioritise lowering the teacher-per-student ratio to technology and materials spending. This strategy has the drawbacks of being expensive, and of not stimulating excellence. Private educational alternatives exist, but provide an inefficient answer to the problem, offering a wide opportunity to innovative new entrants.

The relevant variables behind unaffordability belong to two categories: mechanical causes and underlying causes. They are well exemplified by the US case. Both converge to a peculiar situation of stretched resources compounded by mounting demand for access and quality of education.

- **The mechanical cause of unaffordability** (i.e. hiking cost of the items students/governments actually pay for) include: 1) the increase in tuition fees for students; 2) the increase in the costs for governments; and 3) the increase in the cost of educational and research materials for both.
- **The underlying causes of unaffordability** are: 1) increase in spending for teachers, researchers, content and facilities (for governments) and meeting; 2) capped growth in governments' educational budgets, resulting in an increasing shift of the burden to students' and families' present and future income (loans).

We see strong potential for companies enabling cheaper and more effective forms of education. Our belief stems from: 1) a proprietary analysis of the correlation between the cost of a degree and its ROI to students, showing that current available options are not satisfactory; and 2) the change in the focus of public policies in the US, from access to cost effectiveness, which is likely to become the precursor to similar changes in other countries.

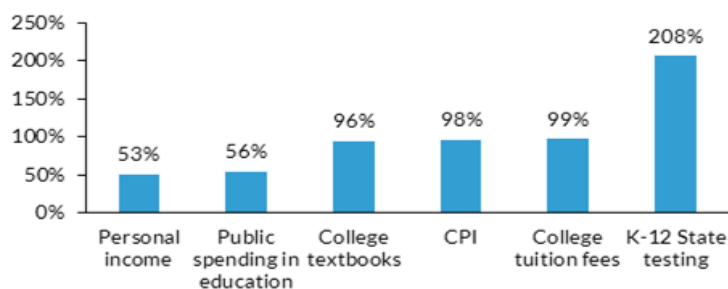
We see strong potential for companies enabling cheaper and more effective forms of education

Chart 15: Teacher-per-student ratios, selected countries

Source: World Bank, Kepler Cheuvreux

a) Mechanical cause of unaffordability: cost inflation

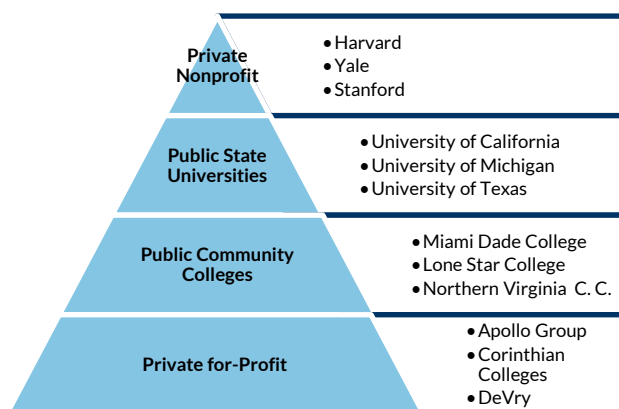
Growth of tuitions fees and college textbooks has constantly outpaced wages since the 1980s. The last 12 years of history for the US market (source: BLS) shows that enrolling in average US universities is twice as expensive today as it was in 2001. Incidentally, college textbook prices grew exactly by the same proportion, while average personal income grew by 58% (based on Federal Reserve data).

Chart 16: Growth in personal income and cost of education, US, 2012 vs. 2001

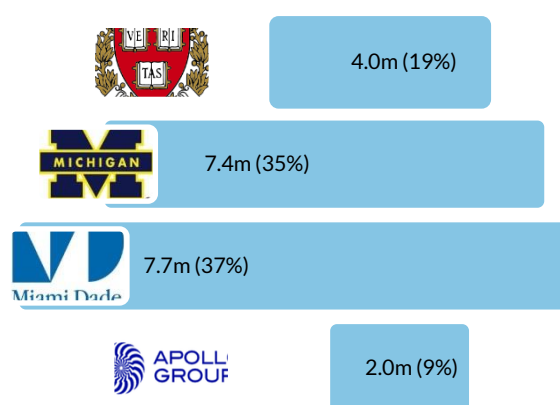
Sources: Personal income: BLS; College textbooks: BLS; Testing: PEW (2001), Brookings (2012), Public spending: World Bank

Such a rise has been possible because education is in excess demand. The most prestigious and expensive universities apply tight selection processes to retain only the best-performing candidates among those that could afford to enrol. The candidates rejected thus seek alternatives in institutions that are a step down the “prestige” ladder, where selection is easier.

Demand increases and encourages colleges to invest further in their brands, to strengthen their prestige with more advanced research and campus facilities, resulting in higher and higher costs still meeting demand in the form of new applicants. Demand is measured by high school completion rates, the number of college applications, the number of students who take the SAT, and the trends in the relative earnings of college and high school graduates” (Source: R. M. Hauser, 1991).

Chart 17: Degree-granting options in the US


Source: Kepler Cheuvreux

Chart 18: Available places (share of total in parenthesis)


Source: NCES 2011, Kepler Cheuvreux

The private education bubble

The challenge of matching an ever-growing number of applicants to college to government financial constraints has been addressed through offer policies favouring the development of private education, and demand policies backing student loans both public (Sallie Mae) and private. A flourishing market for private post-secondary institutions was born and developed over the last 20 years, including many listed university groups (the so-called “private for profit”).

While degree-granting private for-profits usually provide short (1-2 years) programmes and vocational courses, they also operate longer programmes. In many cases, those options are more expensive solutions than the equivalent public ones. In Minnesota, for instance, the public path towards a four-year bachelor's degree (“Baccalaureate”) can turn out to be 4x more expensive in a private institution than in a public one.

Chart 19: A private degree can be 5x more expensive than a public one (excl. PSEO)**Affordability: The Price of Alternative Paths to a Baccalaureate Degree in 2012-2013***

SCENARIO	YEAR 1	YEAR 2	YEAR 3	YEAR 4	TOTAL TUITION
A	PSEO / Concurrent enrollment	PSEO / Concurrent enrollment	MnSCU university	MnSCU university	\$ 14,630
B	PSEO / Concurrent enrollment	MnSCU college	MnSCU university	MnSCU university	\$ 20,101
I	MnSCU college	MnSCU college	MnSCU university	MnSCU university	\$ 25,390
II	MnSCU university	MnSCU university	MnSCU university	MnSCU university	\$ 29,260
III	MnSCU college	MnSCU college	University of Minnesota	University of Minnesota	\$ 36,472
IV	University of Minnesota	University of Minnesota	University of Minnesota	University of Minnesota	\$ 51,524
V	MnSCU college	MnSCU college	Private college or university	Private college or university	\$ 78,340
VI	Private college or university	Private college or university	Private college or university	Private college or university	\$ 135,260

*Average tuition and fees



Post Secondary Enrollment Options (PSEO) is an academic option open to high school seniors and juniors in various US states, such as Minnesota and Ohio. The options allow students to take courses at the college level. It is possible for a student to graduate with both an associate's degree and a high school diploma at the same time via PSEO. The PSEO program was created in 1985 by Minnesota, and later adopted by Ohio's Department of Education.

Source: University of Minnesota, Wikipedia

The private alternatives to match unfulfilled demand would be an ideal development, were those alternatives economically satisfactory for students. As we explain in the following sections, however, the efficiency of the existing private school colleges (mostly brick-and-mortar) is not always satisfactory, and can be greatly enhanced by innovation.

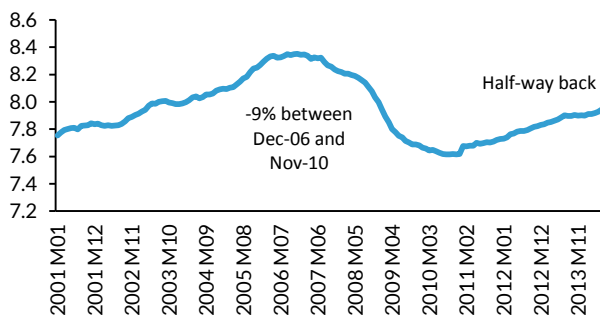
Limited hiring in some of the best-paying professions

Since public budgets could only partly cope with the cost increase, an increasing share of the cost of education has fallen on the shoulders of students and their families. It has encouraged students to borrow, initially through the government-sponsored mortgage enterprise Sallie Mae, then with banks and insurance corporations.

Repaying debt has been made harder by the diminished employment opportunities for new graduates. While in 2014, US private employment exceeded the peak of 2007, some of the best-paying jobs of the pre-crisis time never picked up. This is the case, for instance, of law firms and banks, traditionally among the best employers for graduates, which employed more than 9m Americans before the 2009 crisis, and whose demand has failed to increase substantially.

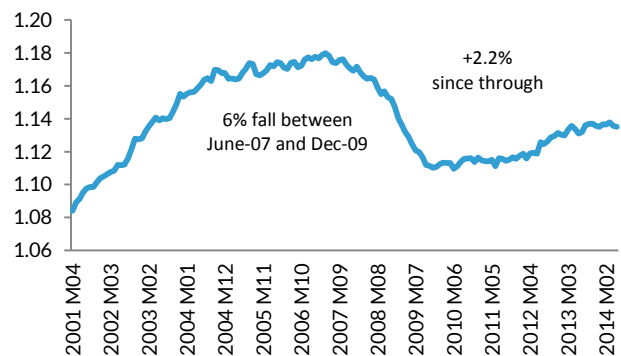
In contrast, US employers are facing a short supply of graduates in the scientific, technical and medical areas.

Chart 20: US employment in financial services



Source: BLS, Kepler Cheuvreux

Chart 21: US employment in legal services



Source: BLS, Kepler Cheuvreux

Too young to fail: student deleveraging ongoing

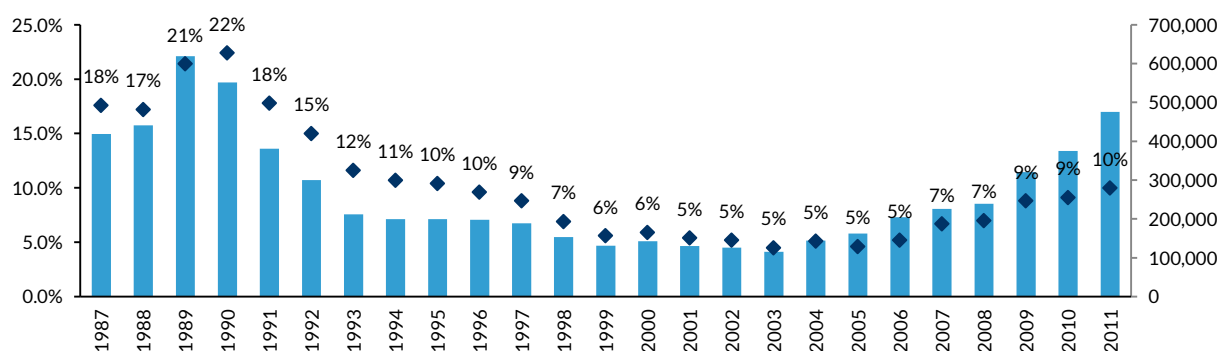
The Institute for College Access and Success (2011) reported that the average student debt load of the 66% of college seniors graduated student debt in 2011 was USD26,000. The FY 2011 two-year national cohort default rate was 10.0%, according to the US Department of Education, up from 5% until 2006.

Traditionally for-profits have a high share of one-year and two-year degree enrolments. Short courses are cheaper than long ones, requiring a smaller global financial commitment. Those schools absorbed a more-than-proportional amount of student debt, and of beneficiaries of federal "Pell" grants.

The two-year student default rate (i.e. students unable to repay their debt instalments two years after graduation) started to creep up from 4.6% in 2005 to 7.0% in 2008, and reached 10% in 2011. The problem was compounded by the Credit Crunch, which left many fresh graduates waiting for a job, or accepting part-time jobs below their initial expectation at the time when they took on debt.

The two-year student default rate (i.e. students unable to repay their debt instalments two years after graduation) started to creep up from 4.6% in 2005 to 7.0% in 2008, and reached 10% in 2011

Chart 22: US student loan defaults two years after graduation, in % (LHS) and number (RHS)



Source: U.S. Department of Education

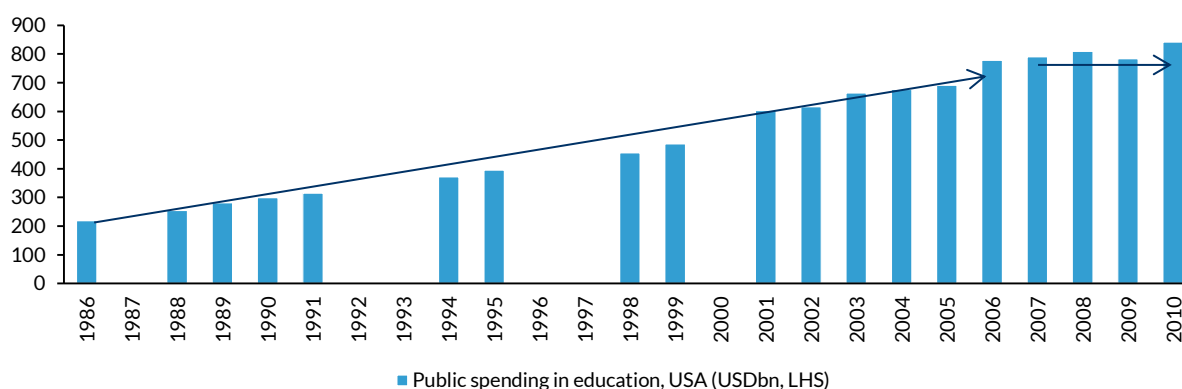
b) Underlying causes of unaffordability: public policies

The underlying causes of unaffordability are public policies aimed at reducing the size of classes, therefore investing more in teachers and less in technology and facilities. To prevent educational spending from getting out of control, the government shifted part of the burden to students and families by allowing more freedom to private schools and by providing federal guarantees to back student debt.

This strategy reached its limits in the 2009 downturn, when record-high demand for education met with lower government tax receipts, tightening access to borrowing for students, tightening regulation on private for-profit schools (to avoid a further drain of Federal money by students defaulting on their loans) and an overall deterioration of the US' positioning in international education rankings.

To prevent educational spending from getting out of control, the government shifted part of the burden to students and families by allowing more freedom to private schools and by providing federal guarantees to back student debt

Chart 23: US public spending in education



Source: Kepler Cheuvreux

US education financing and spending basics

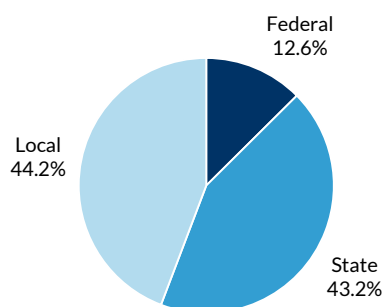
The American education system is mostly financed at the state and local level for grades K to 12, although benefitting from increasing intervention from the Federal government. Colleges and research universities in contrast are funded primarily by the Federal government.

Breakdown of US educational spending: K-12 (from ed.gov)

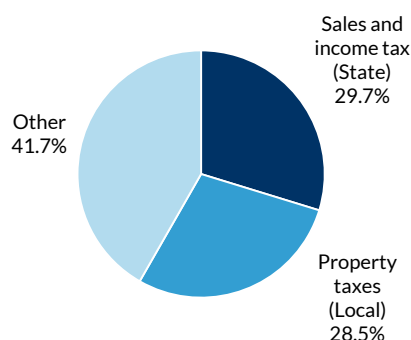
The responsibility for K-12 education rests with the states under the Constitution. There is also a compelling national interest in the quality of the nation's public schools. Therefore, the federal government, through the legislative process, provides assistance to the states and schools in an effort to supplement state support. The primary source of federal K-12 support began in 1965 with the enactment of the Elementary and Secondary Education Act (ESEA).

ESEA authorizes grants for elementary and secondary school programs for children of low-income families; school library resources, textbooks and other instructional materials; supplemental education centers and services; strengthening state education agencies; education research; and professional development for teachers.

The No Child Left Behind Act of 2001 (NCLB) is a reauthorization of ESEA. The law's express purposes are to raise achievement for all students and to close the achievement gap. This is done through accountability, research-based instruction, flexibility and options for parents, so that no child is left behind. In 1990-91, the federal share of total K-12 spending in the United States was just 5.7%. It reached 12.6% in 2010.

Chart 24: US public K-12 revenue by source


Source: U.S. Census Bureau, "Public Education Finances: 2010," June 2012

Chart 25: US public K-12 revenue by type of tax


Source: U.S. Census Bureau, "Public Education Finances: 2010," June 2012

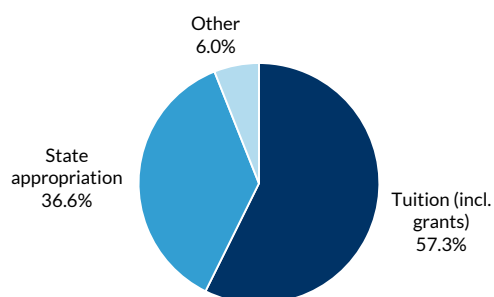
How are colleges funded?

Higher education is, to a large extent, funded by tuition fees. Even public community colleges, traditionally the least expensive education options in the US and enrolling around one-third of American freshmen, feed more than half of their yearly budget through tuition fees and approximately one-third from state support.

Federal aid flows into the budget of community colleges through Pell Grants (33% of Federal aid), Federal Work Study (16%) and Federal Supplemental Educational Opportunity Grants (21%) that cover tuition fees. Overall, indirect funding from federal through those grants represents 16% of the funding of a community college.

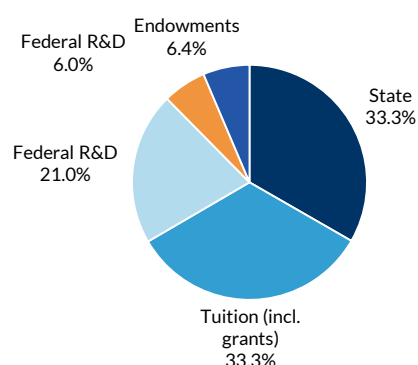
At the highest level research universities, the share of tuition fees falls to one-third of the total budget in our estimates, thanks to federal R&D grants that cover most of the cost of primary research. However, these institutions are not cheaper for students: on the contrary, they tend to be more selective and more expensive.

Chart 26: Funding of a US community college (public)



Example from Minnesota State College and Universities' budget.

Chart 27: Funding of a US high-end research university



Source: Kepler Cheuvreux

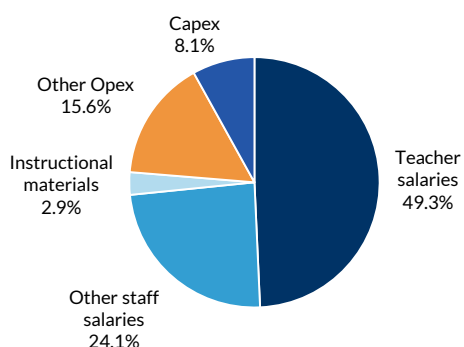
How do they spend it? Mostly on salaries

US schools (kindergarten to twelfth grade, or "K-12") spend almost three-quarters of their budget on salaries. Instructional materials represent c. 3% of the spending, a low amount despite the fact that in the US (as in many countries) the government contributes significantly to the cost of books in K-12.

The breakdown of costs at a typical university, excluding ancillary facilities such as university hospitals, does not differ much from that of a primary school. The example below comes from the 2012-13 budget of the University of Texas. Approximately two-thirds of the budget is devoted to personnel salaries, 8% to scholarships, 17% to other items including debt service (4%) while instructional materials are paid by students.

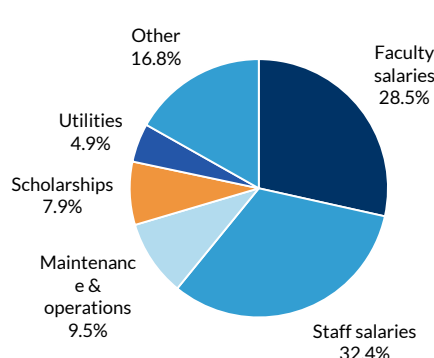
US schools spend almost three-quarters of their budget on salaries

Chart 28: Breakdown of spending of a US primary school



Source: UN, GSV, Kepler Cheuvreux

Chart 29: Breakdown at University of Texas

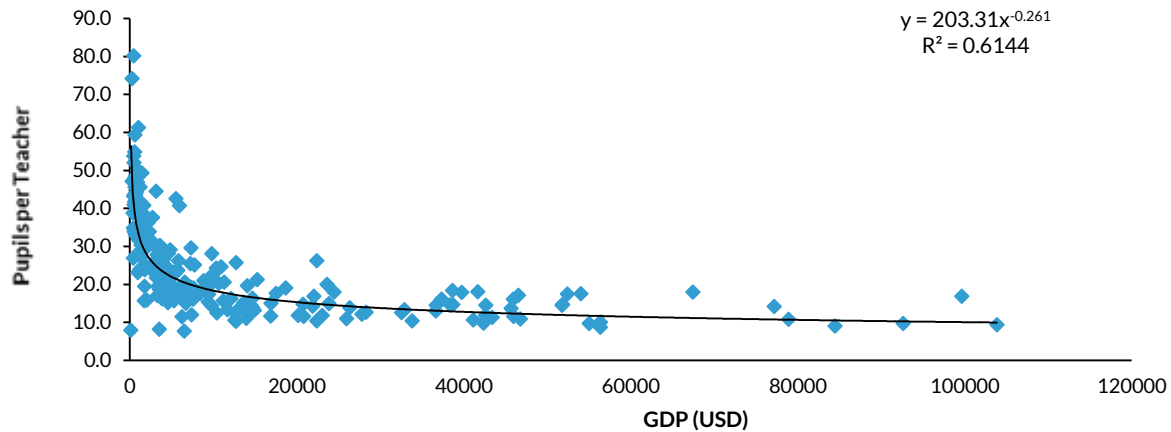


Source: UT 2013-14 operating budget, core uses; Kepler Cheuvreux

The US behaviour is mirrored by other countries, as shown by our cross-sectional data analysis of pupils-per-teacher ratio versus GDP in 178 countries, based on data from the World Bank. For higher levels of GDP, governments tend to hire more teachers and to trim the average size of classrooms. Such behaviour reflects the old-fashioned conception of education as a production chain, which must respect a predefined calendar and a

standardised programme, the “Prussian” model described by the Khan Academy’s founder Salman Khan in his book “The One World Schoolhouse: Education Reimagined”.

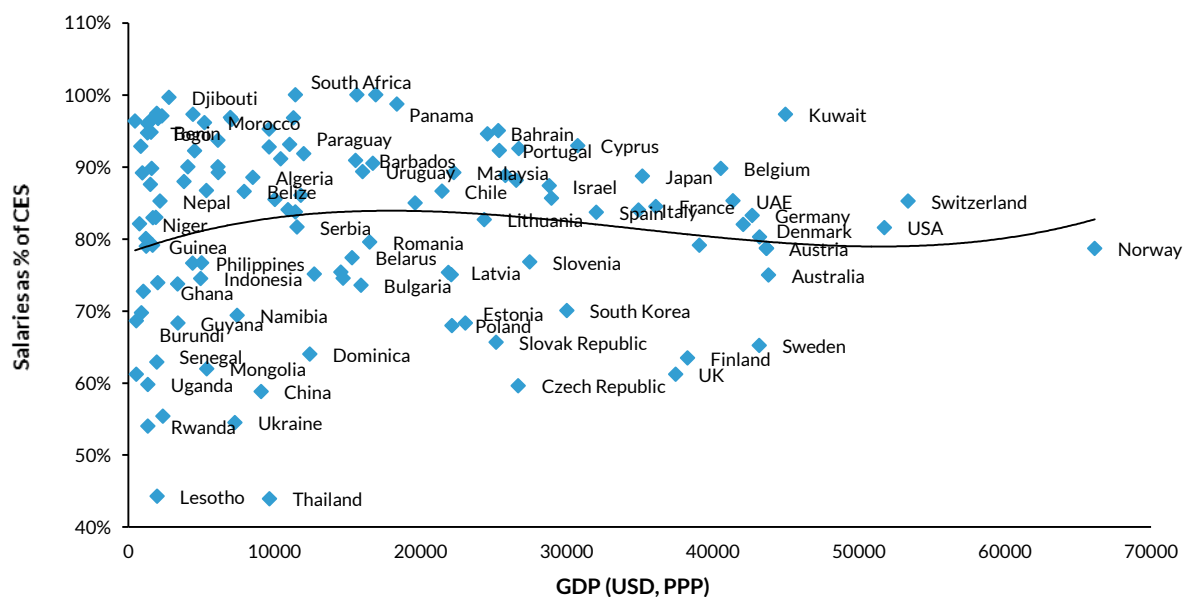
Chart 30: Pupils per teacher in K-12 versus GDP in 178 countries



Source: Kepler Cheuvreux

For all countries, salaries represent the overwhelming majority of the cost of education. In low-income countries, teachers are the staple of the system. In higher income countries, the higher cost of facilities go hand in hand with the need for more staff (lab assistants and tutors), better paid, with the demand for lower student-per-teacher ratio in K-12 and for more qualified faculty at universities.

Chart 31: Salaries as share of current educational expenditure versus GDP



Source: UNESCO, Kepler Cheuvreux

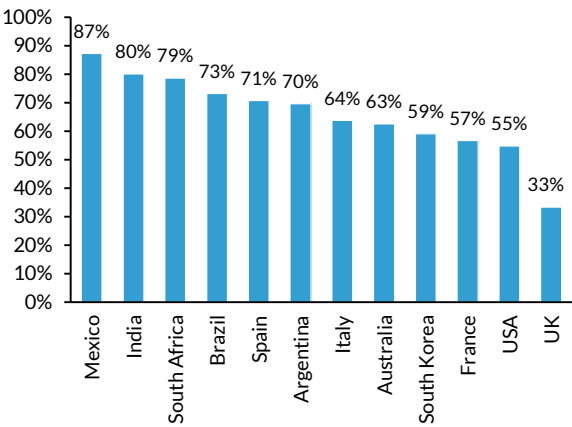
The key role of teachers in K-12

The ratio of pupil per teacher in K-12 is seen as a key metric for quality of education. Wealthier countries have a significantly lower number of pupils per teacher than poor countries. Teachers are very likely to remain the backbone of education in K-12, where students have a low degree of autonomy and must be guided. However, innovation is opening up new opportunities for adoption of more sophisticated in-classroom tools and out-of-classroom tutoring and support.

A cross-country comparison shows that the share of educational expenditure used to pay teachers and personnel in most countries is more than half of the total spending in education.

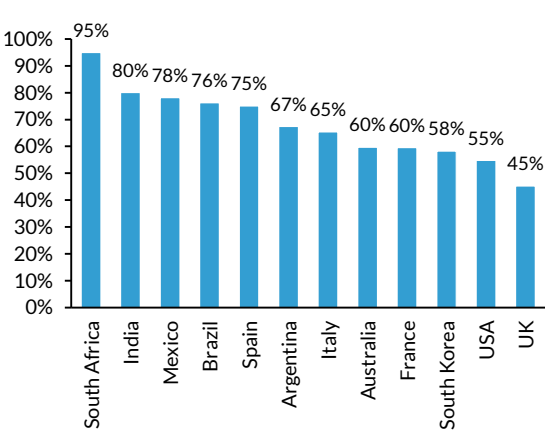
The ratio of pupil per teacher in K-12 is seen as a key metric for quality of education

Chart 32: Teachers' salaries/expenditure (primary)



Current educational expenditure (CAPEX excluded). Source: UN, Kepler Cheuvreux

Chart 33: Teachers' salaries/expenditure (secondary)

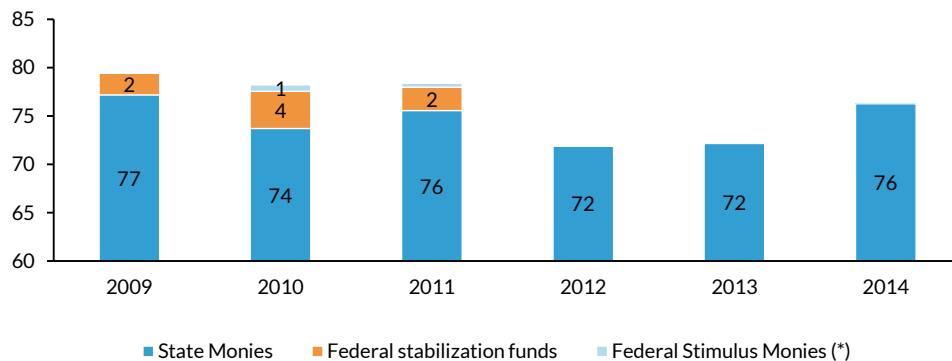


Current educational expenditure (CAPEX excluded). Source: UN, Kepler Cheuvreux

US recession triggers boost to demand

The US state's fiscal contribution to education has been well protected during the crisis, also thanks to complementary funding from the American Recovery and Reinvestment Act. However, it did not rise in line with the cost of educational facilities, which resulted in: 1) a drop in spending per student in K-12 schools; and 2) continuing fast growth of tuition fees at colleges and universities. The situation is slightly improving in 2014.

Chart 34: US state fiscal support for higher education, by fiscal year

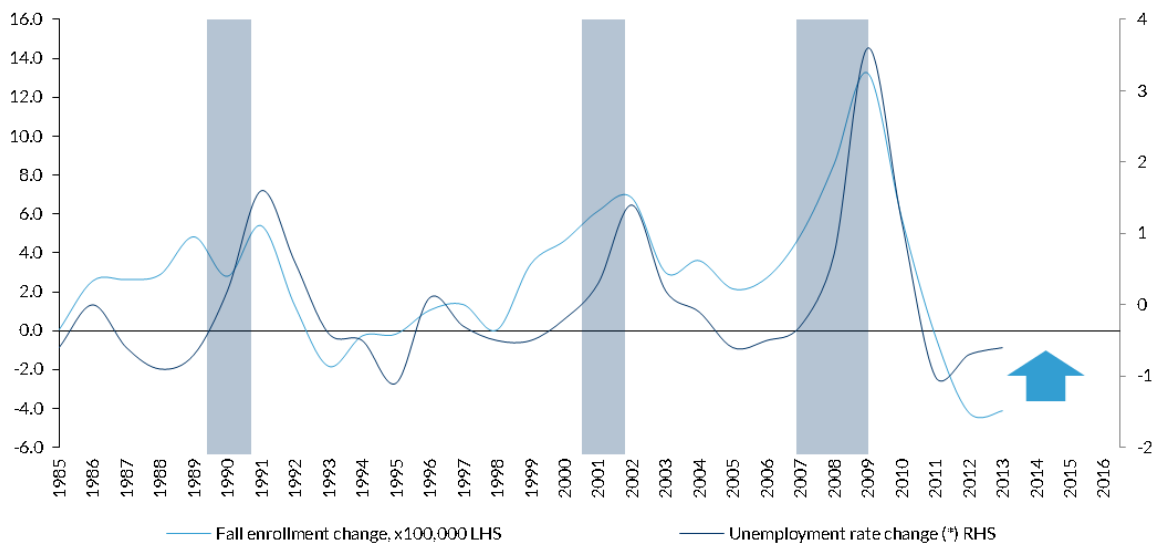


(*) = Government Services Funds. Source: Grapevine, Kepler Cheuvreux

The long ebb of the 2009 college enrolment wave

History shows a strong positive correlation between unemployment and enrolments. The recession period that followed the credit crunch made no exception, and generated the tallest peak in enrolments of recent history, as laid-off workers seek incremental skills, while students delayed their entry to the labour market.

The pressure of the expanding student loans system fell on the shoulders of the Federal government, which had guaranteed most of the loans. The guarantee had been extended to loans issued by private financial institutions in the pre-crunch years, in an effort to stimulate private participation to the student loan market.

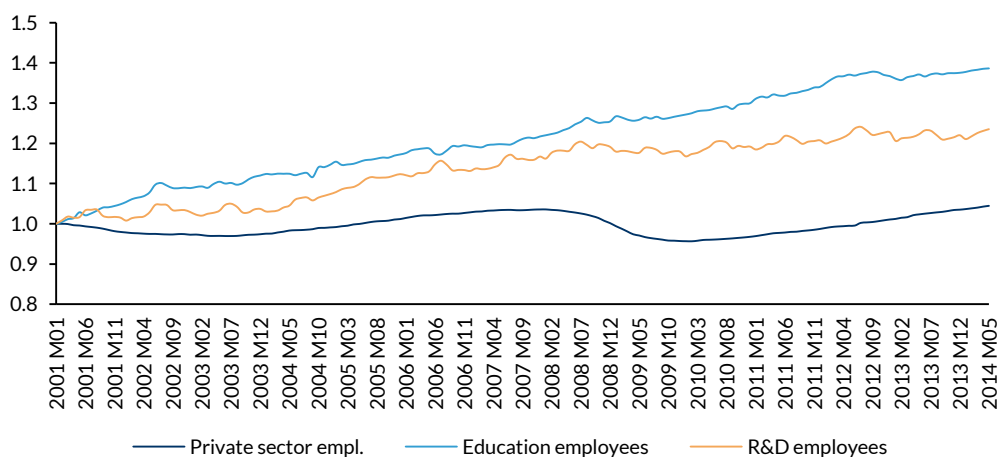
Chart 35: % change in fall college enrolment versus unemployment, US, 1985-2013 (recessions shaded)

Source: BLS, Kepler Cheuvreux

Hiring of teachers and researchers continued through the recession

While private sector employment dropped in 2009 by 6-7%, the number of teachers and researchers employed in the US never stopped growing. The increase in employees happened against the backdrop of pressure on public funding mentioned above.

While private sector employment dropped by 6-7% in 2009, the number of teachers and researchers employed in the US never stopped growing

Chart 36: US total private employment versus education and scientific R&D employees

Source: BLS, Kepler Cheuvreux

Invest in companies enabling cost-effective education

We see a strong potential in companies enabling cheaper and more effective forms of education. Our belief stems from: 1) a proprietary analysis of the correlation between the cost of a degree and its ROI to students, showing that current available options are not satisfactory; and 2) the change in the focus of public policies in the US, from access to cost effectiveness, which is likely to become the precursor to similar changes in other countries.

We see strong potential for companies enabling cheaper and more effective forms of education

A costly choice

The cost of attending college for a young American varies widely according to the option chosen. The College Board estimates that for the college year 2013-14, the average student attending a four-year private college paid USD44,757 for a single year of study, the most expensive option. The biggest cost item is tuition fees, followed by the rental of a campus room, and transportation. College supplies represent “only” USD2,580, or 6%, of the total bill.

Living close to a public college can turn into a huge saving, as fees are lower and savings can be made on location and transport. A state resident living with their family close to a public college may miss part of the college life experience, but will spend only USD10,100 a year. Out-of-state students living in the same campus would pay almost four times more for their studies, a whopping USD104,152 difference versus a four-year degree.

Table 4: Cost of college: four options

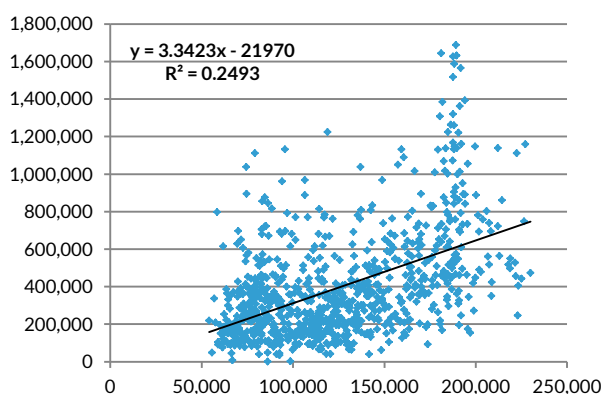
	Private college	State resident at a public college, living with family	State resident at a public college, living in campus	Out-of-state resident at public college
Tuition and fees	30,094	8,893	8,893	22,203
Campus room and board	10,830	0	9,500	9,500
Books and supplies	1,253	1,207	1,207	1,207
Personal & transportation	2,580	0	3,228	3,228
Total per year, USD	44,757	10,100	22,828	36,138

Source: The College Board, Kepler Cheuvreux

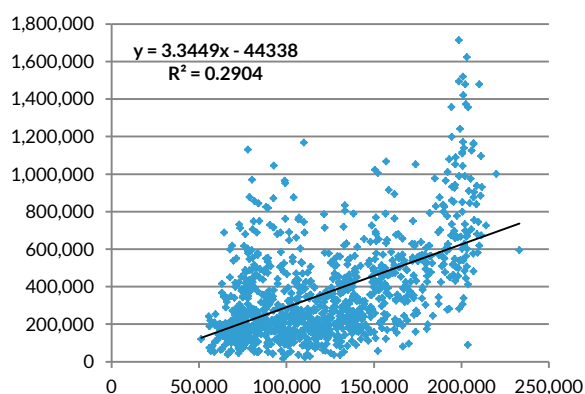
Unconvincing correlation of price to ROI of colleges

We have performed the linear regressions on data collected by Payscale.com on a sample of more than 800 colleges over four years, from 2010 to 2013. Several websites including Payscale.com compare the cost and 30-year return on investment (ROI) across thousands of US colleges, in order to inform potential applicants of their earnings prospects. We have aggregated data from the 1,486 colleges within the Payscale.org list to check the distribution of the 30-year return on investment of a dollar spent in college education in 2013.

The scatter plot of data from Payscale.com shows that the most expensive colleges indeed provide a higher ROI, but that the correlation is only due to the very high income of students attending star universities. A linear regression shows an R2 of only 25% between cost and return in 2010, and of 29% in 2011.

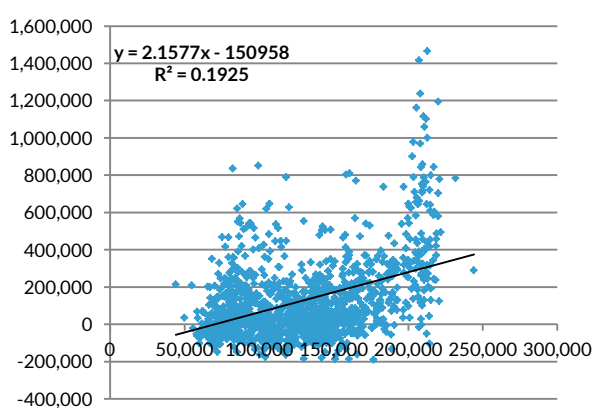
Chart 37: USD college cost (X) vs. 30Y ROI (Y), 2010

Source: Payscale.com on 852 colleges, Kepler Cheuvreux

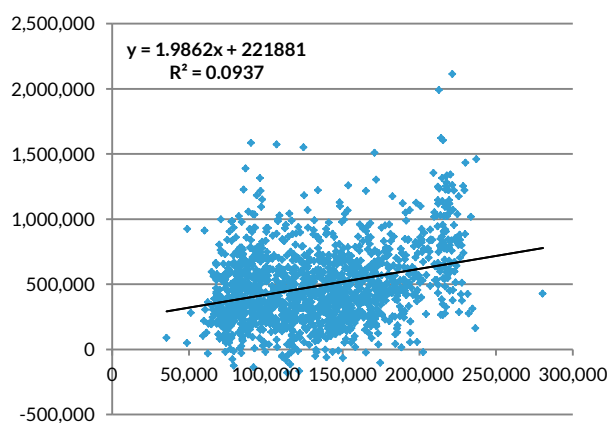
Chart 38: USD college cost (X) vs. 30Y ROI (Y), 2011

Source: Payscale.com on 1052 colleges Kepler Cheuvreux

Data from 2012 and 2013 offer an even worse picture. Starting from 2012, a large number of colleges started to deliver negative ROI, as their still-high fees no longer offer a satisfactory expected return (although comparability with previous years is biased by the increasing number of colleges included in the sample). The return of “long tail” star-universities, however, remained at the level of previous years, creating a more uneven distribution of returns. The strength of the correlation dropped further in 2013 to an R^2 of only 0.09, despite an overall improvement in the state of the economy lifting returns for all colleges.

Chart 39: USD college cost (X) vs. 30Y ROI (Y), 2012

Source: Payscale.com on 1248 colleges Kepler Cheuvreux

Chart 40: USD college cost (X) vs. 30Y ROI (Y), 2013

Source: Payscale.com on 1486 colleges Kepler Cheuvreux

From a methodological point of view, the outcome of the analysis of Payscale.com data depends heavily on the earning expectations of new graduates, which is inferred from past data. Some schools are missing, and the price refers to a certain point in time. Still, in our view the outcome is useful to grasp the big picture, and consistent with the policies that the US government is enacting.

From a methodological point of view, the outcome of the analysis of Payscale.com data depends heavily on the earning expectations of new graduates, which is inferred from past data. Some schools are missing, and the price refers to a certain point in time. Still, in our view the outcome is useful to grasp the big picture, and consistent with the policies that the US government is enacting.

The current 30-year median pay for a bachelor's graduate of 2012 is calculated from a specific school by summing up the median pay for bachelor graduates who graduate between 1983 and 2012 from that school, and actualising earnings figures in current dollars. More details following this [link](#).

Unconvincing return of the existing private offer

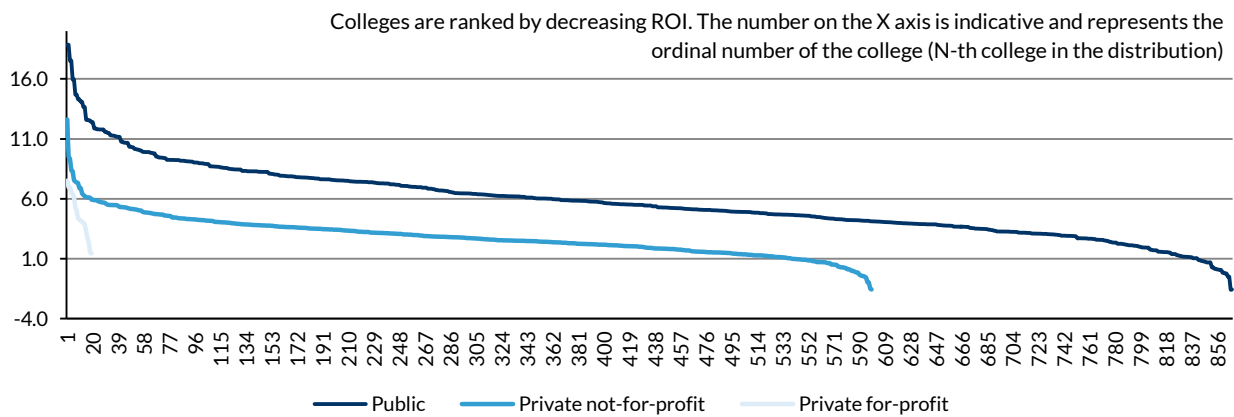
Despite its strong development in recent decades, the current private alternatives to public colleges on average offer a lower return on investment than public schools. The demand for enrolment unfulfilled by public universities is partly satisfied by private alternatives, but it could be done in a much more efficient way through the adoption of technologies making alternative education cheaper, such as competency-based education and distance learning platforms.

Our analysis of the ROI of American colleges shows that private universities have been unable, on average, to deliver better value for money to students than public universities. In other words, while externalising part of the cost of education to private companies has allowed to educate more students and to externalise some costs, the government's bet on private education has proven a losing one for students, leading in many cases to over-indebtedness and lower standards (measured by future income).

- While private not-for-profit “star” schools such as the California Institute of Technology, the MIT, or Stanford, lead to the highest absolute salaries, they are more expensive for students (we do not adjust for grants or sponsorships in our analysis, we just take the cost of attending the college), and deliver a ROI which is lower than that of public colleges.
- Private for-profit colleges in some cases deliver good return (DeVry Columbus the best at USD7.5 per dollar invested) but lower than their state and for-profit equivalents.
- The least returning colleges are not private for-profit, but rather the low-end public and private not-for-profit institutions. No private for-profit delivers negative ROI.

Our analysis of the ROI of American colleges shows that private universities have been unable, on average, to deliver better value for money to students than public universities

Chart 41: Distribution of USD returns (over 30 years) of USD1 invested in college studies in 2012 (1,486 colleges)



Source: Payscale.com, Kepler Cheuvreux

2) Efficiency and better policies: the way out

“Consumer satisfaction supplies the social meaning for all economic activity.” (J. Schumpeter)

Efficiency considerations are compounding the affordability-related push towards a more pervasive use of technology, more effective teachers, and more research activity. The US is in our view a precursor of other countries in a gradual policy shift from access to education (“No Child Left Behind”) to results and effectiveness (“Race to the Top”) which will favour companies enabling cheaper and more cost-efficient forms of education.

Efficiency variables

For governments, efficiency of education means associating to the traditional quantitative output of the number of educated student qualitative data on results. However, the definition of “quality” in education is elusive. It also implies governments taking a normative stance on what education should be encouraged, selecting schools according to the financial perspectives they provide to their students (“gainful employment” regulation) or by type of degree, for instance by favouring scientific and technical education over humanities (“STEM” regulation).

For students, efficiency of education implies minimizing some of the costs of traditional education such as housing, transports, and tuition fees, and maximizing the expected return of the degree.

Efficiency variables are:

- **Quantitative:** enrolments, students by level, graduations, dropout rates.
- **Qualitative:** knowledge/skills, type of degree, expected salary, total return.

Shift in public policies towards effectiveness and results

The growing cost of education has not led to proportionally great benefits. Indeed, since 1970, educational spending per student in the US has tripled, while achievement levels have stayed the same (sources: The College Board, Cato institute, National Center for Education Statistics). A gradual but important shift is taking place with the Obama administration as US public policies increasingly shift their focus from inclusion towards effectiveness.

- **Until 2009, the focus was on “No Child Left Behind” (NCLB)** to favour the access to education and equality of chances. The policy included funds for standardized tests and scoring, and IT in classrooms.
- **Since 2010, Obama’s “Race to the Top” funding contest** addresses the rising cost of education with a new focus on the return on investment (“bang for your buck”). The new policy came to complement, not replace, NCLB. It stimulates the adoption of a demanding curriculum (“common core”), of technology in classrooms, and incentivises enrolments in science, technology, engineering and math.

No Child Left Behind Act (NCLB) puts little emphasis on results

The main Federal funding tool in the US is the “No Child Left Behind” Act, a 2001 reauthorisation of the Elementary and Secondary Education Act which dates back to 1965. The Act was promoted by then President Lindon B. Johnson to distribute funding to schools and school districts with a high percentage of students from low-income families, and to close the maths and reading gap between and rural children and pupils living attending urban schools.

Due to the aim of the funds granted through NCLB, and despite it being modified several times since its beginnings, it puts little emphasis on the overall outcome of US education as a system, and even less on the need to be competitive when benchmarked against international standards such as the PISA score.

Table 5: No Child Left Behind Funding (USDm)

Program	FY 2007	FY 2008	FY 2009*	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Title I Grants to Local Educ.Agencies	12,838	13,899	14,492	14,492	14,442	14,516	13,760	14,385
Improving Teacher Quality State Grants	2,887	2,935	2,948	2,948	2,465	2,467	2,338	2,350
Impact Aid	1,228	1,241	1,265	1,138	1,274	1,291	1,224	1,289
21st Century Community Learn. Centers	1,081	1,131	1,131	1,166	1,154	1,152	1,092	1,149
English Language Acquisition	669	700	730	750	734	732	694	723
Safe and Drug-Free Schools	577	513	295	--	--	--	--	--
School Improvement Grants	125	491	546	546	535	534	506	506
State Assessments	408	409	411	411	390	389	369	378
Reading First State Grants	1,029	393	--	--	--	--	--	--
Education Technology State Grants	272	267	270	100	--	--	--	--
Math and Science Partnerships	182	179	179	180	175	150	142	150
Teacher Incentive Fund	200	97	97	400	399	299	284	289

Source: FEBP, Kepler Cheuvreux

Raising the bar: “Race to the Top” and “Common Core”

The American Recovery and Reinvestment Act of 2009 included USD4.35bn in funds to help the educational system coping with the crisis. The programme was named by President Obama “Race to the Top”, and it introduced an unprecedented focus on accountability and meritocracy in education. It openly backed the adoption of a coordinated school curriculum, the Common Core State Standards (“CCSS”).

The Standards are a state-led effort coordinated by the Council of Chief State School Officers and by the National Governors Association to develop and implement common curricula in core subjects, beginning with Math and English Language Arts (“ELA”). The adoption of the CCSS by States is voluntary, but the Federal government support them by rewarding extra points to the States that adopt the standards in the “Race to the Top” programme, increasing the likelihood for them to obtain additional funds.

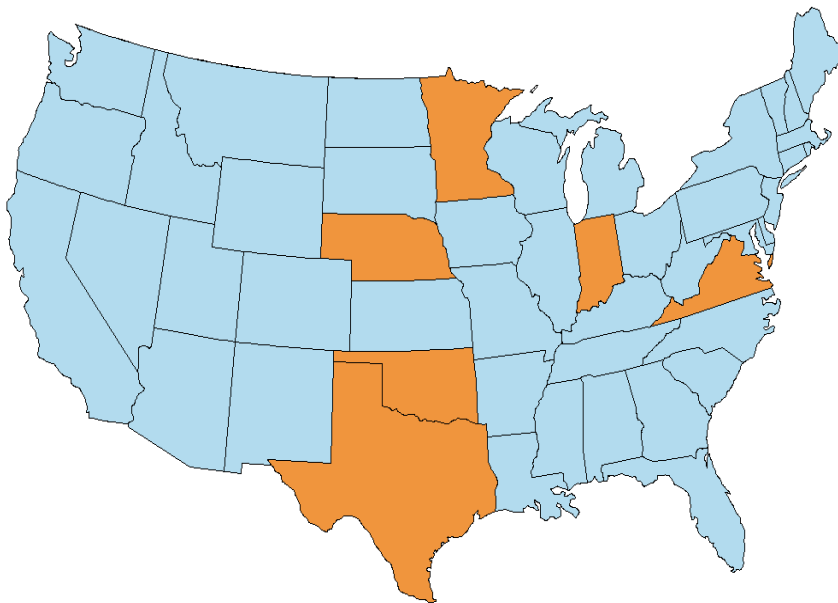
However, the adoption of Common Core is far from consensual. In some states, such as Texas, local standards are seen as superior to the CCSS. In others, the adoption to the Standards is being repealed (Oklahoma and South Carolina in summer 2014) as state politicians face resistance from constituencies on the forced march of the adoption, little time for teachers to adapt, critics from parents, and the incentives from the federal government seen as too invasive for a politically delicate topic.

The adoption of Common Core, however, is far from a consensual move

While initially almost all states were expected to switch to CCSS by 2014, the adoption has turned into a very bumpy road. Currently, forty-three states have committed to adopt the Standards, while Texas, Oklahoma, Nebraska, Minnesota (only Math), Louisiana, Indiana, Virginia and Alaska openly rejected them. Some States pointed at a lack of financial resources.

For the educational publishing industry, the slow switch has turned into big changes in the purchasing behaviour old schools and districts, with book purchases being delayed by one or more years, and generally less purchases.

Chart 42: Adoption of Common Core State Standards as of July 2014



Source: Corestandards.org

Table 6: Key US federal funding programmes to schools

Programme	Race to the Top (Obama)	Title IV, Part B: 21st Century Community Learning Centers	Title I, Part A: Improving the Academic Achievement of the Disadvantaged	Individuals with Disabilities Education Act (IDEA)	School Improvement Grants (SIG)
Size	USD 4.35bn	USD 1.15bn	USD 14.4bn	USD 12.5bn	USD 0.5bn
Funded by	ARRA / ED Recovery Act (federal)	Federal	No Child Left Behind (Federal)	Federal	No Child Left Behind (federal)
Description	Race to the Top is a federal competitive grant program designed to reward states and districts that have made innovative education reforms in 1) quality standards and assessment; 2) data systems to improve instruction; 3) great teachers and principals, 4) turnaround of lowest-achieving schools	The 21st Century Community Learning Centers program provides before- or afterschool programs for K-12 children attending low-performing schools.	Title I is the largest source of federal education funding, providing over \$14 billion to schools with high numbers or percentages of children living in poverty. Schools may operate a targeted program, in which services are provided to children who are failing or at risk of failing. Schools operating a schoolwide program may provide services to all students.	The federal law governing special education, the Individuals with Disabilities Education Act (IDEA), provides funding for specially designed instruction for students with disabilities and the monitoring of their progress.	School Improvement Grants are intended to serve the nation's lowest performing schools by providing funds to implement extensive changes and interventions.
Distribution	Competitive rewards for states and districts, with points attributed according to the achievement of pre-defined targets.	School districts, private providers, and for-profit companies can apply for competitive grants that typically have an award length of 3 to 5 years. Grantees must serve public-school students in high-poverty schools.	Funds are distributed through state departments of education according to how many students are living in poverty. Schools with 15% or more of children in poverty may be selected as Title I schools. Those with 40% or more can operate schoolwide programs. Those with 75% or more must receive Title I funds.	Funding is distributed to school districts based on the number of students with individualized education plans.	Each state is required to identify the bottom 5% of persistently low-performing schools, including high schools. States then hold competitive grants, allowing districts to apply for funds on behalf of these low-performing schools.
How the funds can be used	Receivers invest upfront in steps such as the adoption of Common Core Curriculum Standards, to incentivise Science, Technology, Engineering and Maths (STEM) education, in the measurement of learning outcomes, in technology adoption, retention of best teachers, etc.	How the funds can be used: 21st Century programs can provide a wide variety of enrichment activities including academic remediation, tutoring, music, art, technology, health, counseling, and recreation.	Schools must use the funds to help students meet state academic standards in reading and math by supplementing the existing program. Among other expenses, schools may provide extra teachers, intervention programs, supplemental materials, technology, and professional development. Some schools not making adequate yearly progress may be required to set aside funding for after-school tutoring or student transportation to another school.	IDEA funds are used to provide early intervention, special education, and related services, including assistive technology. Up to 15% of IDEA funds can be used to implement a response to intervention (RTI) program, which provides supplemental instruction to assist students before they are given an individualized education plan.	Districts must use funds to implement one of four federal models: turnaround, transformation, closure, or restart. Each model has different requirements and interventions. The transformation model is the most widely implemented, and allows for professional development and extensive curriculum reorganization.

Source: Pearson, Kepler Cheuvreux

STEM: tilting the systems towards sciences and engineering

Technical and scientific qualifications are in higher demand in the USA, but the educational system continues to oversupply the system with graduates in social sciences (including business and law) and humanities (SSH). The American educational system's flexibility to accommodate the will of students for cross-disciplinarity is being questioned by the success in international rankings of more rigid model and by the deteriorating employment career perspectives of SSH as compared to health, engineering, and hard sciences.

Obama tilting US graduations towards STEM

President Obama is actively promoting education in science, technology, engineering, and mathematics (STEM) in an effort to tweak the educational output towards scientists and engineers. Only 16% of American high school seniors are proficient in mathematics and interested in a STEM career. STEM jobs are expected to grow by 21.4% over the next five years (California Dept. of Edu), versus 10.4% growth in jobs overall, and business leaders say they do not have enough skilled workers to fill these jobs.

Included in the fiscal year 2015 budget are several investments designed to improve teaching and learning in STEM subjects for teachers and students in our nation's schools. STEM students have the best employability and ROE.

"STEM is gaining increasing attention and support at both federal and state levels, for a number of reasons. First, the nation needs to increase the number of experts in STEM fields to drive innovation and keep the country competitive in the global economy. 'If America is going to compete for the jobs and industries of tomorrow, we need to make sure our children are getting the best education possible,' said President Obama recently. Second, the U.S. needs STEM-literate citizens who are knowledgeable enough in STEM subjects to understand, assess, and interpret basic data reported in the news and make informed choices in the marketplace. Third, the U.S. Department of Commerce reports that business and industry do not have enough candidates to fill key jobs in STEM fields, and they are resorting to hiring candidates from other countries to fill these positions" (White House, Office of the Press Secretary, 2012)

Obama budget 2015 educational programmes

- STEM Innovation Networks (USD110m).
- National STEM Master Teacher Corps (USD 20m).
- STEM Teacher Pathways (USD 40m).
- Effective Teaching and Learning: STEM (USD 150m).
- Minority Science and Engineering Improvement Program (USD9 m).
- Upward Bound Math Science Program (USD 43.1m).

The increasing policy bias towards technical education is also a topic of debate in China. According to the People's Daily, for the past eight years, the success rate of polytechnic graduates in Beijing in finding employment immediately after graduation was 78.1%, as compared to 75.5% for university graduates from other top-notch institutions such as Peking University and Tsinghua University focusing on corporate and administrative functions. A Ministry of Education official reportedly said that up to half of XChina's 1,200

or so universities and colleges should be reoriented toward technical education, according to China Daily (*"More Technical Experts, Fewer Scholars"*, 13-19 June 2014, p.15).

California schools: USD1.65bn earmarked for internet connectivity

California, the largest US state by enrolment, started looking at STEM two years ago through a panel of 54 teachers, school administrators, business people and lawmakers mandated by the State Superintendent of Public Instruction. Funding has now been granted for recommendations such as increasing the number of computers in classrooms and improving internet capability. USD1.65bn of incremental funding has been collected in 2013-14 thanks to better state income, and earmarked for improving teaching through internet connectivity, including infrastructure and teachers' training (follow [link](#) to the California Department of Education's release).

STEM efforts to be implemented in California:

- Ongoing implementation of the Common Core State Standards (CCSS) for English language arts and mathematics, adopted by the California State Board of Education in August 2010.
- Forthcoming implementation of the Next Generation Science Standards (NGSS), which integrate science, technology, and engineering throughout the K-12 curriculum and correlate with the CCSS in English language arts and mathematics.
- Transition to a student assessment system aligned with the new content standards. The California Assessment of Student Performance and Progress (CAASPP) replaces the Standardized Testing and Reporting (STAR) Program.
- The new "Career Technical Education standards" (CTE) which offers students the opportunity to explore and experience careers in the STEM industries.
- Innovation has been made possible by the implementation of the Local Control Funding Formula (LCFF) which creates grants in place of most previously existing K-12 funding streams.

The largest share of the spending will go to technology, including Apple's PCs and tablets (Apple has an 80% market share in the US in school PC and tablet equipment), Google's cloud storage, and collaboration with businesses to improve interaction with future employers.

USD500m government incentive to publish open materials

The current rate of adoption of open textbooks is slow, as open contents struggle to gain visibility, according to SPARC, an open access advocacy. This despite the obvious economic interest in using more open content: "using open textbooks reduces course material costs for students by 80% - and in some cases eliminates it entirely."

The Obama administration's 2015 budget requests includes USD200m for the "ConnectEDucators" grant programme, which will contribute to fund the transition to digital learning and which will "fund activities that result in making digital materials open-source and publicly available".

The programme will provide:

- Formula-based State Leadership Grants to help enhance state and local capacity to support the transition to digital learning.
- Competitive three-year grants to school districts to support the implementation of comprehensive plans to ensure that educators have the skills and supports needed to dramatically improve student access to high-quality instruction aligned with college- and career-ready standards.

The Opportunity, Growth, and Security Initiative includes an additional USD300m for ConnectEDucators, providing a total of 100,000 teachers in 500 districts with access to professional development to take greater advantage of the high-speed broadband and wireless provided through the ConnectED initiative.

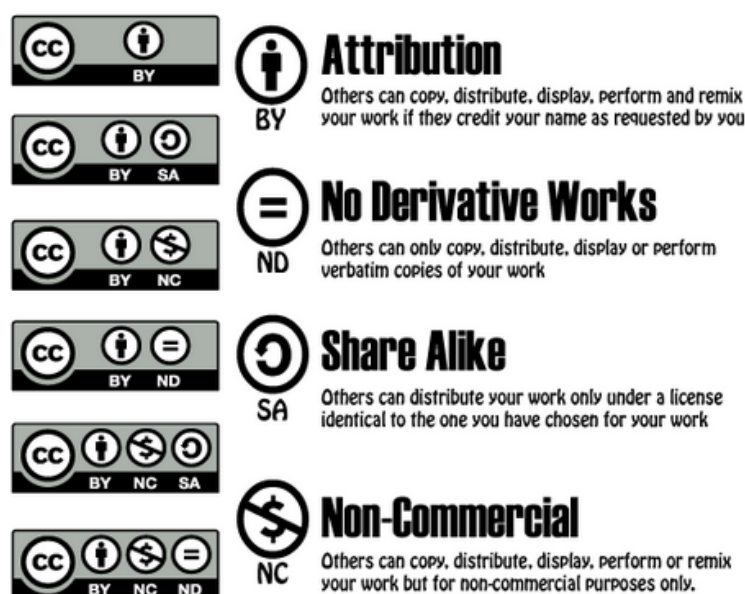
Open US content going abroad: Creative Commons 4.0

Copyright licences are needed for open content to be shared with the appropriate permissions and enforceable authors' rights. The best framework for use of open content is the set of licences created by Creative Commons.

New, open and high quality US content can spread more easily outside the U.S. borders thanks to the newly created version of the Creative Commons licences, version 4.0, launched in November 2013. Version 4.0 is the product of seven years of work from Creative Commons to adapt the previous version to the regulation of 36 countries and including provisions related to database rights, personality rights, data mining, etc.

New, open and high-quality US content can spread more easily outside US borders thanks to the newly created version of the Creative Commons licences, version 4.0

Chart 43: Creative Commons released in Nov-13 the fourth version of its licenses



Source: <http://teamopen.cc/thefuture/>

“Gainful employment”: tightening the rules on schools

The 2008 Credit Crunch has been the trigger of a correction in government expectations with respect to private education, as a spike in unemployment led to student disillusionment on their prospects for future earnings, and credit conditions tightened, triggering the default of the weakest borrowers and a contraction in the offer of loans.

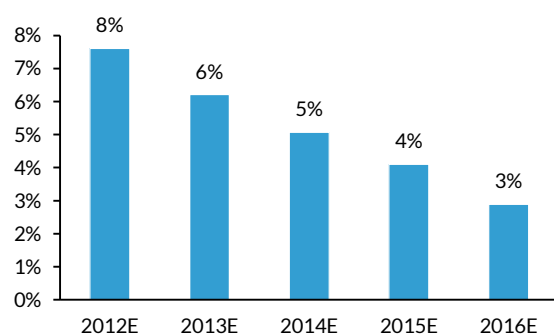
Indeed, the shrinkage of private for-profit colleges started in 2012 compounding the lack of incremental supply of enrolments at public institutions explains most of the decline in college enrolments since 2012. The adjustment factor will be the “Gainful Employment” regulation, which could force private for-profit to shrink further, and faster, their activities.

Despite a three-year self-imposed restriction on pushy enrolment practices, private for profits failed to avoid a regulatory clampdown pushed forward by the Obama administration with a new set of rules (“Gainful Employment”). “Gainful Employment” should cut grants and scholarships to programs whose graduates default on their debt (>30% default ratio = no more help from the government).

Private for-profits accounted for c. 10% of US college enrolments in 2011, but only c. 5% in 2014, reducing the contribution to US enrolment trends from c. -2% in 2012 to -1% in 2014 in our estimates. If the demise of enrolments at for-profits accelerates, enrolment trends may not improve in 2015 from the current c.-2%.

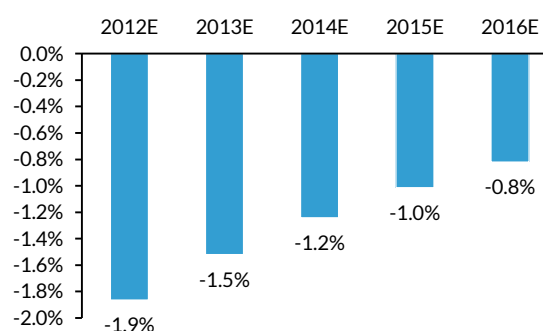
On 20 June 2014, Corinthian Colleges, the second largest for-profit college chain in the US, entered into a deal this week with the US Department of Education (DoE) to sell off or close all of its 107 campuses, enrolling 72,000 students (c. 0.35% of US college enrolments). In exchange, the department will relax debt repayment terms on Corinthian, which has been suffering for three years of a double-digit decrease in enrolments.

Chart 44: PFP share of US college enrolments



Source: Kepler Cheuvreux

Chart 45: PFP contribution to US college enrolments



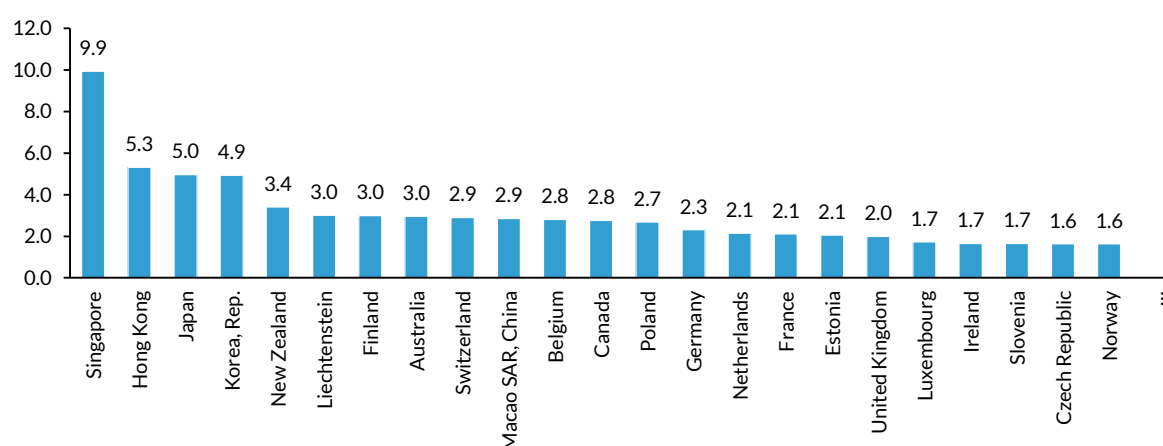
Source: Kepler Cheuvreux

Qualitative variables: technology and achievement

The most widely adopted ranking of a country's excellence in education is the "Programme for International Student Assessment (PISA) score from the OECD, a think-tank.

The weakness of US policies in promoting excellence in education is clear from this indicator. When looking at the share of students having obtained the top score of "proficiency" at Pisa across the three main tests of math, reading and sciences, the US ranks only 25th, with an average of 1.45% of students.

Chart 46: Average share of proficiency levels at PISA in maths, reading and science, by country



Source: PISA 2012, Kepler Cheuvreux

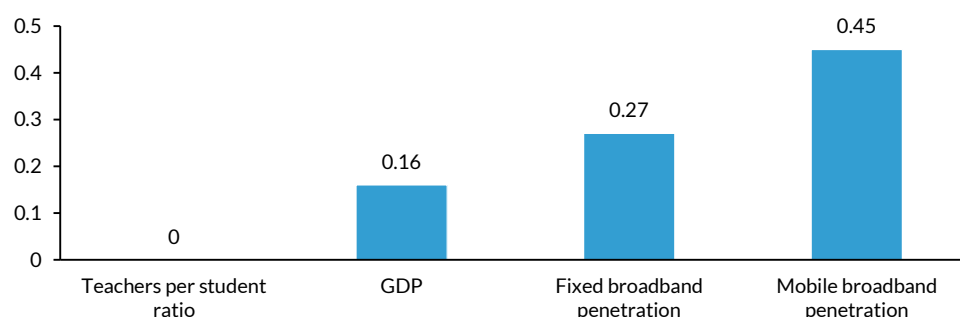
Broadband penetration more important than country GDP

To illustrate the importance that access to technology has on educational performance, we have taken the average share of 15-year-old students having achieved the top-notch "proficiency" level at the international PISA assessment in 2012 from each country in the ranking. We have then run a linear regression of such ranking against four variables: 1) country GDP; 2) number of teachers per student; 3) fixed broadband penetration and 4) mobile broadband penetration.

GDP and overall spending in education has some meaningful impact on educational excellence, with a R2 of 0.16. The number of teachers per student however has none. Fixed and mobile broadband penetrations are the most correlated to educational achievement, with R2 of 0.27 and 0.45 respectively.

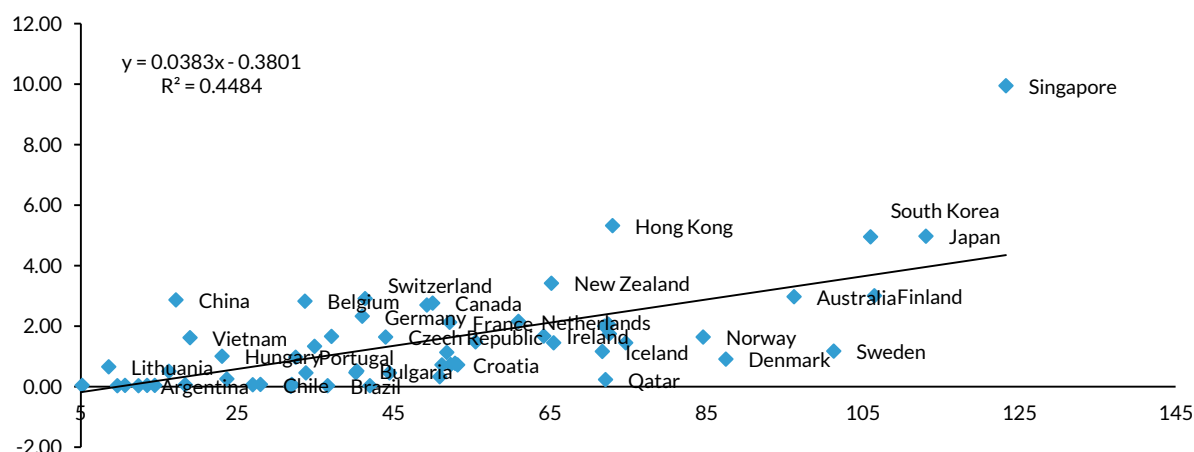
While looking at average achievement, factors such as teachers-per-student may have a higher impact. Still, in order to remain competitive on a global scale, we believe countries will have to increase their efforts to achieve not just access, but excellence too.

Fixed and mobile broadband penetrations are the most correlated to educational achievement, with R2 of 0.27 and 0.45 respectively

Chart 47: Correlation (R2) of top PISA score vs. ...

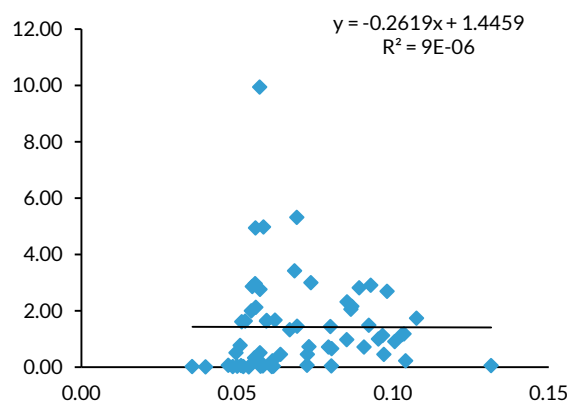
Source: Kepler Cheuvreux

The detail of our cross-sectional correlation analysis is presented in the charts below. All charts refer to the same countries, namely: *Albania; Argentina; Australia; Austria; Belgium; Brazil; Bulgaria; Canada; Chile; Colombia; Costa Rica; Croatia; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hong Kong SAR, China; Hungary; Iceland; Indonesia; Ireland; Israel; Italy; Japan; Jordan; Kazakhstan; South Korea; Latvia; Lithuania; Luxembourg; Macao SAR, China; Malaysia; Mexico; Montenegro; Netherlands; New Zealand; Norway; Peru; Poland; Portugal; Qatar; Romania; Russian Federation; Serbia; Singapore; Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Thailand; Tunisia; Turkey; United Arab Emirates; United Kingdom; United States; Uruguay; Vietnam.*

Chart 48: % mobile broadband subscription (horizontal axis) vs. % of PISA top score achievers (*) (vertical)

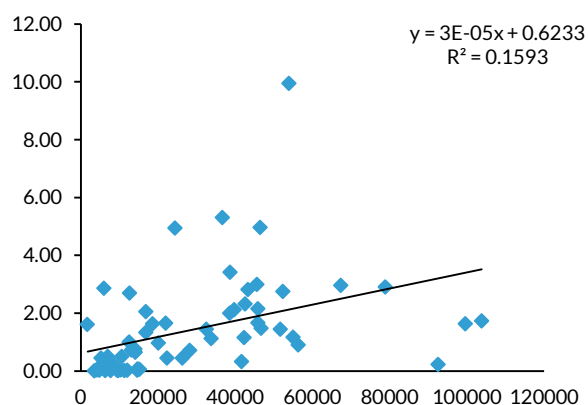
(*) = % of 15-year-old students achieving "proficiency level" (PISA definition) in 2012. Average of mathematics, reading and science. Source: The World Bank, Dynamic Report, ITU

ITC EYE, International Telecommunication Union, Kepler Cheuvreux

Chart 49: Teachers-per-student vs. % PISA top score (*)

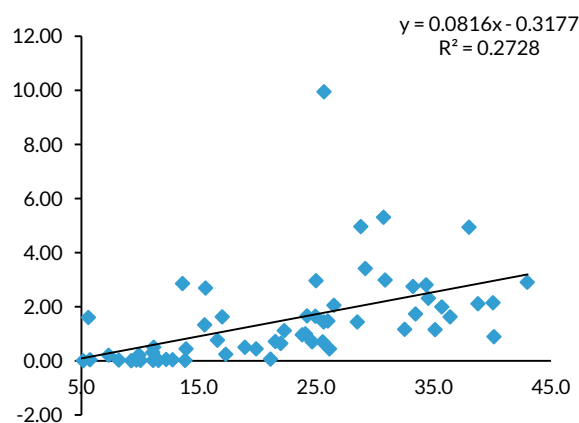
(*) = % of 15-year-old students achieving "proficiency level" (PISA definition) in 2012.

Average of mathematics, reading and science. Source: The World Bank, Kepler Cheuvreux

Chart 50: Country GDP vs. % PISA top score (*)

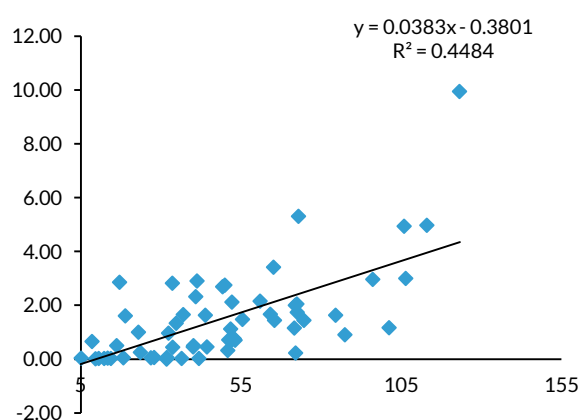
(*) = % of 15-year-old students achieving "proficiency level" (PISA definition) in 2012.

Average of mathematics, reading and science. Source: The World Bank, Kepler Cheuvreux

Chart 51: Fixed broadband vs. % PISA top score (*)

(*) = % of 15-year-old students achieving "proficiency level" (PISA definition) in 2012.

Average of mathematics, reading and science. Source: The World Bank, Dynamic Report, ITU ITC EYE, International Telecommunication Union, Kepler Cheuvreux

Chart 52: Mobile broadband vs. % PISA top score (*)

(*) = % of 15-year-old students achieving "proficiency level" (PISA definition) in 2012.

Average of mathematics, reading and science. Source: The World Bank, Dynamic Report, ITU ITC EYE, International Telecommunication Union, Kepler Cheuvreux

3) Technology: where the future begins

"Any sufficiently advanced technology is indistinguishable from magic." (Arthur C. Clarke)

In this section, we turn our attention to the technology revolution's promises beyond affordability. To help investors navigate the main challenges underpinning this long transformation, we have established a framework to summarise the evidence supporting both the educational and business cases of new models (open content, MOOCs, competency-based learning, adaptive learning) and emerging technologies (mobiles, software).

a) Innovation: the promises beyond affordability

While students are the end users, teachers are the decision makers in education. As technology allows for freeing budgets from traditional content buildings, opportunities will arise for companies who win teachers' buy in to adopt solutions driving the structural shift in the sector away from its traditional low-productivity trademark ("Baumol's cost disease").

Has the time come for technology to deliver its potential?

We define here the flip side of the long-standing technology revolution's efficiency promise as its contribution to improve the various types of learning outcomes (namely skills, knowledge, or behaviours²) while delivering wider social benefits, such as better matching students to job opportunities or empowering teachers. In other words, besides the cost of education, we think it is equally important to assess the numerator of the education transformation's equation, i.e. in which specific areas and conditions new models and technologies are the most likely to foster learning outcomes/quality.

The challenges for investors, in four questions

The multiplication of educational companies and start-ups represents the new educational challenge to investors, which we summarise in four key questions:

1. To what extents are educational books and services sold by publishers are they still relevant to invest in the light of a global shift from industrialised "Prussian" educational system (S. Kahn) to more flexible competency-based education?
2. What is the impact of e-textbook rental, the most immediately disruptive technology for publishers as it industrialises the second-hand market?
3. How to deal with public policies that exert increasing pressure on costs ([link to the Affordable Textbook Act](#)) and that openly promote open content ([link to the 2015 Obama budget](#))?
4. What is the risk that Amazon (and possibly others later) uses open content as a Trojan horse to capture at a young age life-long customers for other products and services (music, books, movies, games, social media, etc.) representing a bigger end market (see TenMarks acquisition by Amazon)?

The flipside of the long-standing technology revolution's efficiency promise: contribute fixing education's productivity gap with other sectors by leading to improved educational quality while delivering wider social benefits

The multiplication of educational companies and start-ups represents the new educational challenge to investors, that we summarise in four key questions

² A learning outcome is the particular knowledge, skill or behaviour that a student is expected to exhibit after a period of study (source: World Bank). Examples of learning outcome measured in empirical studies include scores on standardized tests, scores on researcher-created assessments, grades/scores on teacher-created assessments (e.g., assignments, midterm/final exams), and grades or grade point averages (source: US Department of Education).

We believe the answer starts from an overview of the technologies and models available, focusing on the forces coming together to drive this transformation.

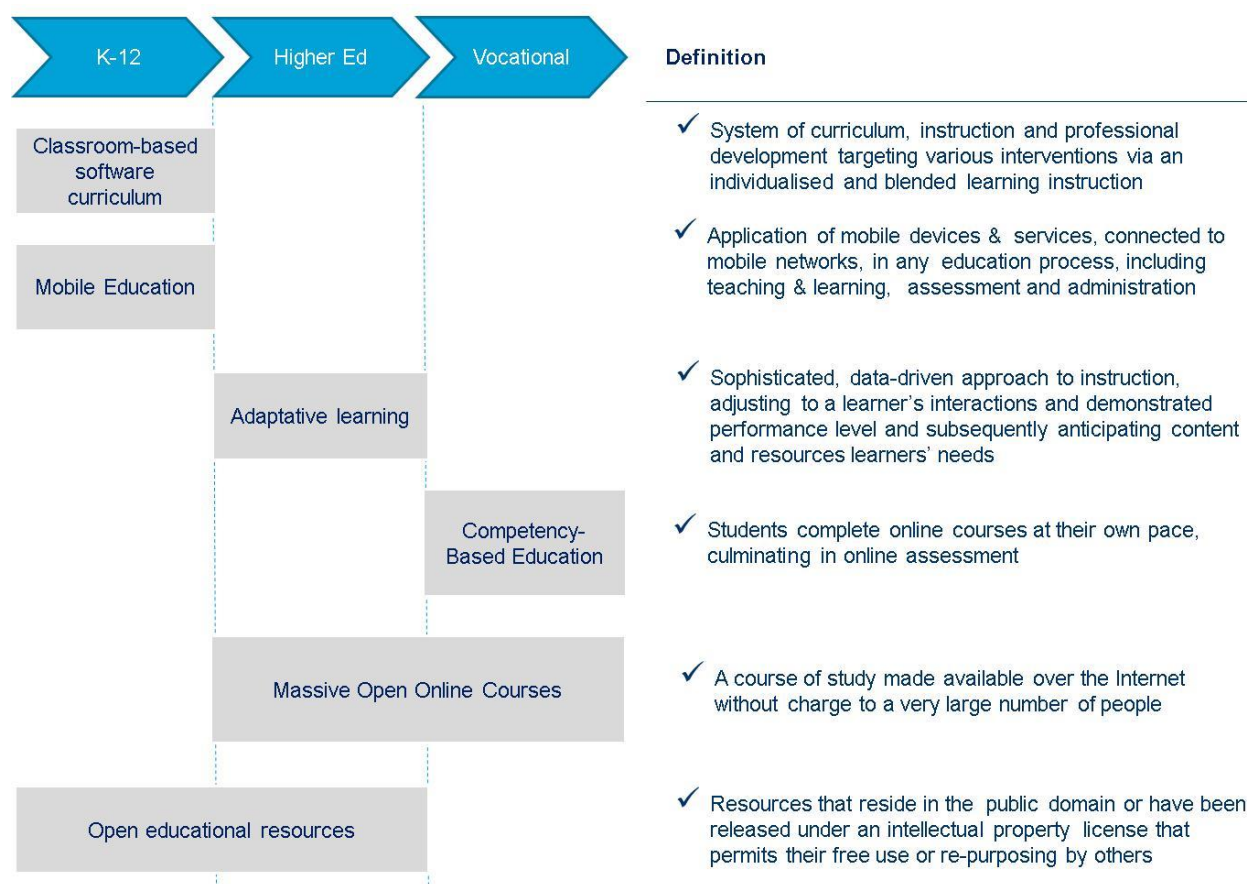
Our framework to navigate through new models and technologies

Concerns over the actual social value of new solutions and tools crystallise the attention of key education stakeholders (policy-makers, teachers, parents, etc.). We therefore place the investigation of this social value proposition at the centre of our analysis, and have established a framework to explore the underlying body of evidence suggesting positive educational outcomes could be delivered by the following interrelated types of solutions (models, technologies) gaining momentum in the classroom:

1. Open content, via the use of Open Educational Resources (or OERs).
2. Massive Open Online Courses or MOOCs.
3. Adaptive learning.
4. Competency-Based Education.
5. Classroom software.
6. Mobile education.

Our framework explores evidence suggesting positive educational outcomes could be delivered by new educational models and emerging technologies

Chart 53: New educational models and emerging technologies focus



Source: Kepler Cheuvreux, edgrowth advisors, Oxford Dictionaries, Babson Survey Research Group, Pearson, Scholastic, GSMA

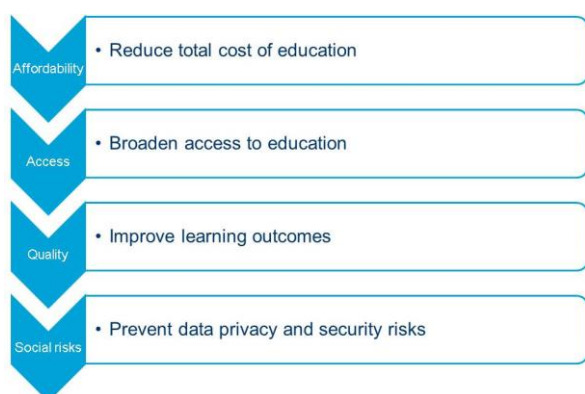
We examine challenges to go mainstream via the lens of social factors

More importantly, our model is intended to link the analysis of the promises in terms of long-term social value creation, to the main associated business challenges for each of this learning mode or technology to expand. This implies covering a wide range of underlying relationships between economic and social tensions, which we break down into 8 areas:

1. Current adoption and prospects (with a focus on educators' buy-in).
2. Related market's size.
3. Implications for incumbents (with a focus on Pearson).
4. Financial sustainability.
5. Companies, organisations and schools spearheading the move.
6. Value-added features.
7. Main findings from studies on learning outcomes. The three key interdependent variables of social outcomes in play are affordability, access, quality. We conceptualise this challenge by the possibility to shift the access/educational outcomes curve upwards i.e. improve access to high-quality education.
8. Main issues to scale up and out, with an emphasis on social concerns and risks (e.g. data privacy and security, employment and inequalities).

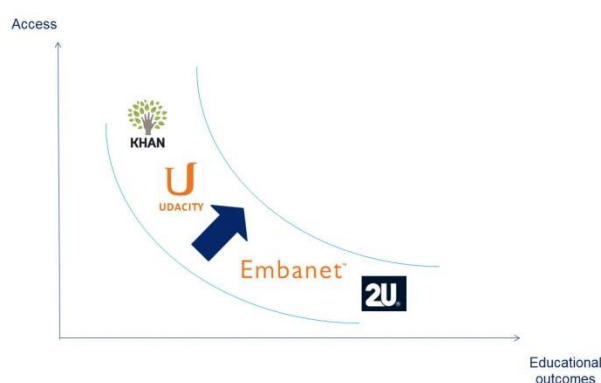
Our model is intended to link the analysis of the promises in terms of social impact (learning outcomes, accessibility) to the main associated business and socioeconomic challenges

Chart 54: Our framework: social outcomes



Source: Kepler Cheuvreux

Chart 55: The affordability/educational outcomes curve



Source: Kepler Cheuvreux

Incremental versus disruptive innovations for the existing eco-system

With regards to the impact on publishers, we think there is a need to broadly distinguish two types of innovation with respect to their prime impact on the existing eco-system:

- a. Incremental innovations that tend to primarily favour publishers' business models prospects (for example via the opportunity to sell more contents and supplemental materials), which usually includes CBE, adaptive learning and testing, classroom software, and mobile education (although publishers may face new competitions and threats in these segments)
- b. Disruptive models that are in our view likely to predominantly jeopardise incumbents' legacy business model, mostly made of print contents, such as OER and MOOCs. From the students' perspective, it is worth noting that these economic models are also the potentially most impactful in terms of heightened affordability of education.

Table 7: A snapshot of our findings on new educational models and products (illustrative, not exhaustive)

Learning models/Product	Current adoption	Market size	Prospects for adoption	Institutions/Companies/Organisations	Impact on Pearson's business line, products concerned	Financial sustainability	Value-added features	Challenges to scale up and out	Main findings from studies on learning outcomes
Open educational resources	K-12: 40% of educators as a supplementary materials, 10% as a primary material. Higher education: 70% have used OER, only 10% all the time. The usage remains overall predominantly as a supplementary material.	na	Half of K-12 teachers expect to use OER more over the next 3 years	K-12: CK-12. Higher ed: Rice University's OpenStax College, Tidewater Community College, Utah's State Office of Education program	Mostly destruction for their legacy textbooks business	Openclass and Power School (Student Information Services) or fee for other contents than those covered by the license; and 2) charging for services associated with the materials allowed by the open license.	Uncertain. First, flexibility / Possible modularity, low cost. fixing a price for other contents than those covered by the license; and 2) charging for services associated with the materials allowed by the open license.	Availability of high quality open textbooks, faculty member's awareness and comfort, a lack of standards, an incompatibility of policies and a lack of incentives, still limited proof of effectiveness, and technology given the need for devices, broadband or support services	Improve student performance and satisfaction
Online education	Online enrolments are on the rise (100% of enrolment growth in the recent past has come from online options). Higher education: 13% of total college students study fully-online. 26% of total college students took at least an online-course.	USD56bn in 2013 for all segments (USD113m in 2018E), of which USD52m in higher ed and corporate elearning (USD103m in 2018E)	A third of college students in full time online courses, a third on campus only, and a third on both	University: Arizona State University, Boston University, Harvard Extension School - Harvard University. Company: Opportunities for Online MyLab/Mastering, ServiceEmbanet), including 2U Providers (e.g. fully-online degrees 2U, Emбанet)	Various (e.g. MyLab/Mastering, ServiceEmbanet), including with universities (64k students registrations in FY-2013, up 45% YoY)	Universities: tuition and fees. Online enablers: revenue-sharing contract	Expand Access, improve the Student Experience, enhance Societal Impact, drive Institutional Sustainability (including potential for lower cost)	Need for more discipline from students, lower retention rates, lack of acceptance of online degrees by employers	Not significant/modest better performance

Source: Hewlett, The Parthenon Group, edsurge, BCG, companies and organisations quoted above, Kepler Cheuvreux

Table 8: A snapshot of our findings on new educational models and products (illustrative, not exhaustive) - continued

Learning models/Product	Current Market size adoption	Prospects for adoption	Institutions/Companies/Organisations	Impact on publishers	Pearson's business line, products concerned	Financial sustainability	Value-added features	Challenges to Main findings from scale up and out studies on learning outcomes		
Competency-based education	Hundreds of schools reportedly already consider developing CBE, but a limited number of schools have jumped in already	na	A greater number of schools is expected to develop programs (potential support from the Advancing Competency-Based Education Demonstration Project Act)	Texas A&M University Commerce, Kentucky Community & Technical College System, WGU Indiana, Northern Arizona University.	Opportunity to sell CBE products (CBE contents/modules selling also etextbooks, tutoring and media resources)	CourseConnect also CBE products (CBE modules selling also etextbooks, annual tuition (USD2.5k-USD6k)	Online competency based models with employers, charge an no set class meeting times, personalisation, timing flexibility, lower cost	A secured regulatory environment, Irrelevant organisations which can determine the areas of competencies depending on each field, in the third party conducting the assessment, IT issues, possible conflicts between different models, employers readiness	na	
MOOCs	Nearly USD200m has been invested in developing MOOCs platforms, with 6m unique users. Few universities give credits for MOOCs (e.g. JFKK university in California)	na	Student registrations in MOOCs will be up 100% YoY in 2014 but the low completion rates mean that less than 0.2 percent of all courses completed in 2014 will be MOOCs	MOOCs providers: EdX, Coursera, Udacity. Universities: JFKK University in California, Georgia Institute of Technology	Mostly destruction for their legacy online textbooks business	Various (e.g. MyLab/Mastering), including fully-qualified students registrations in FY-2013, up 45% YoY)	Uncertain. Huge potential value for open data (improved instruction could total USD310-370m).	Innovate on-campus teaching and learning, provide wider educational access, lower cost	Faculty resistance, scarcity of economic model, course completion rate, credentialing, badges & certification, and student authentication	Mixed results in terms of pass rates and retention
mEducation	Mobiles are authorised by about half of K-12 District and secondary schools in the US and reportedly used by c25-30% of students when provided by the school	USD1.4bn in 2012 for all segments (USD2.1bn in 2017E)	Use of BYOD on the rise: a majority of school districts are projected to authorise mobile devices	Carriers: Millicom, Orange, Telefonica, Telecom Italia. Internet companies: Google. Hardware company: Apple, Amplify	Opportunity to sell contents	REVELTM, PowerSchool. TestNav 8 system (cloud-based, mobile-ready)	Different business models. One solution is a revenue share agreement between the content provider and operators, while pays LMS vendor license fee per user and pays devices vendor per device	Access to contents at any time, and rooms for personalisation	Safety and district liability (e.g. students managing to access non-educational contents on tablets) and inequalities between students in device access	na

Source: Hewlett, The Parthenon Group, edsurge, BCG, companies and organisations quoted above, Kepler Cheuvreux

Table 9: A snapshot of our findings on new educational models and products (illustrative, not exhaustive) - continued

Learning models/Product	Current adoption	Market size	Prospects for adoption	Institutions/Companies/Organisations	Impact on Pearson's business line, products concerned	Financial sustainability	Value-added features	Challenges to scale up and out	Main findings from studies on learning outcomes	
Adaptive learning	Adopted by several schools, with publishers	na	na	Dedicated companies: Knewton, Renaissance learning. Publishers: McGraw Hill Education, Pearson, Reed Elsevier, Sanoma, Houghton Mifflin Harcourt. Universities: Career Education Corporation, American Public University System, University of Phoenix	Opportunity to sell contents and supplemental materials experience.	MyLab/Mastering. Schoolnet and PowerSchool in K12 (data) tbc	Knewton licenses the technology and provides revenue-sharing with publishers. It is suspected Knewton is loss-making on its individual partnership.	Enables to conduct periodic assessments and evaluations of students' online, driving real-time adjustments to the content being learned	Lack of economic model ,ata privacy and security fears, concerns over jobs loss	Increase in pass rates and retention
Classroom-based software	Widespread in schools	Market for software in K-12 (USD3bn, 2012)	Slowdown in the strong momentum for testing and assessment (the most substantial category), while the general appetite for personalised learning solutions is expected to support the market going forward	Pearson, Carnegie Learning, Houghton Mifflin Harcourt, Scholastic	Opportunity to sell contents and supplemental materials to schools	Waterford Early Learning, iLit, TestNav	Typical software system enabling personalisation and provide data to teachers.	na	Positive, though small, effect, on reading achievement in K-12	

Source: Hewlett, The Parthenon Group, edsurge, BCG, companies and organisations quoted above, Kepler Cheuvreux

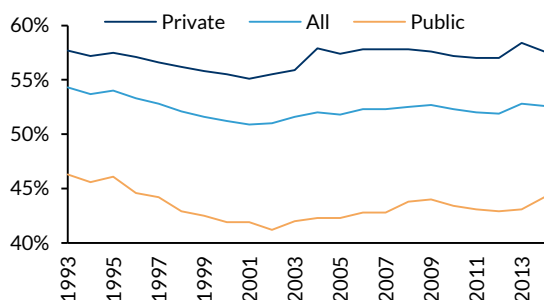
Why is there a need to ponder educational outcomes?

A continued focus on student outcomes at all levels of the US education system is the result of: 1) a particularly strong policy push towards solutions expected to improve educational outcomes at a reduced cost in the US (Race to the top, Common core standards, budget proposal for FY2015); and 2) a growing consensus that specific implementations of certain technologies and innovative models could help address the following key issues:

1. Stagnant or slowing down graduation and retention rates, coupled with often deceiving scores in various rankings (e.g. mathematic literacy and proficiency), when benchmarked against other countries.

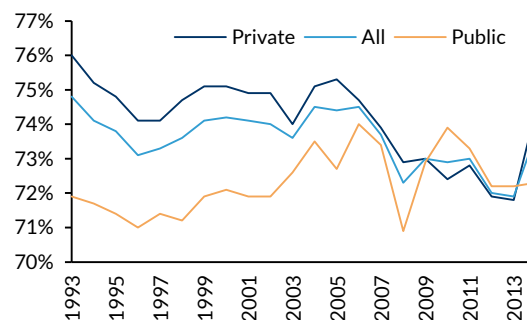
Growing consensus that specific implementations of certain technologies and innovative models could help address key issues affecting the US education system

Chart 56: College students degree earnings (5 years)



Source: ACT (Percentage of four-year college students who earn a degree within five years of entry (US, 1993-2014), Kepler Cheuvreux

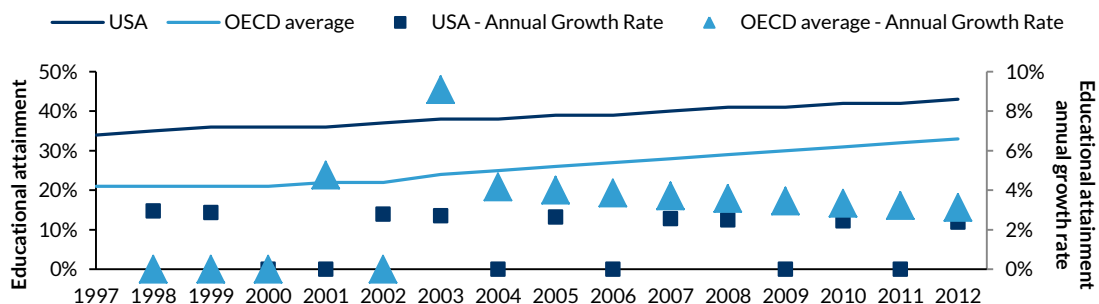
Chart 57: College students returning second year



Source: ACT (Percentage of first-year students at four-year colleges who return for second year (US, 1993-2014), Kepler Cheuvreux

Latest OECD data released in September 2014 pointed to a poor generational mobility, with only 30% of adults in the US having exceeded the level of education reached by their parents (versus c.40% for OECD average). Meanwhile, many OECD countries have also been catching up with the US over the past ten years with respect to attainment rates, with Canada, Japan and Israel pulling ahead of the US as the countries with the highest proportion of the adult population reaching a tertiary education among OECD members.

Chart 58: Trends in educational attainment in tertiary education in the US vs OECD average: 25-64 year-olds ('97-'11)



Source: OECD, Kepler Cheuvreux

2. High levels of unemployment among recent graduates, and general disconnect between the supply and demand in the job market (a “skill gap”).
3. The importance from schools and teachers to address a hugely diversified student’s base, with sharp inequalities between them, and notably a pressure to focus on the most disadvantaged ones

Further evidence on learning outcomes is crucial to speed up adoption...

The insufficient statistics and information available on the efficacy of new learning models seems a meaningful hurdle to a greater take-up of technology and disruptive approaches in education. We believe educators and students’ trust in a proved quality and efficacy are largely necessary and crucial supportive factors to bring new models to scale: in other words, to succeed in the long run, education is a business where one “cannot cut corners”.

The insufficient evidence on the efficacy of new learning models is a meaningful hurdle to a greater take-up of technology use and disruptive approaches in education

Table 10: Key factors of schools’ adoption and hurdles to adoption of new educational models

	Factors of schools’ adoption	Hurdles to adoption	Population surveyed
Online learning	Expand access, Improve the student experience, enhance societal impact , drive institutional sustainability	na	Non-profit universities
Open educational resources	Flexibility/Modularity, Low cost	Proven efficacy, trusted quality	K-12 educators using OER
MOOCs	Innovate on-campus teaching and learning, Provide wider institutional access , Enhance brand	Faculty resistance , scarcity of faculty time, lack of economic model	Universities

Source: BCG, The Parthenon Group ((recent surveys on the US higher and K-12 education market)

...as it fosters teachers and faculties’ buy in

Further evidence from empirical investigation into learning outcomes may play indeed a significant role in driving up three key factors of adoption for new solutions in the education market (playing a more or less importance according to the education segment, technology etc.):

1. **What do teachers want to use?** First, teachers are the cornerstone of any education system’s value and the debate around learning outcomes has to start with their preferences, views, practices and possible axes of technology intervention. Within a fairly conservative/risk adverse industry characterised by a lag compared to other sectors in terms of technology adoption, the answer to the question: ‘What technology and models works in education’ may therefore arguably be best tackled by addressing another one, namely ‘what do teachers want to use?’ Beyond their role as users and influence on purchasing decisions, teachers have a discretionary budget. Hence, many recent debates around technology take-up have focused on the conditions for educators to integrate further technology, how to empower them and their preferences (e.g. with regards to training, online tutoring).
2. **What do school officials (directors, faculty members...) want to use?** Second, the most determinant driver of online courses is for example schools’ provosts (57-70%) who decide the strategy and allocate budget (source: NSPA).

Much recent debate around technology take-up has focused on the conditions for educators to integrate further technology and their preferences

3. **What do students want to use?** Third, the question 'What do students want to use?' plays a prominent part in supporting the development of new approaches, as demonstrated for example by the momentum for student-first/student-centric platform, compounded by employment-related programs in higher ed which aim at meeting students' top priorities, among which their employment prospects ranks high.

Accountability on educational outcomes: a pivotal selling point

Pearson, the leading educational publisher worldwide, has pushed the border further ahead by stately focusing its operations and corporate behaviour not on content sold, but on learning outcomes, measured in terms of student learning and effectiveness of education. Pearson is trying this way to secure its role of long-term educational partner of choice of governments (and the US government in particular). The company also vowed to measure by 2018 its executives performances based on related KPIs which would include for instance aggregated data on affordability or access.

The most widespread technology of Pearson, the MyLab platforms, can already claim some positive results in large US colleges. MyLabs are already adapted to the courses and programmes of each university and fully integrated in the courses. According to Pearson, redesign projects focused on large-enrolment, introductory courses, have the potential of impacting significant student numbers and generating substantial savings. An interesting example is provided the by MyLab state-wide redesign in Missouri, suggesting significantly better outcomes at a reduced cost in 6 projects out of 11 schools testing Pearson's solutions. Expanding and scaling such findings across business lines will, however, prove extremely challenging, in our view.

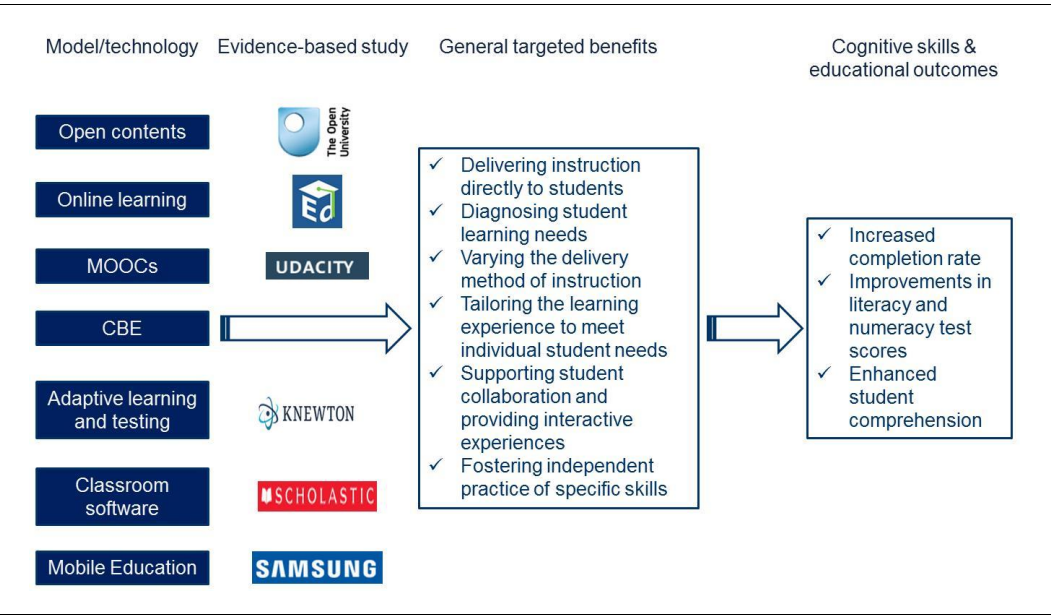
Evidence-based studies: still at an early stage, yet a trend may emerge

While there is no robust evidence of a game-changing effect at scale emerging from studies, we underline a mounting wealth of positive signs from early-stage and small-scale experiences showing at least that an effective use of these technologies and models under certain conditions may avoid trade-offs between educational quality and money savings, and at best broaden access and increase educational outcomes. There will in any case be a lag before a clearer consensus is built around specific emerging technologies and models, particularly considering the long period of time needed for thorough investigation on a national scale using considerable amounts of metrics. A durable trend may, however, gain ground: in the long run, the amount of evidence on various types of potential benefits from these solutions seems to be growing in conjunction with teacher and student comfort with adopting technology.

Pearson explicitly asked to be assessed on the learning outcomes of its products and committed to providing a comprehensive reporting tracking progress across its portfolio via a so-called 'Efficacy Framework'

In the long run, the evidence on potential benefits seems to be growing in conjunction with teachers' and students' comfort in adopting technology

Chart 59: Targeted impact of key developments on educational outcomes (illustrative)



Source: Bill & Melinda Gates Foundation, Kepler Cheuvreux

Table 11: Selection of findings on learning outcomes (illustrative, non-exhaustive)

Companies/University/ Organisation/Authors	Publication date	Country	Subject/Product/Description	Findings
Open content				
OER Research Hub Project (initiative led by The Open University and funded by the William & Flora Hewlett Foundation)	2014	Global	Findings from evidence-based studies on the impact of OER which have been classified eleven assumptions and covering all education sectors	Positive impact on student performance/satisfaction
MOOCs				
Georgia Institute of Technology (Georgia Tech), AT&T, and Udacity	2014 (ongoing)	USA	Computer-science master's degree program mounted on one of the new platforms	Started in January 2014.
Ithaca S+R, University System of Maryland, Carnegie Mellon University, Coursera, Pearson	2014	USA	Test of the use of interactive online learning platforms in seventeen courses across seven universities. Fourteen of these tests used MOOCs on the Coursera platform, almost all embedded in hybrid course formats, and three used courses from the Open Learning Initiative at Carnegie Mellon University (OLI)	Students in the hybrid sections did as well or slightly better than students in the traditional sections in terms of pass rates and learning assessments. The faculty participants generally had very positive experiences using MOOCs in their courses, despite the fact that many did not feel that those they used were a good fit
University of Pennsylvania Graduate School of Education, Coursera	Dec-13	USA	17 First-Generation Penn Coursera Courses	Many "apply" but there were few active users, "engagement" falls off dramatically after first 1-2 weeks, Few "persist" to course end
MIT, edX	Oct-13	USA	Solid-state chemistry on-campus	While confident that the impact on learning outcomes has been positive ("research consistently shows equivalent learning outcomes for residence-based courses and online learning, across a wide variety of types of courses"), he cautions that this process has been labor-intensive and costly
San Jose State University, Udacity	2013	USA	Introductory math and statistics courses in MOOC format for college credit at a very low cost (USD150 per course).	Pass rates for these courses were well below those achieved in the traditional, instructor-led versions of the same courses, and the program was put on hold
Online learning				
US Department of Education	2010	USA	Review of a thousand empirical studies of online learning from 1996 through July 2008, with a screening which identified 50 independent effects that could be subjected to meta-analysis	The meta-analysis found that, on average, students in online learning conditions performed modestly better than those receiving face-to-face instruction
MERLOT Journal of Online Learning and Teaching	Mar-10	USA	Research project conducted to analyse student achievement using submitted assignments for two sections of a graduate course in human development and learning, taught both online and face-to- face, as well as three sections of undergraduate educational psychology, two of which were taught face-to-face, and one taught online	Results suggest there were no significant differences between the work submitted by students from the online sections and from the face-to-face students, and that the methods of instruction are more important than the delivery platform

Source: Kepler Cheuvreux

Table 12: Selected findings on learning outcomes (illustrative, not-exhaustive)

Companies/University/ Organisation/Authors	Publication date	Country	Subject/Product/Description	Findings
Adaptive learning				
University of New South Wales, Smart Sparrow	Mar-13	Australia	Adaptive learning: Impact of the introduction of online in a foundational first-year Engineering Mechanics course adaptive tutorials	Decline in the course drop-out rate from 31 percent to 14 percent, even as course enrolments increased by nearly 30 percent to more than 350 students
Arizona State University, Knewton	Feb-13	USA	Re-designed emporium and mastery-based math courses	18% rise in pass rates; 47% fall in students drop outs, corresponding to USD12m retained in lost tuition sales
LearnSmart from McGraw Hill Education tested in seven U.S. universities	May-11	USA	Over 700 students studying Anatomy & Physiology at six distinct institutions	12.5% increase in course pass rates; 10.5% rise in retention rates
William G. Bowen, Matthew M. Chingos, Kelly A. Lack, Thomas I. Nygren.	May-12	USA	Randomized controlled study on six public universities on an Open Learning Initiative's introductory statistics course	Students completed the OLI course 25% faster than students in a face-to-face version of the course while achieving similar performance levels
Games, Mobiles and videos				
Journal of the Research Center for Educational Technology (RCET)	Spring 2012	Singapore	Game-based learning in K-12 and higher ed	Game-based learning can be a useful strategy to motivate students, because the challenge of a game fosters competition between groups and collaboration within groups
A Learning Untethered, Samsung	na	na	The project involved equipping a 5th grade class of 27 students with 7-inch Samsung Galaxy Tab devices at a cost of around USD200 per student	Though there were a number of technical issues the results were overwhelmingly positive with greater student engagement
Corporation for Public Broadcasting	2004	USA	Review of various research and educator surveys	General indications video reinforces reading and lecture material, aids in the development of a common base of knowledge among students, enhances student comprehension and discussion etc.
Software curriculum				
Johns Hopkins University	Jan-11	USA	Review of research on the effects of technology use on reading achievement in K-12 classrooms	Edtech generally produces a positive, though small, effect in comparison to traditional methods. However, the effects may vary by education technology type.
Carnegie Learning's Cognitive Tutor Algebra I	2014	USA	A first-year algebra course that blends classroom instruction and textbook-based activities with computer-based instruction (K-12). One of the first large-scale effectiveness trials of this type of intervention	CTAI Led to Improvements for High School Students
Scholastic's Read 180	2011	USA	Various research studies on impact on reading achievement for struggling readers in grades 4-12+.	Significant increase in reading achievement
Houghton Mifflin Harcourt's Destination reading	2009	USA	Supplemental integrated learning system (ILS)	Insufficient evidence of Effectiveness
Pearson's Waterford Early Learning	2012	USA	Supplemental self-paced CAI program designed to develop kindergartners' and first graders emergent literacy skills	Unproven results
Carnegie Learning's Writing to read	na	USA	Computer-based program created to develop the writing and reading skills of K-1 children	Unproven results

Source: Kepler Cheuvreux

Note: the importance of factoring in the broader ecosystem

That said, amid a wide range of enthusiastic promises and widespread scepticism around the technology's promise of a significantly improved instruction, we do acknowledge the complexity of the debate over measuring the value of education, the need to factor the broader ecosystem and different perspectives, and would point out that more specifically – taking the risk of stating the obvious - we are not arguing here that:

- The technology or more broadly the delivery model is the most important driver of the quality of education (e.g. given the importance of the quality of the content and conditions).
- Mere findings on learning outcomes can make a decisive difference on sales, considering the importance of other factors such as marketing or personal preferences in purchasing decisions.
- Improved learning outcomes is the main driver of adoption for both students and educators (e.g. for online learning for schools, time flexibility and the possibility to reach out to different students is a more important rationale).
- There is one best simple aggregated indicator to measure learning outcomes, one best way/one size-fit-all technology or learning mode which could improve them.

...with a handful of factors which may be somewhat overlooked

Moreover, while solid data on quality and learning outcomes, as well as factors which may directly influence them remains scarce, our dashboard is intended to shed light on some aspects of the huge variety of ongoing dynamics and their related business and social implications. However, a number of factors may be somewhat overlooked here, such as:

- **Rigorous methodology to analyse learning outcomes:** For example, granularity and clear distinction between studies that include non-learning outcome indicators (e.g. retention, attitude, satisfaction) with those focused on learning outcome per se (e.g. standardised tests, scores on researcher-created assessments, grades/scores on teacher-created assessments). The purpose here is not providing an exhaustive academic assessment of the quality and value of education and all underlying factors of instructional outcomes (e.g. time spent, curriculum and pedagogy, long-term employability, diagnosis of students' needs).
- **The public sector's role beyond policy and regulation, and the comprehensive analysis of all the possible long-term unintended consequences associated with the private sector and technology's growing role.**
- **Teachers' (e.g. the impact on their working conditions, situations) and parents' views and preferences.**
- **Differences between non-traditional students and others, together with all the specific impact on underserved students.**
- **Vested interests from research studies' authors e.g. in safeguarding the publisher's ecosystem.**
- **A number of learning modes (e.g. social Medias, games, videos), and markets e.g. European markets, Middle East, Africa, are not the prime focus here.**
- **Education segments: we chose to focus on selected samples for each section.**
- **Micro dynamics e.g. local politics.**
- **Cultural aspects.**

Complexity of the debate over measuring the value of education, and the need to factor in the broader ecosystem and different perspectives

Our dashboard is intended to shed light on aspects of the huge variety of ongoing dynamics and their related business and social implications

b) Intro to the business context: traditional print is shrinking

The story of new models shaping the digital revolution in education essentially began when publisher's legacy business, print contents, started to be strained. Structural pressure on textbooks has now become so high that publishers themselves are proactively accelerating the transition towards digital services. The pressure is due in our view to the following variables:

- **The market awash with learning content.** It comes from out-of-copyright, free from non-for-profit organisations and from Amazon in K-12 (TenMarks). Only excellence and results-driving content can command a premium price in such an environment.
- **The US government purchasing power is increasing with Common Core**, which is lowering the barriers to entry by standardising the curricula.
- **Book rental and e-books are triggering price deflation for in Hi-Ed**, with some protection still available for new editions in their first year of life. The problem is compounded by the lack of elasticity of demand (differently from consumer books). Publishers are reacting by transforming books into services.

Students and teachers are price-sensitive populations

The college content market is being affected by the transformation of the distribution chain and by digitalization of content in a negative way, due to the cost-conscious behaviour of students and educators. Industry participants tell us that teachers generally require less materials and students in many cases do not buy because it is expensive.

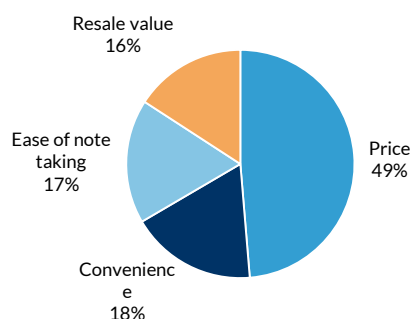
Pricing is the first determinant of book purchasing behaviour by students, ahead of convenience, ease of note-taking, and other factors. For the same price, students would choose the traditional print text, according to a survey run in 2013 on a sample of 329 students at Midwestern University (Kuzma, Kuzma, Thiewes, 2013).

The availability of ever-cheaper forms of book usage in turn discourages teachers from prescribing expensive new editions, or recommending students to spend more in content. Indeed, the price point of publishers' learning solutions (replacing textbooks) for duration of three years is close to the price of one new textbook.

The structural pressure on textbooks is accelerating the transition towards digital services

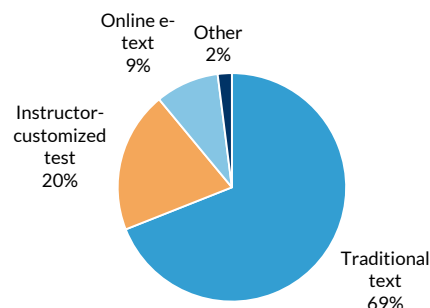
Pricing is the first determinant of book purchasing behaviour by students

Chart 60: Factors in students' choice of book format



Source: Kepler Cheuvreux

Chart 61: Student preference for the same price



Source: Kepler Cheuvreux

An increasing number of cheaper options available

For many years, textbook companies have compensated for the increase in share of the second hand book market by raising prices every year and publishing a new edition every three years to limit the number of second-hand copies in circulation. Traditionally, price increases used to be in the 7-8% range.

Due to the compounding dynamics of decreasing enrolments, increasing efficiency of the second-hand book market, and cash absorption from the switch to online, the sale of books has become a declining annuity.

The sale of books has become a declining annuity

Table 13: Unit decline related to drop was traditionally made up by price increases

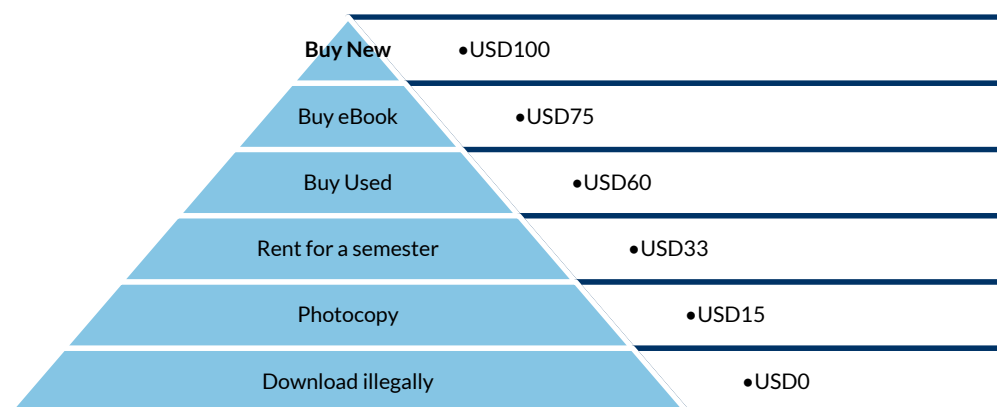
	Students	Used/ rented books	New books	% decline in new units sold	Total books used
Y0	100	65	35		100
Y1	98	65	33	-6%	98
Y2	96	65	31	-6%	96

Source: Kepler Cheuvreux

An increasing number of cheaper purchasing option has been made available by IT and logistics innovation and by the spread of new entrants, especially in book rental. We have drawn data from Amazon and price comparison websites on 30 best-selling higher education titles and found the average price bands below, corresponding to the price a student would have to pay for the different options.

We have drawn data from Amazon and price comparison websites on 30 best-selling higher education titles and found the average price a student would have to pay for the different options

Chart 62: How a college student can get the book (and at what cost)



Source: Kepler Cheuvreux based on a sample of 32 best-selling college textbooks

Drag from book rental in college should be close to the end

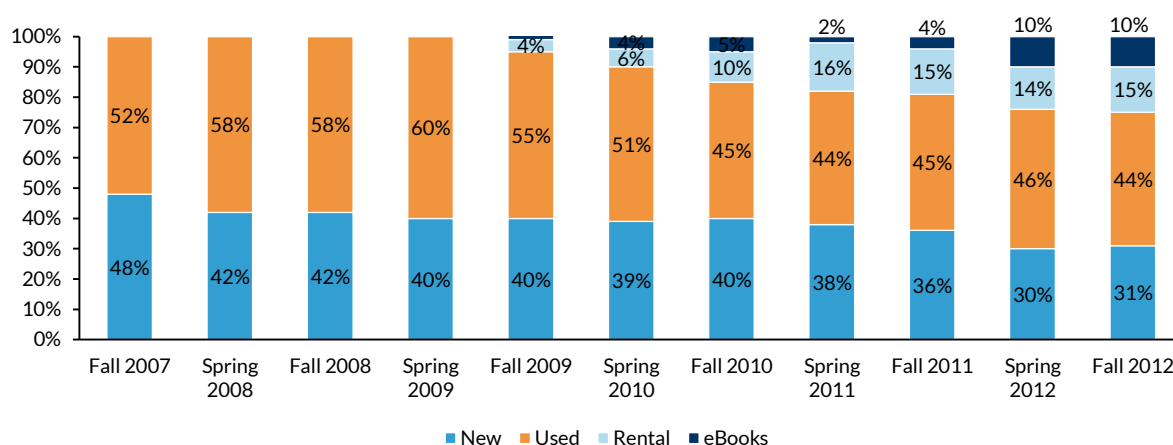
Book rental and student networking platforms such as Chegg and Amazon Student have favoured the development of a textbook rental market, which represented 12% of the units used in 2012, according to Student Monitor, a consultancy. Cheaper Ebooks are also gaining ground.

Book rental and student networking platforms such as Chegg and Amazon Student have favoured the development of a textbook rental market

The second-hand and rental book markets are somewhat constrained at two-thirds of the units used, as the average life time of an edition is three years, which makes it impossible to rent the book in the first year. The current share of used books is very close to that threshold: it was already 61% in 2012 according to data from Student Monitor.

From now on, the textbook rental market is very likely to eat into the second-hand market, with even cheaper prices, as the book is not retained by the borrower but given back at the end of the semester.

Chart 63: Evolving book-buying behaviour



Source: Student Monitor, Kepler Cheuvreux

Turning second-hand and rental users into subscribers

The solution adopted by publishers to the pricing problem is to integrate an increasing quantity of technology and platforms in their products, and to sell software-as-a-service (SaaS) subscriptions to online curricula, instead of books.

In the physical world, approximately 40% of units are bought new, while the rest is second-hand or rented. Each unit can be used for three years until the following edition is published, making the previous book unusable. Publishers sell subscriptions to curricula at a much lower price than books (say one-third), therefore undercutting the price point of the used-book market, and offering an interactive service.

The shift implies a change in paradigm, as an increasing share of books would be purchased directly by schools instead of students. If the shift is achieved, the model will become more predictable and format-neutral. It will free the bulk of publishers' revenues from eTailers. It would also untie the content from the format, making online-only as expensive as online + print, as it is the case for professional information content.

Pearson represents below the shift from single copy sales to content subscriptions leading to the same revenue (150 in the illustrative example) over three years. This is because in higher education new editions follow each other at a quicker pace than in K-12, generally

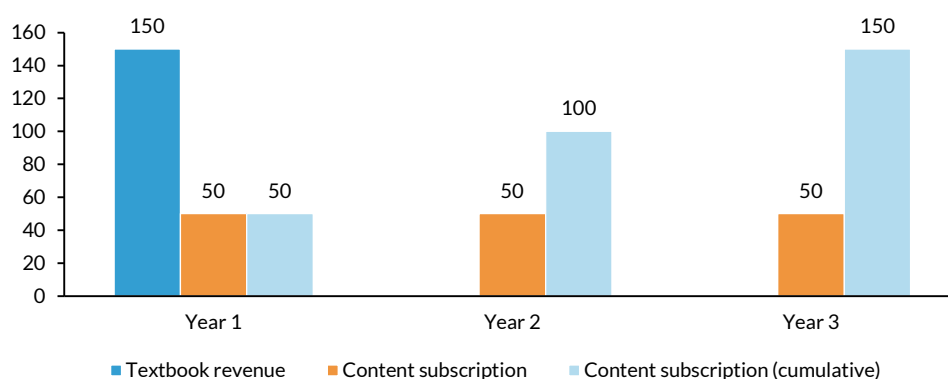
The solution adopted by publishers to the pricing problem is to integrate an increasing quantity of technology and platforms into their products

The shift implies a change in paradigm, as an increasing share of books would be purchased directly by schools instead of students

one every three years, and assuming that every print book unit is used for three years by three different students swapping it on the second-hand market.

In Pearson's example, every new print book is used three times, leading to a used textbook market which should, by unit, be twice as large as the new market. The illustrative example is consistent with the industry average of a new edition released every 3.9 years (Ingkade, 2013). At a price which is a third of that of a new book, subscription is priced in line with the price of physical book borrowing: the most rational choice to undercut the second-hand and the book-borrowing markets.

Chart 64: Shift from licence to subscription in college books (illustrative numbers)



Source: Pearson

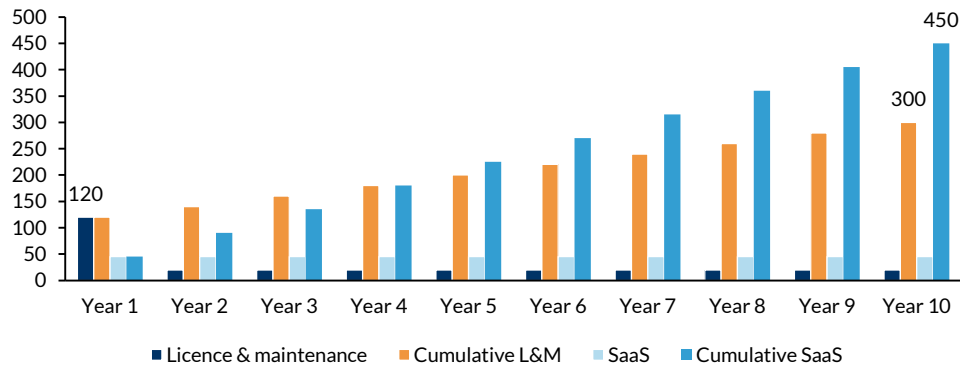
Going the way of scientific information, more than software

The comparison with the shift for tech companies from software + maintenance to SaaS is not relevant in our view. While the change in education is a purely defensive move, in tech the shift from licence & maintenance to SaaS is expected to be strongly revenue-enhancing

The illustrative example based on real-life cases shows that over the ten-year lifetime of software, the publisher could generate an indicative 100 of revenue in the first year and 20/year in maintenance fees, for total revenue of 300 at the end of the cycle. With SaaS, revenue of 45/year add up to 450 over ten years, or 50% above the previous watermark. The effectiveness of the shift over such a long cycle is still untested, even in tech. It also entails data storage costs.

The comparison with the shift for tech companies from software + maintenance to SaaS is not relevant, in our view

Chart 65: Shift from licence to subscription in software (illustrative numbers)



Source: Kepler Cheuvreux

Pricing power achievable for premium services

SaaS and textbooks: focus should be on cash more than on EBITDA

Lee Wilson, an educational publishing consultant and former Pearson employee, describes on <http://www.educationbusinessblog.com> the effect of the pricing shift from books to cloud-based instructional materials, and the reason why it is unlikely to work like the enterprise or personal SaaS markets due to specific structural issues and to the increasing availability of open educational resources). We report an adaptation of his post below.

Chart 66: What educational resources will remain economically viable?

Complexity		Maintenance		
		Low		High
High		?	Paid	Paid
		OER	?	Paid
Low		OER	OER	?

Source: Lee Wilson, Education Business Blog

The effect of the pricing shift from books to cloud-based instructional materials is unlikely to work like the enterprise or personal SaaS markets due to specific structural issues and the increasing availability of open educational resources (source: Lee Wilson)

Textbooks must evolve into more complex products. A textbook is a static product and, differently from software licences, requires no maintenance. This reduces the incentive for students and schools to buy a subscription unless the additional tools offered are compelling. Software on the contrary has to adapt continuously to a changing environment: OS revisions, bug fixing, content updates and new hardware make ongoing maintenance an imperative.

IT hosting and maintenance costs to replace savings on printing, binding and distribution. Technology costs on the publishers' cloud are likely to offset the savings in printing, binding and distribution (PBD). Indeed, the profitability of cloud software publishers and educational publishers tend to be similar, when contents and programmers are remunerated by the publisher. Aggregators on the contrary, such as Reed Elsevier, or Informa, run on structurally higher margins because the content is sourced for free, often from clients themselves.

Schools will have to create earmarked funding for "educational SAAS". General school funding can be lumpy and subject to periods of pressure. With print books, the market solved the issue by creating adoptions refresh cycles (usually 5-7 years) for each subject area. Funds are specifically (categorically) set aside for this purpose. A new recurring pocket of fund will need to be created for "educational SAAS".

Content will have to be adapted to each specific school. In the print system, the long life of a book in K-12 (5-7 years) allowed teachers enough time to familiarise with the content. The ever-changing content of SAAS will have to adapt to the need of teachers in order to differentiate itself from open educational resources. This should turn into higher costs. What appears to be emerging is the ability to pre-pay subscriptions over a set of years that mimics the traditional adoption cycle, maintaining the cadence that everyone is familiar and comfortable with, without presupposing the funds will be available through the full cycle. Schools can buy a single year if they just want to try something out, but the best pricing options are all at some level of multi-year commitment.

Revenue recognition to suffer in the initial years. From the vendor perspective cash flow will look very similar to today, but revenue recognition on the income statement will take a big hit in the initial years because revenue have to be recognized over the life of the subscription. Dollars collected today won't be recognized for up to six years and will sit in an unearned income bucket on the balance sheet. Investors' emphasis should shift from EBIT/EBITDA to cash flow in this new world.

Competitive advantage of larger publishers due to maintenance commitments. Vendors should be careful about managing cash to make sure the resources for maintenance are available through the life of the contract. This isn't a windfall for them. Even though the cash is in the bank they should budget to the income statement. A multi-year subscription requires a level of trust that the vendor will be around through the full term. This will play to the advantage of larger companies and those with well-established brands.

I expect this model will emerge as the dominant pricing structure over the next 2-3 years. That will be a good thing for teachers, students, and vendors. It will help fuel a new generation of innovative solutions.

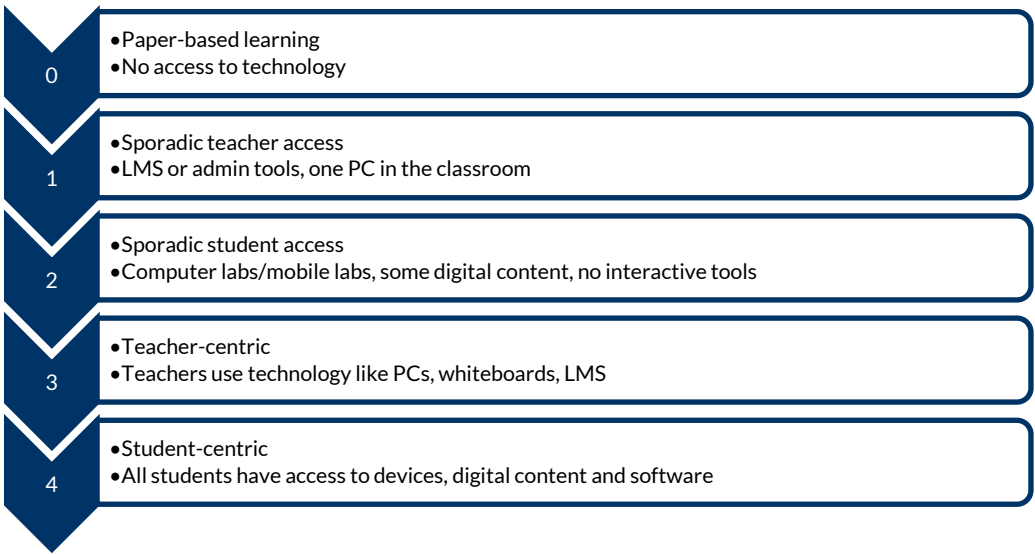
[Adapted from: Lee Wilson, Education Business Blog, 12-6-2014]

Publishers collaborating on the redesign of courses

Over the years, publishers have developed a close relationship with teachers and faculties. Teachers create instructional materials to be published, often receiving very few royalties in exchange. They also select the most suitable content for their students. Publishers continuously adapt to the needs of teachers and educational bodies in terms of input (content required) and output requirements (testing). They also sell tutoring and exam preparation materials directly to students.

Publishers are constantly adapting to the needs of teachers and educational bodies in terms of input (content required) and output requirements (testing)

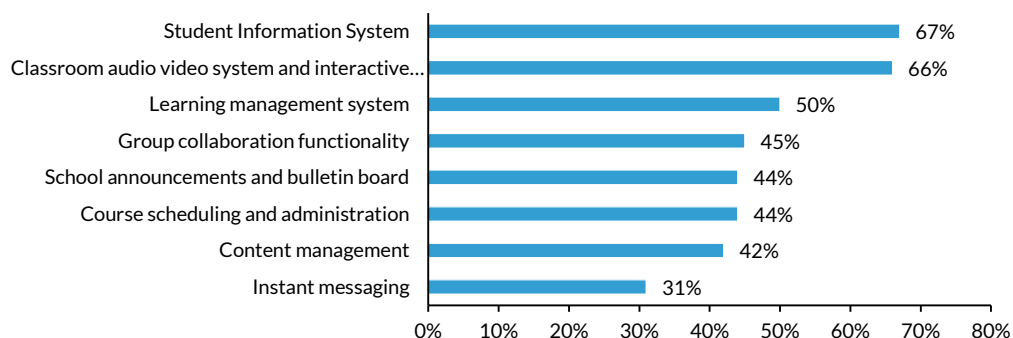
Chart 67: Interactive classroom adoption trajectory



Source: IDC

Digital learning platforms (DLS) are now well established in classrooms and are stepping up their functionalities. They operate in a fiercely competitive space, and require an extensive sales effort which can be better performed by software companies with already the IT infrastructure and pitching power in place to sell to schools.

Indeed, most publishers are partnering with tech suppliers instead of internalising the platforms. Some school technology companies IPOed in the recent past, but they have proven so far incapable to live up to expectations.

Chart 68: Which of the following are integrated into your digital learning platform (DLP)?

Source: CDE Technology Integration Survey, 2013

A closer look at EdTech: a thriving market without a leader

Education technology (edtech) has turned into an attractive hotspot for venture capitalists across the globe. Despite record levels of transactions in the edtech market (which exceeded USD1bn annually in the two last years globally), there do not appear to be any conspicuous signs of a slowdown or of a bubble. In the US, which is spearheading this trend, the momentum is being supported by favourable policy trends (new “ConnectEDucators” program to boost broadband penetration, curriculum standardisations) stimulating schools’ spending on technology (set to total USD20.4bn this year). In this largely nascent industry, however, there is still no clear leader emerging from the crowd, although some consolidation is expected over time as it gains breadth and depth.

Education technology (edtech) has turned into a new hot spot for venture capitalists across the globe

Internet & media giants step into education

Many internet and media giants have made moves in education technology over the past few years, targeting specific subsets via more or less direct interventions (acquisitions, investments or in-house). We highlight here two types of strategies: 1) Amazon & Google in K-12 have for instance predominantly attempted to build synergies with their broader offer in education (e.g. be more appealing to students and schools’ purchasing departments) via acquisitions not targeting direct revenues; while 2) Alibaba, Bertelsmann seem to be targeting mainly higher education direct high growth opportunities in edtech segments (ELT, tutoring, enablers).

Table 14: Selection of internet and media giants' latest expansion moves in education

Company	Internal/ External development	Name	Description	Prime segments	Headquarters	Size	Date	Rationale
Google	Internal	Google Classroom	LMS	K-12?	US	NA	Aug-14	Synergies with other Google education products
Bertelsmann	External	BR Educations Ventures Fund	Anchor investor	Edtech	Brazil	EUR30m	Mar-14	Fast-growing markets
Alibaba	External	TutorGroup	English language learning services	Online tutoring	Taiwan	USD100m	Feb-14	Fast-growing markets
Amazon	Development	TenMarks	Online math curriculum	K-12 apps	US	na	Oct-13	Synergies with the Kindle, opportunities to sell other materials to schools
Bertelsmann	External	University Ventures	Anchor investor in US University Ventures (whose investments include Synergis Education and UniversityNow)	Higher ed online learning enablers, Competency-based learning)	US	EUR100m University Ventures Fund I	Jan-12	Fast-growing markets

Source: Bertelsmann, Amazon, Alibaba, Google, techcrunch, venturebeat

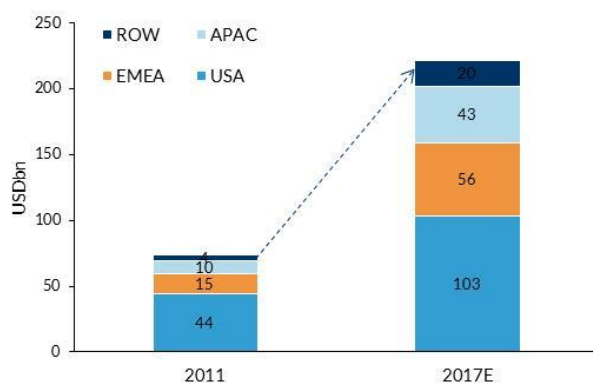
A buoyant industry led by the US, although still in its infancy

The global education technology market, which is still by and large still in its infancy, is expected to skyrocket over the next few years, up to USD220bn in 2017, from USD74bn in 2011 (20.3% CAGR in 2011-17E; source: Marketsandmarkets). As regards the key segments driving this expansion:

- **North America dominates by some distance:** the industry is led by North America (with US representing the bulk) which accounts for 60% of the global EdTech market, but should see its share shrinking to 47% by 2017 despite a 15% CAGR (with emerging markets rapidly catching up).
- **Services makes up the biggest market portion:** Services (44% in 2017E), comprised for example of suppliers of learning or support services, is the main segment, followed by contents (33%).

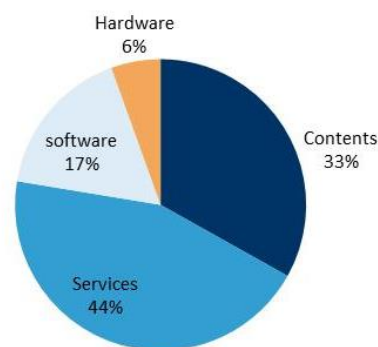
North America accounts for 60% of the global EdTech market

Chart 69: Global EdTech market ('11-'17E): +20% CAGR



Source: Kepler Cheuvreux, MarketsandMarkets

Chart 70: Global EdTech (2017E) – breakdown by product



Source: Kepler Cheuvreux, MarketsandMarkets

The rising appeal of companies operating in the space rely on an increasingly diverse array of emerging technologies and digital strategies, all at various levels in their cycles of adoption. Among the most advanced ones, BYOD (digital strategy) and Cloud computing (internet technology) are for instance already fairly prevalent in K-12, while flipped classroom methods using web-based tools and learning analytics have similarly made their way into post-secondary universities.

BYOD (digital strategy) and Cloud computing (internet technology) are for instance already fairly prevalent in K-12

Chart 71: Classification of emerging technologies used in education (illustrative)



Source: Kepler Cheuvreux, NMC

The global EdTech fever at an all-time high...

This momentum is in turn stimulating venture capital investors' appetite, with the world's edtech market touching all-time highs as measured by the volume of transactions (USD559m globally scattered in 103 deals in Q1 2014, +35% YOY; source: CBInsights), prompted by the growing number of deals, whose related funding exceeded USD1bn annually in the last two years.

...spurred by schools' spending in IT in the US

Within the context of a conducive policy environment for technology's greater take-up in schools (e.g. new ConnectEDucators program, Common Core), the total spending in IT in the US is predicted to hit USD20.4bn this year (roughly equally split between K-12 and higher education) on the back of a myriad of drivers offsetting the decline in government spending: curriculum standardisation and online assessments, cloud adoption, cyber security etc. (source: Center for Digital Education, White House, FCC, Xplana, e.Republic).

Still no clear champion emerging

The edtech business is nevertheless seemingly not moving to an extent suggesting at present any signs of a bubble (according to latest data released by PitchBook over the summer), while it is noteworthy that there is still no clear leader emerging from this very fragmented marketplace, with only two companies IPOed in the US over the past year, namely Chegg (in November 2013) and 2U (March 2014). As it gains breadth and depth, the market is expected to consolidate over time.

When it comes to key challenges to overcome, issues related to procurement (e.g. local dynamics) and a lack of standardised assessments of outcomes have hampered the expansion. Interestingly, the latter came out of a survey conducted by GSV Advisors as the most important factor which could accelerate investments in EdTech.

Publishers' startups incubators and accelerators: backing edtech acorns

Education incumbents are making their business evolve according to these changes; e.g. Kaplan and Pearson kick-started their respective startup accelerators programmes in 2013 with the latter having developed its incubator in-house (the "Pearson Catalyst for Education"), providing up to USD15k in financial support for companies enrolled in 3-month pilot projects but no equity stake. Pearson builds its partnerships via startups with its LMS LearningStudio and its OpenClass platform, enabling startups to forge closer commercial links by means of its "Pearson Partner Network".

Opportunities for collaboration between Pearson and its startups cover the full spectrum of content aggregation and distribution, such as:

- **Adaptive learning**, including some of the main companies operating in the space (e.g. Smart Sparrow's, Adapt Courseware), which target faster, more effective learning via a better understanding of students' existing knowledge and pace, thereby supposedly leading to improved course completion and student retention. This makes clear commercial sense for Pearson, which can integrate adaptive tools within its print and digital texts resources.

The world's edtech market touching all-time high levels as measured by the volume of transaction

Total US schools' spending on IT is predicted to hit USD20bn this year (equally split between K-12 and higher education)

There is still no clear leader emerging from this highly fragmented marketplace

Issues related to procurement and a lack of standardised assessments of outcomes have hampered the expansion

Table 15: Pearson's startups ecosystem: adaptive & personalised learning

Startup	Country	Target subsector	Pearson's program	Description
Adapt Courseware	USA	Online curriculum resources	Partner Network	Adapt Courseware's adaptive multimedia individualises the learning experience for each student based on academic abilities and needs. The company offers complete, customisable, adaptive curriculum resources that combine motivational learning approaches with advanced multimedia techniques to help students achieve mastery learning. With Adapt Courseware, colleges and universities can realise better learning outcomes, increased student retention, and higher student satisfaction. Adapt Courseware is developing a list of 22 titles in general education, business, and foundations.
Actively Learn	USA	Software (online literacy platform)	Catalyst for Education	Increase student engagement in critical reading. Create a customer-facing toolset that captures and reports on critical reading processes to provide students and instructors more insights into their reading habits and related performance.
Smart Sparrow	Australia	Adaptive learning platform	Partner Network	The company's "Adaptive eLearning Platform" (AeLP) enables institutions and individual professors to author interactive, adaptive lessons and tutorials, simulations, and "intelligent" homework solutions with the context of existing courses. Smart Sparrow's approach to deploying adaptive models and tools in postsecondary education focuses on supporting the teacher/professor as the catalyst for facilitating the adoption and use of personalised learning solutions.
Mathspace	Australia	Software	Catalyst for Education	Mathspace combines the mathematics textbook, the student's workbook and the teacher's mark book into a single cloud-based application. Help Higher Ed students learn and complete math assignments on the go. Build an easy to use solution, which enables input of mathematical expressions on mobile devices using a stylus or finger, without requiring a specialised input pallet.

Source: Education growth advisors, Pearson

- **Content authoring** i.e. software packages that enable developers to generate and bundle content: for example the content management company Ginkgotree Bundles allows for textbooks to be replaced by cheaper digital options via LearningStudio, enabling students to save on the content they don't need.

Table 16: Pearson's startup ecosystem: content authoring

Startup	Country	Target subsector	Pearson's program	Description
Ginkgotree Bundles	USA	Content management system	Partner Network	Ginkgotree Bundles integrates with LearningStudio for campus-wide adoption of a low cost, all digital, textbook replacement. Faculty and course designers choose their resources: book content, websites, videos and their own files, then share their collection of resources with their students. Bundles by Ginkgotree automatically licenses and sources publisher content, and seamlessly connects to OER content - to give students the best learning experience at an affordable price. Permissions simplified.
Noteflight	USA	Software	Partner Network	Noteflight's innovative online music notation software allows music instructors to take advantage of the web with a notation tool that displays, edits, prints and plays back music in a browser. There's no software to install, which means that you can compose, teach and view musical scores from anywhere, at anytime. Noteflight's innovative approach liberates instructors and students from the limitations and expense of boxed software and fosters creative pedagogy.
Respondus	USA	Assessment applications	Partner Network	Respondus is a powerful tool for creating and managing exams that can be printed to paper or published directly to Pearson LearningStudio (eCollege). Exams can be created offline using a familiar Windows environment, or moved from one learning system to another. Whether you are a veteran of online testing or relatively new to it, Respondus will save you hours on each project. Used by over 1,000 universities and schools
SoftChalk	USA	Cloud platform	Partner Network	SoftChalk Cloud's platform combines a learning object repository, content authoring, content sharing/management and student score tracking functionality. It integrates with OpenClass via LTI (Learning Tools Interoperability). Through LTI and SoftChalk Cloud's ScoreCenter, instructors can paste the LTI hyperlink for content into one or multiple courses in OpenClass. When the instructor updates the content in SoftChalk Cloud, every course is updated simultaneously. Student scores are tracked by ScoreCenter and results are passed into the OpenClass gradebook. Instructors can view, edit and set score properties within the gradebook, which is linked, via LTI, to the ScoreCenter.

Source: Pearson

- **ePortfolios**, which provide targeted learning platforms for students and teachers which include digital collections of their work (shaping a "Pearsonal Learning Environment") facilitating access, communication and the assignment process. Pearson has its own ePortfolios system.

Table 17: Pearson's startups ecosystem: eportfolios

Startup	Country	Target subsector	Pearson's program	Description
Pathbrite	USA	Portfolio Learning Platform	Partner Network	Pathbrite is a next-generation Portfolio Learning Platform that is elevating the way people learn, teach, and grow. Educators, employers and lifelong learners use the Pathbrite Portfolio Learning Platform to improve learning and development outcomes; increase course-passing rates; foster career development and placement rates; and, enable project-based learning and peer collaboration.
Taskstream	USA	e-portfolio solutions	Partner Network	Taskstream provides comprehensive assessment, accreditation, and e-portfolio solutions for institutions to meet ever-evolving accountability demands and for students to demonstrate learning achievements.

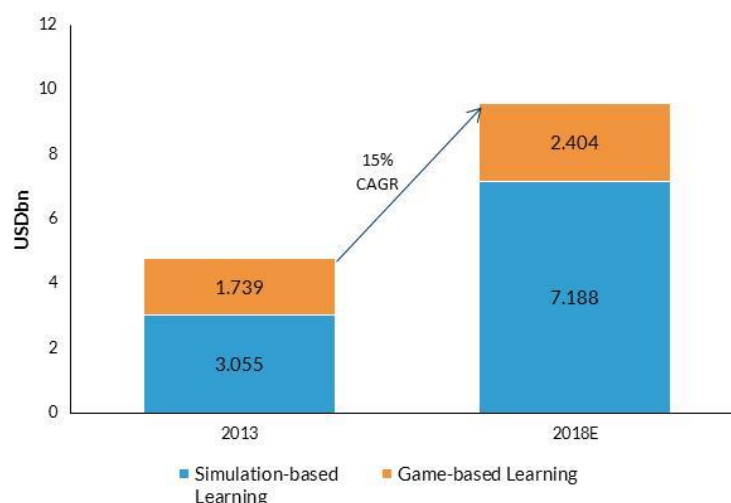
Source: Pearson

- Gaming**, a dynamic digital learning niche (a USD4bn+ market globally; see chart 70), amid a general trend among new education models to use the methods and processes of the games industry. Gaming in education is typically divided between Gamification (use of games rules, mechanics and conventions in non-gaming situation) and game-based learning (source: SpongeLab). Publishers can integrate both across education segments, including in corporate training e.g. immersive learning environments (where Pearson's partner Toolwire is active, in both higher ed and corporate training) can be cost-effective e-learning solutions. Kaplan has its own partnership with gamification corporate specialist Badgeville (SaaS-based technology).

Table 18: Pearson's startups ecosystem: Learning Games

Startup	Country	Target subsector	Pearson's program	Description
Network	USA	Digital e-reading platform	Catalyst for Education	Develop a solution that enables young adults and teens to learn and practice English – using gaming methods – so they can measurably improve their English skills.
CodeMonkey	Israel	Distribution (gaming)	Catalyst for Education	Help educators effectively teach computer science in the K-12 classroom. Create a simple, structured, self-paced product that teaches the fundamentals of coding to kids through challenges, projects and rewards.
Toolwire	USA	Immersive learning technology	Partner Network	Toolwire is a learning solutions provider specializing in interactive Experiential Learning technologies. Our award-winning solutions “bring learning to life” across a wide range of courses including Business, Health Care, Student Success/Career Development, Information Technology, STEM, Psychology, and more.

Source: Pearson

Chart 72: Game-based learning and simulation-based learning (global market revenues)


Source: Ambient Insights

- Another subset strongly linked to gaming: **Video** (which is a core component of publisher's shift to online and digital offers).

Table 19: Pearson's startups ecosystem: videos

Startup	Country	Target subsector	Pearson's program	Description
Sesame	Canada	App	Catalyst for Education	Sesame helps teachers to capture photo or video of students' learning and connect to assessments in a portfolio. Instead of just getting a report card with percentage of letter grade, each student has a timeline of snapshots and feedback that grows with them and can be shared to give authentic insight to their experience and achievement.
Verold	Canada	Publishing platform	Catalyst for Education	Verold is pushing the boundaries of 3D by making it easy to create and publish interactive content on the Web. Built for Web Developers, Verold is a real-time, high-performance platform that streamlines the creation of Web-based interactive 3D content in ways that haven't been possible before.
TELLING Story	USA	SaaS-based software company	Partner Network	IN THE TELLING is a SaaS-based software company and boutique media production studio that transforms online instruction from passive, talking head and text-centric content to deeply engaging and interactive course experiences. IN THE TELLING licenses the TELLING Story Platform that integrates seamlessly with LearningStudio and OpenClass and offers a gamut of Creative Services including documentary style video and animation production, instructional design and custom engineering services.
YouSeeU™	USA	Platform for education	Partner Network	YouSeeU™ provides an asynchronous environment centered on student and Instructor-generated video to conduct high-engagement activities such as oral communication assessment, spontaneous response Q&A, speeches and presentations, and asynchronous video discussion. YouSeeU - designed by educators, for educators - uses technology available to everyone (browsers, webcams and smart phones) and is deployed in disciplines such as business, nursing, education, music, and many others to conduct student-centric, interactive, feedback-rich assignments, independent of time and place.
MediaCore	USA	Video platform	Partner Network	Cloud based media library that is used by K-12 schools, higher education institutions and enterprise companies to transform their use of online video in teaching and learning. Since July 2012 the number of institutions and individuals using MediaCore has increased by 500% and continues to grow rapidly

Source: Pearson

Startups' "mini efficacy generators"

Most startups' accounts on improved learning outcomes are confined to their own niches, as they for instance illustrate their value proposition via specific reports from their clients. We provide some examples below of edtech companies like Adapt Courseware, Toolwire, SmarterMeasure™.

Studies on improved learning outcomes are ubiquitous in Edtech startups' pitches

Table 20: Examples of startup's studies on improved learning outcomes from the use of technology

Company	Category	Description	Focus of the study	Findings
Adapt Courseware	Adaptive learning	Adaptive curriculum resources, with a list being developed of 22 titles in General Education, Business, and Foundations. Adapt Courseware provides the entire infrastructure for courseware storage and delivery. Adapt Courseware was designed and developed to integrate with the leading LMSs and/or SIS.	Series of academic validation and comparative outcome tests in the 2012-13 academic year	Gains in student course completion averaging 16% (at a 92% confidence level) and term-over-term retention averaging 18% (at a 97% confidence level)
Toolwire	Publisher Content Platforms	Learning solutions provider specialising in interactive Experiential Learning technologies	Immersive experiential learning simulations for online and blended courses	These simulations both increase student engagement and promote deeper learning. Solutions on student engagement and performance will require future study; however, the initial results of these learning solutions yielded promising outcomes that warrant ongoing investigation
SmarterMeasure™	Readiness Assessment	Measurement of student readiness in 6 areas: Life Factors, Learning Styles, Individual Attributes (time management, procrastination, etc), Technical Competency & Knowledge, On-Screen Reading Rate & Recall, and Typing Speed & Accuracy	Online Student Readiness as a Predictor of Online Student Satisfaction	This analysis revealed that there is a statistically significant relationship between the online student readiness variables of Life Factors and Individual Attributes and the online student

Source: Adapt courseware, toolwire, smartermeasure

Long-term dynamics in digital education at a glance

In a nutshell, most edtech solutions contribute to the same momentum towards the facilitation of the adoption of digital content and mirror a wide array of major trends seen in digital education such as:

- Personalisation (perceived by educators as their main challenge according to a recent ISTE survey).
- Timing flexibility for online offering (e.g. challenging the US 'credit hour' model for accreditation).
- Continued focus on outcomes and employment prospects: an alignment of content with assessment and employability.
- Affordability: this includes the development of a wide range of free services online, including freemium models and open source software.

Table 21: Examples of “free service” models

Model	Strategy
Freemium model	Sell a free product and plan to convert some of them to a paid plan. Majority of SaaS products use this model
Limited period promotion	Start with the free product for a promotional initial period and plan to charge for it later
Targeted advertising model	Know as much as possible about the user and bring targeted ads
Sponsorship model	If the service indirectly helps the government and/or major organisations one could ask them to sponsor your service, e.g. Khan Academy is funded by the Gates Foundation and Google
Open source model	Sell the product for free and plan to make money on support, customisation and installation. Most open source software follows this model.
Credit card model	In this model, you make your product free for one side (consumers) and use the network effects to make the other side (merchants) pay. Facebook, Yelp and other online marketplaces are now getting on to the model.
Upsell/cross-sell	Sell a free product and use that to promote a premium product in the same segment

Source: Balaji Viswanathan (Quora)

- A push towards data analytics (data driven learning and assessment). Learning analytics is defined as “learning analytics as “the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs” (Source: SoLar).
- An emphasis on non-traditional students e.g. adult learners, which broadens the market potential, and comes hand in hand with a revolution in the delivery model and access to contents.

Introducing school's spending on technology

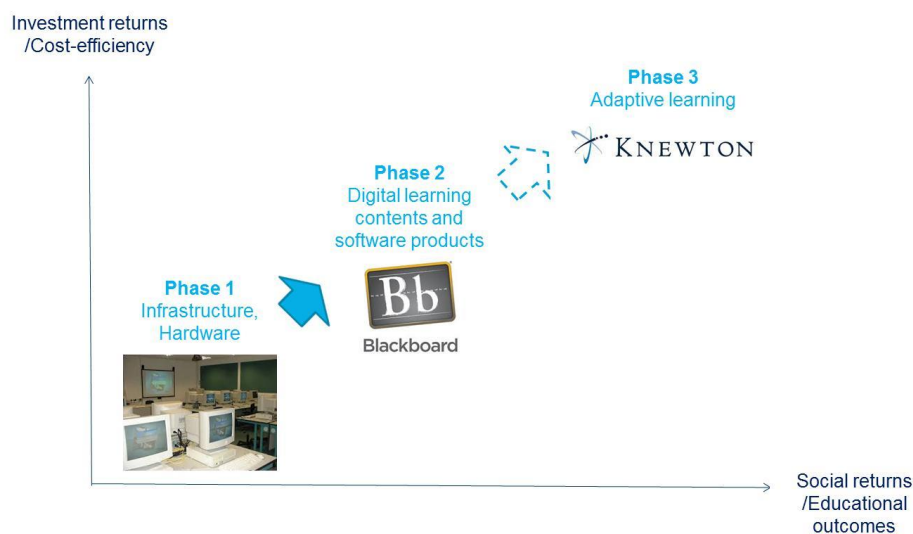
NB The following section on technology adoption, including lessons drawn from European markets, has been developed in partnership with Matthew Robb from The Parthenon Group in London (contact: mrobb@parthenon.com). All views on specific stocks and industrial assets mentioned in this report belong to Kepler Cheuvreux analysts.

The three typical phases of school spending and investment returns

There is a need to make a distinction between K-12 and higher education. It is a Business-to-Governments model in K-12, while it is much more complicated in higher education, with a mix of B2B and B2G.

According to industry consultant Mathew Robb at The Parthenon Group, there are three typical stages of technology adoption among schools:

- First, investments are made in infrastructure (government spending, i.e. B2G), then in hardware. During this phase, a lot of money is being spent, although there is no return on education from an investment point of view.

Chart 73: The three typical phases of technology adoption and educational returns in schools

Source: Kepler Cheuvreux

- Second, there are more investments made in the various types of digital learning contents and software products. The focus is slowly moving to a more complex blended learning context as schools and teachers realise that some online and digital solutions are better than those used in face-to-face teaching. This is the phase where you start to see educational returns.
- The third phase is adaptive learning, with a shift to address students' needs via the use of data. The very valuable spending in technology includes student data management (e.g. data telling you whether a child is not good at maths, his/her attendance etc.). Having management data is usually better than digital content. Everyone is expecting educational returns here, but it's too early to be sure.

The key success factor is teachers' buy-in...

Almost the only real driver of technology adoption and use, especially in schools, is whether teachers want to use it. Successful firms work with the teachers and practitioners. If companies stray too far from these practices, purchases don't follow. Many technology firms and professionals think 'If we have the best product, teachers will use it'. There are almost no examples of this assumption being proved right. The best products in terms of functionality are very rarely the ones that dominate. Often the users see no difference, as technology creates features that are not used. An analogy can be drawn with mobile phones: while phones have many features, ultimately people choose a phone because they like the Apple brand or the keyboard on the blackberry, rather than all the additional features.

The Holy Grail is good-quality content clearly aligned with standard curriculums, and which embeds assessment and testing. Learning outcomes are supposed to be aligned with assessment exercises. Renaissance Learning has done a good job in this area, according to Matthew Robb, which explains why the company is doing well. The key point is to allow teachers to integrate them into their normal practices, facilitating a slight adaptation rather than a radical move. Many companies have been naive in dismissing this, in our opinion.

...as illustrated by the examples of Germany and the UK

Germany would be expected to be the technology leaders, as it is a very technology-literate society and they have the financial means. However, there is almost no technology used in schools, because teachers don't use it.

Although there is heavy technology usage in UK schools, it's not necessarily helping close the skills gap as some skills aren't being taught. E.g. there is also a massive computer skills deficit in the UK, while, conversely, you see some countries in eastern Europe or India for example being advanced in coding.

Spending on management platforms: schools can always do more

Schools have a lot of money and spend it badly in most places, in the UK and across Europe. Schools may say all kind of things about technology spending. They can find money to spend on technology if they know how to use it. They always have enough money if they want to. Governments have different ways to promote software:

- The UK government earmarked money to be spent on technology, and has introduced digital learning credits.
- The authorities in the Netherlands have a dedicated organisation promoting e-learning.
- There are other national systems across Europe.

Are US teachers more technology-friendly?

There are two specific features about US teachers that make them more technology-friendly:

- US teachers have a good propensity to split classes into groups.
- They have never had a proper national curriculum, but rather state tests. The textbooks became the body of material that needs to be transmitted. Teachers have always relied on the presence of textbooks, as they do not compile lessons themselves.

c) A focus on six forces shaping the future of education

We start our examination of new types of solutions using technology in education by open content, which has attracted particular interest due to its potential disruptive impact on incumbents' business.

Open content: not yet mainstream

Promoting easy and more affordable access to education has been substantially moving up governments' agendas and the list of education stakeholders' top concerns over the recent period. The push towards free (or less unaffordable) and open education disrupts all parts of the education value chain, from content to distribution: Open Access, Textbooks, Software, Courses, Content, etc. Focusing here on Open content, we highlight that despite a growing adoption (primarily as supplemental materials, and with more influence in K-12) and encouraging initiatives (e.g. Rice University's OpenStax College), the OER movement's expansion remains curbed by considerable impediments (e.g. availability of high quality open textbooks, faculty member's awareness and comfort).

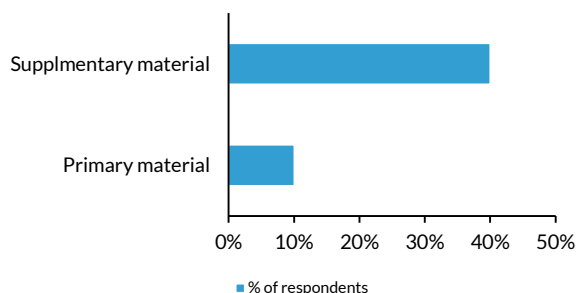
Despite growing adoption, the OER movement's expansion is being held back by a range of factors

Adoption of OER on the rise in the US, particularly in K-12

The use of open contents by teachers is on the rise across all education segments in the US, with reportedly a higher adoption in K-12, where 40% of educators in the US are currently using Open Educational Resources or OERs (free, online academic materials that are openly licensed for everyone to use) to supplement their core materials, according to estimates from the BCG (2013).

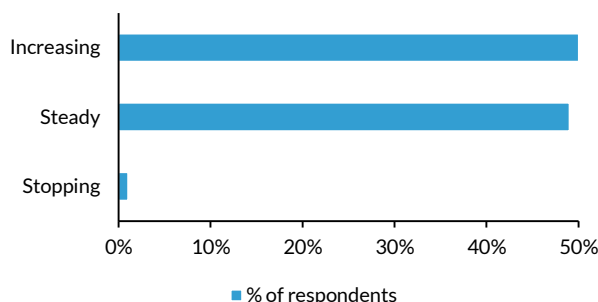
The use of open content by teachers is on the rise in the US, with a higher adoption in K-12, where 40% of educators in the US are currently using Open Educational

Chart 74: K-12 US Educators' adoption of OER (2013)



Source: BCG (survey on educators)

Chart 75: K-12 US Educators' expected use of OER



Source: BCG (2013 survey on educators: expected use within 3 years)

Although there are no equivalent estimates in higher education, the adoption is most likely lower (e.g. due to still fairly poor levels of awareness among academic officers). A mere 7% of students were reportedly making permanent use of OERs last year (source: educause).

Usage remains predominantly a supplementary material

Supplementary usage is still overwhelmingly dominant as the level of primary adoption remains low (10% in K-12), which means it remains a limited disruption for publishers. When it comes to the coverage, which is uneven, there are more developed materials in K-12 science and maths compared to other subjects.

The business model: likely opportunities for monetization

Although much of existing OER are backed by volunteers, there are several possibilities of monetization over time, such as: 1) fixing a price or fee for other contents than those covered by the licence; and 2) charging for services associated with the materials allowed by the open license (source: Michael Feldstein). Concerns about the business models sustainability also relate to the possible costs involved to accelerate adoption at scale e.g. marketing and sales. The various funding modes would in any case require many experiments.

Supplementary usage is still overwhelmingly dominant as the level of primary adoption remains low (10% in K-12)

Possibilities of monetisation over time: 1) fixing a price or fee for content other than that covered by the licence; and 2) charging for services associated with the materials allowed by the open licence

Table 22: Possible business models financing OER suppliers

Model	Description
Publishing	OER producers charge for print and electronic versions of their resources or charge a sliding access fee for use of sections of their sites
Services	Yields revenue by providing professional development and lesson planning services for OER such as Expeditionary Learning, might also suffice.
Accreditation	Online education institutions charge for certification of learning while providing a combination of OER and other courses for credit and degrees.

Source: Hewlett

A top-down push: a patchwork of policies to propel a greater take-up

In the US, as part of the efforts to reduce textbooks costs (open textbooks could enable USD100 of savings per course per student per semester, based on PIRG data), the federal administration has seemingly shown a growing support to OER via a wide variety of policies that encourage the production and take up of OER.

These supportive policies can broadly be classified into four types:

1. **Policies Investing in OERs.** In 2013, the Affordable College Textbook Act introduced a grant to back pilot projects to develop the use of open textbooks.
2. **Open licensing policies** (inject open licensing into systems that create educational resources).

These policies types 1 and 2 often imply an increasing number of grants conditioned on CCBY license.

3. **Endorse EOR.**
4. **Remove barriers for EOR** (e.g. contract designating the campus bookstore as the sole provider of digital textbooks or procurement laws meant to prevent bribery that ban the use of “free” resources).

Source: SPARC

Nevertheless, with regards to the Affordable College Textbook Act, although this bill received considerable media attention following its introduction to the Senate, such drastic measures are very unlikely to be enacted (source: govtrack). In practice, the president’s 2015 budget partly appropriated the issue by promoting the development of technology and open access.

The federal administration has seemingly shown a growing support for OERs via a wide variety of policies

Affordable College Textbook Act unlikely to be enacted

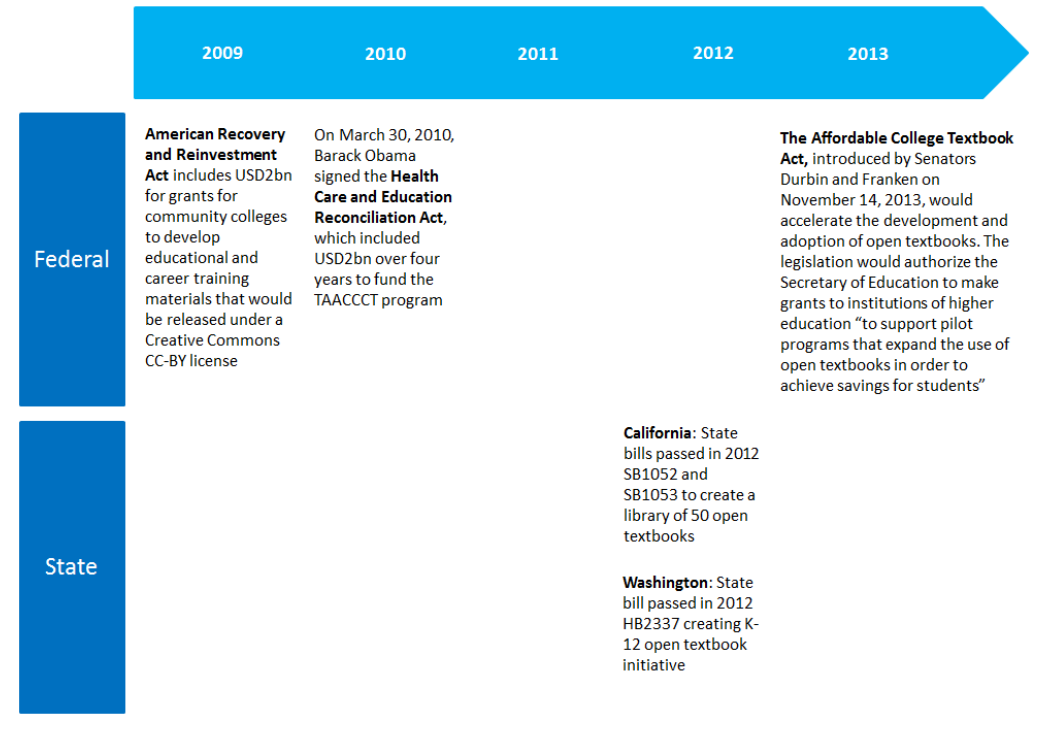
Table 23: : Key policies supporting OERs

Name	Level	Date of creation/enactment	Overview
1. Policies Investing in OERs			
Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant Program (as part of the American Recovery and Reinvestment Act)	Federal	Became law in 2009	All contents developed via the backing of the grant will be made accessible for free re-use under a Creative Commons Attribution 4.0 (CC BY) License
Affordable College Textbook Act	Federal	Introduced in 2013	Introduce a grant to back pilot projects to develop the use of open textbooks
Washington (State bill HB2337)	State	Jul-05	Creation of the K-12 open textbook initiative
California (Senate bills 1052 and 1053)	State	Jul-05	Create a library of 50 open textbooks.
2. Open licensing policies (inject open licensing into systems that create educational resources)			
Fair Access to Science and Technology Research Act	Federal	Became law in 2013	Would require federal agencies with annual extramural research budgets of USD100 million or more to provide the public with online access to research manuscripts stemming from funded research no later than six months after publication in a peer-reviewed journal. Note the bill is supported by SPARC which is working on ways to build interest in a similar policy for educational resources
California's Community colleges	State	Sep-13	California Community Colleges Board of Governors Voted on September 2013 to Make Publicly Funded Grant and Contract Work More Accessible. The California Community Colleges became the largest system of higher education in the world to require a Creative Commons Attribution license on publicly funded grants and contracts
3. Endorse EOR			
National Education Technology Plan	Federal	2010	Federal Tech Plan "Support the development and use of open educational resources to promote innovative and creative opportunities for all learners and accelerate the development and adoption of new open technology-based learning tools and courses."
Transforming education through technology Act	Federal	Became law in 2013	Allocates grant funds among states. States that applications shall include (6) An assurance that the State educational will consider making content widely available through open educational resources when making purchasing decisions with funds received under this title.
North Dakota	State	Jul-05	A concurrent resolution directing the Legislative Management to study the use of open textbooks in the North Dakota University System, including options to develop partnerships with other states to use open textbooks.
Foothill-De Anza Community College District	Institutional	Jun-05	The Foothill-De Anza Community College District supports the creation, use, accessibility, and ongoing maintenance of public domain-based learning materials in accordance with established curriculum standard for educational purposes of the District, using the commonly accepted legal definition of public domain materials
4. Remove barriers for EOR			
Higher Education Opportunity Act (H.R. 4137)	Federal	Became law in 2008	The bill contains two additional provisions that improve textbook price disclosure and give students more options as consumers. First, it requires publishers to sell all textbook "bundles" as individual books and supplemental materials. PIRG research identified bundling as one of the main practices publishers use to drive up costs. Second, the bill asks colleges to inform students which textbooks they need a full semester early. That way, students will have time to shop around for the best deals.

Source: Kepler Cheuvreux, SPARC, US Library of Congress

At state level, both California and Washington passed open source textbook legislations in 2012 which invest resources explicitly in the creation or adoption of OER (creation of an online library of free electronic textbooks).

Chart 76: Federal and state policies supporting OER: snapshot (2009-2013)



Source: Kepler Cheuvreux, SPARC, US Library of Congress

The bottom-up push of initiatives bolstering OERs: OpenStax' success

Besides policies, there is also a wide range of projects spearheaded by state, institutions and students in the US which aim at fostering OER, including some where students (OER is their top priority among technologies) and faculty administrators are collaborating on open textbook programs (e.g. Tacoma Community College OER Project and Maryland Open-Source Textbook (MOST) Initiative) (source: PIRG). Among notable initiatives, the Rice University's OpenStax College (non-profit) strives to foster the development of digital free (or available in print for a fee) and peer-reviewed textbooks via a two-year USD9m grant programme in high schools. Meanwhile, OpenStax is also trying to use the same type of algorithm as internet giants to make its teaching practices more personalised by collecting data on its students.

At state level, both California and Washington passed open source textbook legislation in 2012, explicitly allowing for resources to be invested directly in the creation or adoption of OER

OER students' top priority among technologies

Table 24: Colleges' projects supporting OER (non-exhaustive)

State	Type	Name	Goal/Overview
Arizona	Maricopa Community Colleges	Maricopa Millions project	Save students USD5m over 5 years through OER.
Arizona	Arizona State University Libraries	n.a.	Development of a clearinghouse for OER
California	UCLA	Affordable Course Materials Initiative	Provide support and awards to faculty to identify free and low-cost alternatives including OER
California	Cal State East Bay	Textbook Alternatives program	Offer faculty stipends for affordable learning materials including OER.
California	Cal State San Marcos	Cougars Affordable Learning Materials initiative	Replace costly textbooks with library materials and OER
California	San Jose State University	n.a.	Develop an extensive collection of subject guides for OER
California	Cal Poly Pomona	n.a.	Creation of a set of faculty case studies who have implemented affordable alternatives for students including OER.
California	Cal Poly San Louis Obispo	n.a.	Hired a fellow to oversee the campus's OER program.
Florida	University Press of Florida	Orange Grove Texts Plus program	Orange Grove Texts Plus program works with Florida Virtual Campus and the University Press of Florida to curate and publish open textbooks.
Georgia	University System of Georgia	Affordable Learning Solutions	Prioritize OER (run by the state's digital library)
Georgia	Emory University	Open Education Initiative	Provide mini-grants to faculty to support the use of OER and other low cost resources.
Hawaii	University of Hawaii at Manoa	n.a.	Offers resources for creating OER textbooks, including a template MOU
Illinois	University of Illinois	Open Textbook Initiative	Published an open textbook with support from a federal grant.
Iowa	Kirkwood Community College	OER Faculty Adoption Program	A guide to exploring open textbook options for faculty.
Kansas	Fort Hays State University	Red Balloon OER Program	Reducing costs in general education courses
Kansas	Kansas State University Libraries	Open/Alternative Textbook Initiative	Provide grants to faculty to create or curate free learning materials for their courses.
Maryland	University System of Maryland	MOST (Maryland Open Source Textbook) Initiative	Pilot program to expand the use of open textbooks.
New York	State University of New York	Open SUNY Textbooks	Publish open textbooks
Texas	Rice University	OpenStax College	Publishes high quality, peer reviewed open textbooks.
Utah	State Office of Education	n.a.	Develop and supports open textbooks for use in schools (also see study on savings and test scores)
Virginia	Tidewater Community College	Z-Degree	Offer OER in every course for its entire business administration program.
Washington	Tacoma Community College	Liberate \$250K Campaign	Work with faculty to replace expensive textbooks with OER and other free materials.

Source: Kepler Cheuvreux, SPARC, OpenStax

Quality and efficacy among top challenges to move to the mainstream

Although OER's usage is projected to keep soaring (half of teachers expect to use OER more over the next three years), two main hurdles thwarting this development are:

- The availability of high-quality open textbooks considering for instance the fact that OER currently cover only a small chunk of all college textbooks, and the general content is not easy to access in an efficient way, with the various pieces of contents unbundled). In the US, the common core standards provide an opportunity for open contents, but high-quality supply is scarce.
- Faculty members' awareness and comfort, particularly in post-secondary education.

Several other obstacles are worth pointing out: a lack of standards, an incompatibility of policies and a lack of incentives (e.g. confusion about the policy on IP rights, with a policy landscape somewhat benefitting a status quo, such as procurement contracts requiring students to have physical textbooks) (source: Hewlett), and technology given the need for devices, broadband or support services.

The availability of high-quality open textbooks and faculty members' awareness and comfort are thwarting this development

Learning outcomes: educators' buy-in not yet won

Preliminary findings in the US pointed to positive implications on educational effectiveness, with measurements suggesting that in US K-12 schools OERs encompassing at least three key subjects could boost educational capacity or personalisation. For instance, positive signs of improved learning efficiency were found by:

- Salt Lake City using cheaper textbooks could lead to better scores on state tests for thousands of students.
- Carnegie Mellon University's Cognitive Tutor program boasted both a reduction in the completion time needed and greater results for its Open Learning Initiative courses (source: Hewlett).

Overall, educators are satisfied with OER usage, but more robust evidence on quality and efficacy appear as the most important factors to speed up adoption (source: BCG).

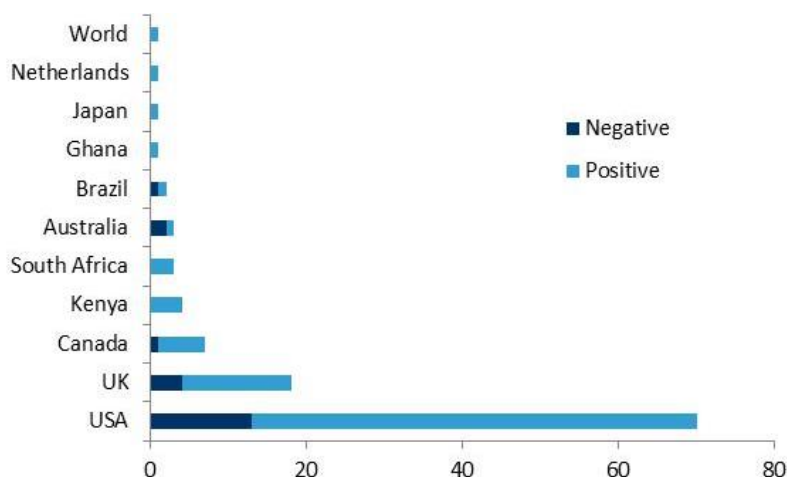
Towards a global measurement: early findings around OER's benefits

Beyond affordability, OER could contribute to solving two major other issues: improved teaching & learning, and economy/career preparedness. There is on the whole still limited proof of their effectiveness globally, but an increasing amount of research being conducted regarding their social benefits, according to findings compiled by the OER research hub globally (research initiative led by The Open University and funded by the William & Flora Hewlett Foundation) which have been built around eleven assumptions (e.g. performance: OER improve student performance/satisfaction; access: OER widen participation in education etc.) and covering all education sectors.

Preliminary findings in the US point to positive implications for educational effectiveness

Overall, educators are satisfied with OER usage, but more robust evidence on quality and efficacy appears key for speeding up adoption

Chart 77: Evidence-based studies on the impact of OER (number published by country)



Source: OER Research Hub, Kepler Cheuvreux

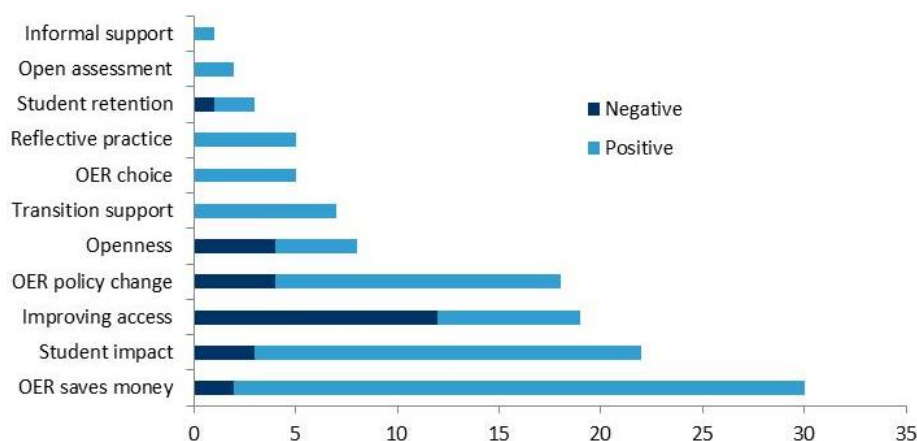
Possible benefits on learning outcomes, uncertainty on access

Although we don't consider the sample to be comprehensive enough to draw any conclusions, among all findings displayed, we would point out the following two useful indications which their review suggests:

- **Positive impact on affordability and student performance/satisfaction:** 1) unsurprisingly, there are observations that OER adoption at an institutional level has led to financial benefits for students and/or institutions (the exact hypothesis is "OER adoption brings financial benefits for students/institutions"); and 2) teachers have a rather good level of confidence that OER boost student performance and satisfaction. Fewer students think so, though ("OER improve student performance/satisfaction").
- **Mixed evidence on improved Access:** There is interestingly mixed evidence relating to this hypothesis. Many OER and MOOC users tend to have existing higher education qualifications, suggesting they are best suited to experienced learners (source: OER Research Hub). This limitation is particularly worth pointing out, as it means the trends towards OER could potentially exacerbate inequalities in access to resources, or at least be ineffective (a concern raised in disputes about MOOCs).

Concerns that OER could exacerbate inequalities in access to resources

Chart 78: Evidence impact studies findings by hypotheses



Source: OER Research Hub, Kepler Cheuvreux

Massive Open Online Courses (MOOCs) and star-faculties

There has been much discussion about MOOCs' (Massive Open Online Courses) potential disruption in terms of delivery, the underlying social value (huge opportunity to broaden access to educational resources) and limitations, particularly due to poor completion rates (less than 0.2% of all courses completed in 2014 will be MOOCs; source: Deloitte), credits and course materials. We look here into the two latter challenges.

MOOCs versus universities: a matter of credits

The framework of learning at colleges and universities lays on credit hours gained by following a pre-defined path, or curriculum, and exams. Credit hours in turn are given based on the number of "contact hours" per week in class, for each term: the so-called "Semester

Credit Hours" ("SCH"). A contact hour includes any lecture or lab time when the professor is teaching the student or coaching the student while they apply the course information to an activity.

Regardless of the duration of the course and depending on the state or jurisdiction, a semester credit hour (SCH) is 15-16 contact hours per semester. Most college and university courses are three Semester Credit Hours SCH or 45-48 contact hours, so they typically meet for three hours per week over a 15 week semester.

15 SCH is the normal full course load, although many colleges consider 12 SCH a minimum full-time load for financial aid and other purposes. Students are then generally expected to spend three hours outside class studying and doing homework for every hour spent in class. Homework is time the student spends applying the class material without supervision of the professor: this includes studying notes, supplementary reading, writing papers, or other unsupervised activities like labwork or field work.

College workload: some maths

- 1 semester = 15 effective weeks of teaching
- 1 SCH = 1 teaching hour per week + 2-3 hours of homework per week = up to 60 hours of study in a semester.
- Typical course is 3 SCH: a year typically includes 10 full courses

Yearly workload of a typical college year

- In-class: $10 \times 3 = 30$ hours/week of teaching or 900 hours/year
- Out-of-class= $900 \times 3 = 2,700$ hours/year
- Total hours of work = 3,600/year
- Daily workload on a 7-days/week = 5 hours 25 minutes per day

Good Will Hunting 2.0: the homemade accountant?

We try to find on MOOCs enough course materials to replicate the path of a students graduating in accounting at University of Texas. The purpose of our research is to check if it is theoretically possible to replicate an undergraduate degree for a (very highly) motivated student working only on MOOCs.

In the 1997 movie "Good Will Hunting", Matt Damon impersonates a south Boston thug and self-taught maths genius. Working as janitor in the corridors of the MIT, he easily solves problems posted by Professor Gerard Lambeau as a challenge to his graduate students. The purpose of the research is to verify if MOOCs at their current stage of development allow for the rise of "Will Hunting-like" students.

We search on the three most well-known MOOC platforms (Coursera, EdX and Udacity) the courses needed to replicate a curriculum of an undergraduate degree in accounting from the US University of Texas, McCombs School of Business ([link](#) to the curriculum).

Chart 79: Harvard alumnus Matt Damon plays Will in “Good Will Hunting”



Source: Good Will Hunting, Miramax Films, 1997

Not enough courses available at this stage

The results did not live up to expectations. Only a few of the courses needed to replicate the accounting degree at University of Texas were available on the three most used MOOC platforms, Coursera, EdX and Udacity. Moreover, we find highly unlikely that even the most motivated of students can go through two-three years of MOOC courses in isolation, without the support of an organisation helping in the construction of a coherent curriculum, and the availability of a faculty.

Chart 80: Trying to build a curriculum in accounting from MOOCs

Try to build a curriculum in accounting

US University of Texas, McCombs School of business Undergraduate Degree in Accounting
<http://www.mcombs.utexas.edu/~mcdia/Files/MSSBBA/Advising/Degree-Plans/2012/ACC%2012-14%2010%2005%2012>

Course	Name of the course	to follow an equivalent	Name of the course	Name of the MOOC provider	Number Of Weeks required	Number of Hours per Week	University	Certificate / price
University Core Curriculum:								
UGS 302 or 303	Introducing student	No		-	-	-	-	-
RHE 306	Introduction to writing and argumentation	Yes	"Reasoning, Data Analysis and Writing"	Coursera	34	6 to 10	Duke University	Certificate / USD196
			"Writing II: Rhetorical Composing"	Coursera	10	6 to 10	Duke University	Statement of accomplishment
			"English Grammar and Style"	Edx	9	4		Certificate / ?
E 316K	American, British, or world literatur	No						
GOV 310L	American government and politics	No						
GOV312L	American politics and history	No						
BA 101	Planning implementing and evaluating	No						
ECO 304K	Intro to Microeconomics	Yes	"Microeconomics principles"	Coursera	8	6 to 10	University of Illinois	Statement of accomplishment
ECO 304L	Intro to Macroeconomics	Yes	"Macroeconomics principles"	Coursera	NA	6 to 8	University of Melbourne	No specific diploma
			Difficult to find the right MOOC that will perfectly match with the requirement. If I am a student I will probably contact the MOOC platform in order to find the best course that match with the requirement of M408k or 408C.					
M 408K or 408C	Differential Calculus (1st course in 3-part calculus sequence)	Yes	Calculus can be replicated in edx and coursera by taking different kind of courses from different university and it demand a lot of hour of study.	Coursera and Edx	NA	NA	NA	NA
M 408L or 408D	Integral Calculus (2nd course in 3-part calculus sequence)	Yes		Coursera and Edx	NA	NA	NA	NA
Human Behaviour Requirement								
PSY	Psychology	No						
Upper-Division Business Core								
ACC 311	Fundamentals of accounting	No						
ACC 312	Fundamentals of managerial accounting	No						
STA 309	Elementary Business Statistics	Yes	"Introduction to Statistics: descriptive statistics"	Edx	5	NA	University of Berkeley	No specific diploma
MIS 301	Introduction to IT management	No						
BA 324	Business Communication: Oral and Written	No						
			calculus can be replicated in edx by taking different kind of courses from different university and it demand a lot of hours of study.					
STA 371G	Statistics and Modeling	Yes	Intro to statistics	Edx	NA	NA	NA	NA
	Statistics and Modeling	Yes		Udacity	8	6	NA	No specific diploma
LEB 323	Business Law and Ethics	No						
MAN 336	Organizational Behaviour	No						
OM335	Operations Management	No						
MKT 337	Principles of Marketing	Yes	"Introduction of marketing"	Coursera	8	5 to 6	University of Pennsylvania	Assesment at the end of each class
FIN 357	Corporate Finance	Yes	"Introduction to corporate finance"	Coursera	6	6 to 8	University of Pennsylvania	Statement of accomplishment
Accounting Major Courses								
ACC 326	Intermediate Accounting	No						
ACC 327	Financial Statement Analysis	Yes	"Financial Analysis and Decision Making"	edx	9	4	University of Queensland	Certificate/?
		Yes	"An Introduction to Financial Accounting"	Coursera	10	6 to 8	University of Pennsylvania	Certification / USD 49
ACC 329	Managerial accounting and control							
ACC 362	Intermediate Accounting II	No						
ACC 364	Introduction to taxation	No						
ACC353J	Internship in accounting	No						
MAN 374 (W)	General Management Strategy	Yes	"Competitive strategy"	Coursera	7	2 to 4	University of Munchen	No specific diploma
			"Le pouvoir de la microéconomie : les principes économiques dans le monde réel"					
ECO 420K	Microeconomic Theory	Yes		Coursera	11	2 to 4	University of Californie	Certification / USD 49

Source: Coursera,EdX, Udacity, university of Texas, Kepler Cheuvreux

Table 25: Student information systems, SAAS and MOOCs. Features, impact, opportunities

Level	Key market feature	Purchasing decision	Purchasing methodology	Key selling points	Technology: impact on existing products	Technology: impact on education	Key Market opportunity	Size of opportunity (USDbn by 2018)	Location of opportunity	Impact of innovation
K-12 Student Information Systems	Educator-driven	Districts, educators, states	Procurement through content selection and competitive bidding	Product reputation, customary habits, compliance with standards.	Incremental. Teachers are central to the purchasing decision.	Should improve effectiveness and outcomes	Out-of-classroom tutoring and training.	A share of the 85bn total IT spending	Europe, Emerging markets (US is mature)	Incremental
Higher Education 1) Pure MOOCs	Exciting but poorly organised	Student	Standard consumer purchase, or free.	Teacher reputation, platform reputation.	None. Long term, could be disruptive for third-tier brick-and-mortar colleges.	Global availability of top-notch courses	Incentive to faculties and universities to invest in research.	N.M.	Everywhere	Potentially disruptive
Higher Education 2) Out-of-campus (school SAASs)	The cheaper alternative to brick-and-mortar courses	College (SaaS), Student (Course)	Procurement	Reliability, scalability, publisher's reputation	Complementary to in-campus college offer	Lower total cost of education (fees, lodging, transports, etc.)	All public universities and colleges, for-profits.	A share of the 87bn Hi-ed Learning market	Everywhere	Incremental
Vocational Education MOOCs	Procedural knowledge and training	College (SaaS), Student (Course)	Standard consumer purchase	Reputation, consistency with professional targets	Could be disruptive for paid courses in specific fields, IT in particular	Global availability of top-notch courses	Disruption only	A share of the 53bn corporate e-learning market	None	Disruptive

Source: GSV for market sizes Kepler Cheuvreux

The road ahead: competency-based models could unlock credit barriers

While the MOOC sceptics have recently tended to be more vocal its optimistic supporters, ongoing experimentation illustrates a shift away from the original MOOC pattern towards more commercial models linking accreditations to employers, thereby killing two birds with one stone: overcoming the credit barriers issues and opening up a revenue stream. At the vanguard of this trend, the pioneering MOOC organisation Udacity is implementing a model enabling student to pay to get credentials provided by universities, so-called “Nanodegrees”, which place targeted job and career opportunities at the centre of their value proposition. While still at an early stage, this model is being tested via a collaboration with AT&T (USD1.5m funding) and Georgia Tech universities, with the awarded degree costing substantially less than the comparable face to face programs (less than USD7,000 for an MSc in Computer Science).

Open source digital learning platforms

OER and open source software (in brief “a technology where the source code is “open” i.e. the code is available to the public and free to be modified³”) differ substantially in their level of adoption as the latter has enjoyed some business success, benefitting from a favourable ground for adoption among teachers.

Moodle is the most successful open source LMS

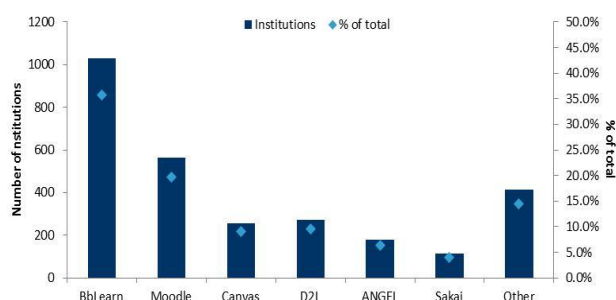
The global LMS market is projected to expand from USD3 to c8bn over the next five year (source: MarketsandMarkets), with the US constituting the largest market, on the back of the e-learning adoption rise, corporates demand, and the cloud technology boom.

In the US, Moodle is the most popular open source LMS (65m users globally), in both K-12 and Higher education, while Blackboard (fee-based platform) remains undoubtedly the most widely used among all LMS. By some distance the most active in acquisitions, Blackboard has been strengthening its offer in the space via a host of purchases (Moodlerooms and NetSpot in 2012, CerBibo in 2011, and Saf-T-Net in 2010). Pearson’s Learningstudio/ecollege is smaller.

Moodle is the most popular open source LMS

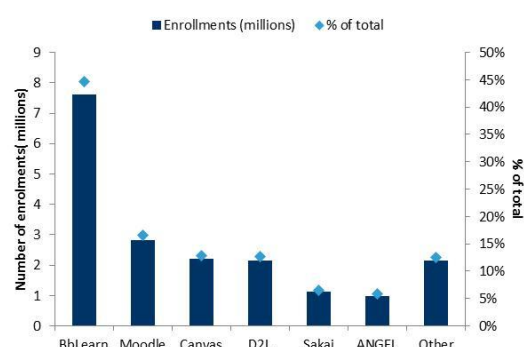
³ According to the Open Source Initiative, open source does not simply mean access to the source code. The distribution terms of open-source software must comply with several criteria, such as free redistribution, non-discrimination of people or groups as well as a license that must not be specific to a product (source: the Open Source Initiative).

Chart 81: LMS usage in US Higher ed (Spring 2014)



Source: Edutechnica, Kepler Cheuvreux

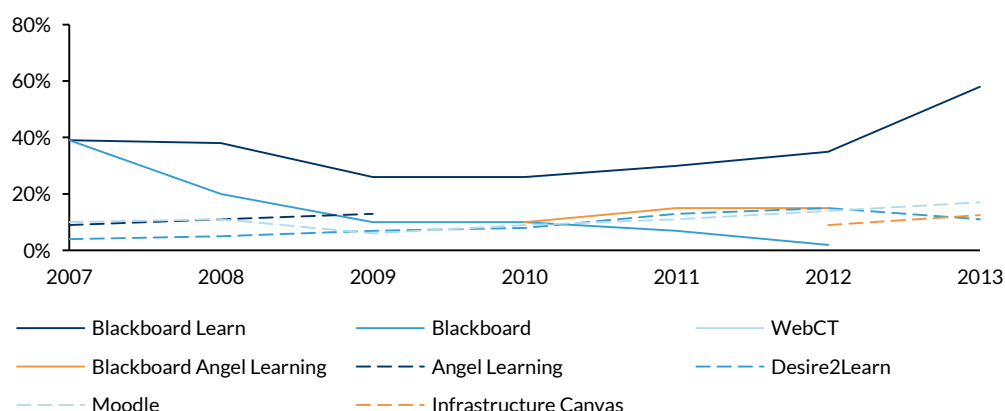
Chart 82: LMS usage in US Higher ed (Spring 2014)



Source: Edutechnica, Kepler Cheuvreux

Within the community college segment specifically, Moodle's market share (as per total users) expanded from 6% in 2009 to 17% in 2013, according to the ICT survey.

Chart 83: Learning Management Usage 2007-13 (US community colleges)



Source: ICT Survey, Kepler Cheuvreux

In US Higher education, another company which has gained visibility in the open source movement is rSmart, which uses software components from the Sakai and Quali open source communities to supply a comprehensive open platform for education (cutting universities costs by replacing their legacy financial system such as proprietary enterprise resource planning).

Kuali foundation (community source LMS) shift to a commercial model

The Kuali foundation (open source LMS classified as a community-source i.e. a type of open source project with a specific governance and funding approach) strategic decision to turn into a commercial model (announced in August), while still being free and open source (adding fees for services), raised questions over the future of community source models (e.g. due to difficulties in harnessing the coordination).

Google's free LMS launched in August

Google's free LMS (Google classroom), which is integrated into Google's Apps for Education (>30m users worldwide) became available on 8 August 2014 and already boasts 100,000 teachers interested (tried it), while pilot programmes have for instance already been run in a few K-12 districts in the US (e.g. Clarkstown Central School District, Tuckahoe Union Free District). GoogleClassroom is designed to assist teachers in the all tasks related to assignments: creation, organisation, distribution, feedback, etc.

While Google's Classroom cannot yet be integrated into existing LMS, it remains unclear whether it could potentially be an alternative to LMS, and looks for now likely to remain in the foreseeable future more of a complementary option for most technology mature educators.

Online education: heading for maturity

With online enrolments in the US Higher education segment (both fully-online and hybrid/blended courses) having been continuously expanding despite at a slower growth rate recently (5.5m students or 26% of the total are already enrolled in at least one online course), the industry seems to be heading towards a relative maturity marked by a slowdown in enrolments growth. Key questions ahead concern the emerging models and growth areas (e.g. MOOCs, competency-based learning) and innovative ways to cut further attritions rates and strengthen the value proposition of online offering. This new environment, where universities across the spectrum are striving to diversify via a more sophisticated offer integrating online models to attract and retain students, gives some rooms for opportunities of collaborations between post-graduate schools and online enablers such as Pearson's Embanet or 2U.

A USD56bn market in the US (c3% of total education spending)

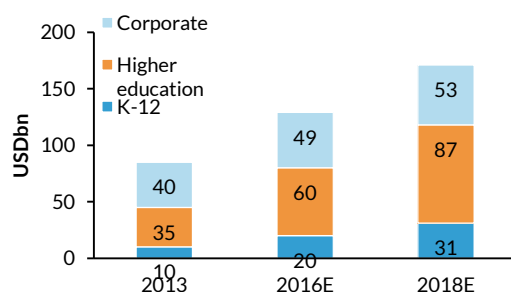
The USD56bn online learning market in the US is forecasted to expand to USD113 by 2018 (a 15% CAGR in 2013-18).

- Higher ed and corporate Learning dominate by some distance (K-12 accounts for 3% if the US online learning market, 11% globally).
- The overwhelming share of the global online market relate to distribution (70%) and management systems (21%).

The industry seems to be heading towards relative maturity, marked by a slowdown in enrolment growth

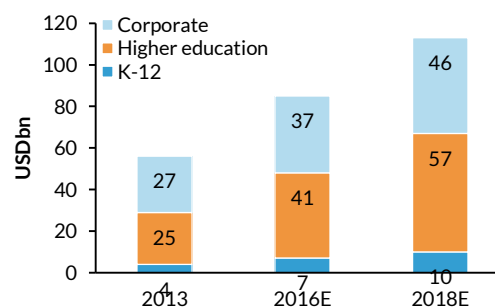
The overwhelming share of the global online market (>90%) relates to distribution (70%) and management systems (21%)

Chart 84: Global elearning market

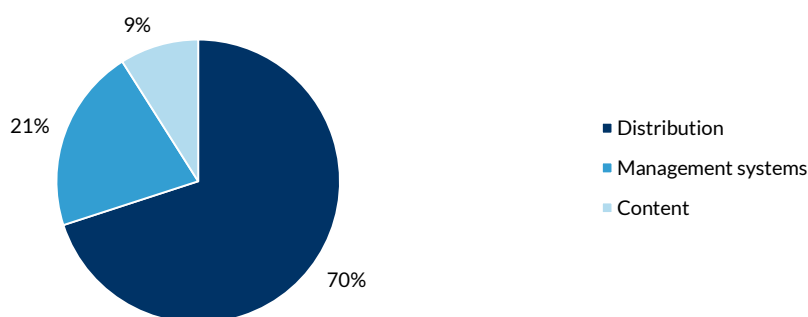


Source: GSV Advisors

Chart 85: US elearning market



Source: GSV Advisors

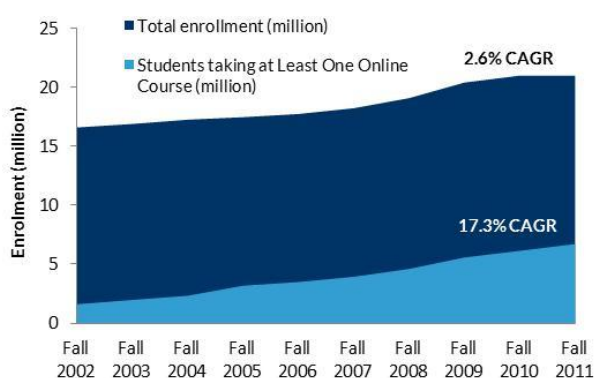
Chart 86: Elearning global market by sector (2012)

Source: Ibis Capital

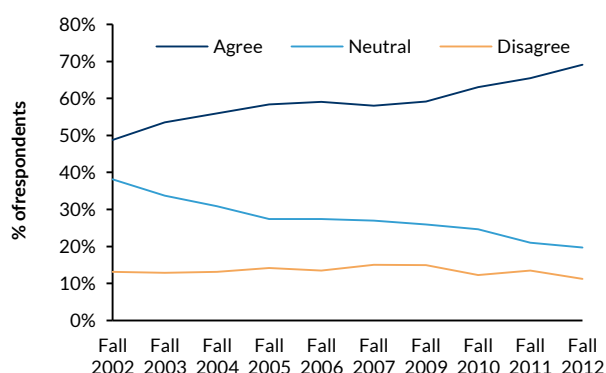
Online enrolments pursue growth, albeit at a slower pace

Online enrolments in the US Higher education segment have been continuously expanding, despite at a slower growth rate recently (partly driven by a maturity effect, and less favourable and less visible regulatory environment), constituting the sole contributor to full-time enrolment growth from 1995. As per the latest estimates (fall 2012 data on Title IV institutions), the number of students enrolled exclusively in online degree programs hit 2.6m (13% of total college students), while 5.5m students are enrolled in at least one online course (26%) (source: NCES). It is noteworthy that the development at scale of fully-online programmes is a unique US phenomenon, with a preference for blended learning models elsewhere.

Online enrolments in the US higher education have been the sole contributor to full-time enrolment growth since 1995

Chart 87: Online enrolments in US higher education

Source: Babson survey, Kepler Cheuvreux

Chart 88: US higher ed views: online critical for strategy

Source: Babson survey, Kepler Cheuvreux (Question: "Online Education is Critical to the Long-term Strategy of my Institution")

Non-profit universities substantially stimulated this growth: with over 80% of public universities providing at least one online program, online education is no longer exclusive to for-profit schools in the US and has largely turned into a mainstream phenomenon.

Long-term projections: 1/3 online, 1/3 campus, 1/3 hybrid/blended

Online educations enrolments growth is expected to steadily slow. Considering a cap due to students likely to not go online at any point, it is projected that at maturity college students should equally break down into approximately a third of which in full time online courses, a third on campus only, and a third on hybrid/blended learning (source: Learning House).

Online service providers: different positionings

With outsourcing in higher ed becoming more prevalent, this opens up new opportunities for the 10+ online service enablers (e.g. 2U, Embanet, DeltaK), although they represent a tiny share of the total online education market (5% among non-profit schools) as most of the main schools provide already their own online degrees without online enablers (source: The Parthenon Group).

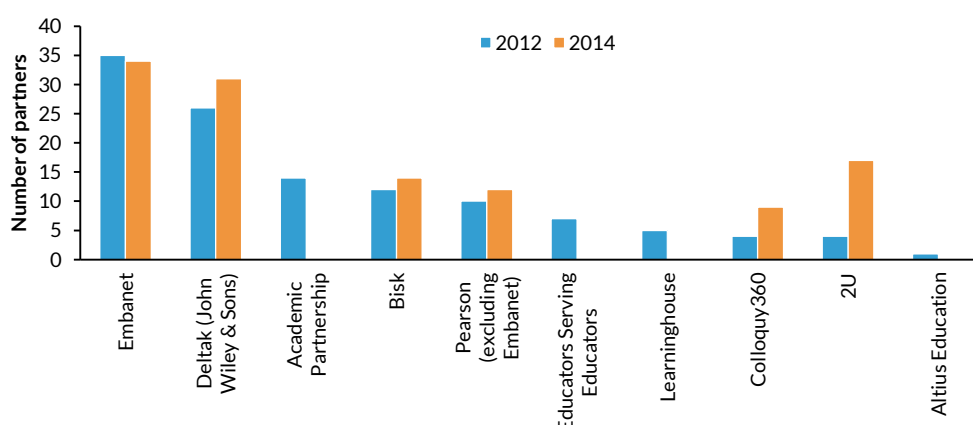
Online enablers (also called “inside services”, EAAS, etc.), of which Pearson is market leader thanks to the acquisition of eMBAnet, are however highly profitable businesses. These platforms allow colleges to set up fully-fledged online degrees with their own faculty, assessment, and content, although part of the books are provided by external publishers (including Pearson) and bundled in the tuition fees. From an affordability standpoint, their total cost to students turns out to be typically lower when including room, board, transport and the opportunity cost of not being employed.

Their prices may vary greatly, though. 2U’s (IPO in March 2014) positioning is for example at the high-tuition end of the competitive landscape via selective admissions and classes in small groups, with a prime attention on elite universities which triggers higher sales per students than Pearson’s Embanet (USD10-15,000 compared to USD1,200, respectively).

Non-profit universities stimulated this growth

Outsourcing in higher ed opens up new opportunities for the 10+ online service enablers (e.g. 2U, Embanet, DeltaK)

Chart 89: Online enablers’ number of partners (2012, 2014)



Source: The Parthenon Group, Companies mentioned above

Online service providers: hints on the economics

Upfront investments and relatively long timing to profitability is another important feature of enablers. Contracts need generally 18 to 36 months of unprofitable running before starting to generate profits, which is why the contract duration is usually long, at around ten years (Pearson claims average breakeven for its partners in two years). Profitability timing for providers depends on the number of programmes: in other words, many new programmes mean slower breakeven. The NPV of each single programme is evaluated separately by the operator.

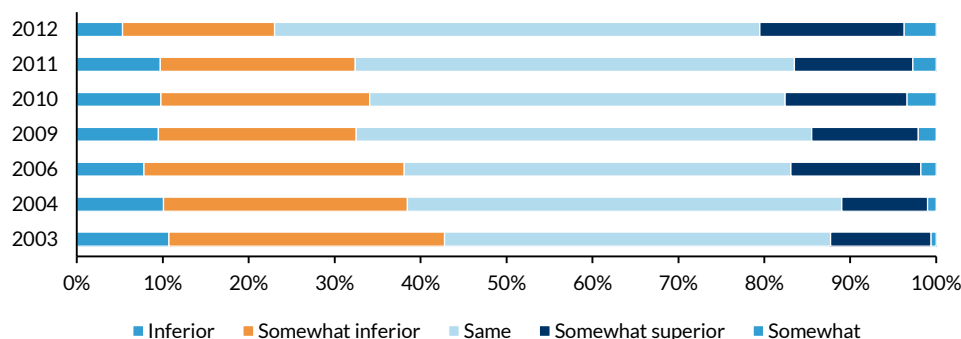
Do online programmes suffer from a student achievement gap?

Although significant progress has been made in terms of quality and efficacy (as reflected in academic leaders' perception of their value compared to on-campus courses; Chart 83), online programmes (particularly fully-online) are still widely perceived as lagging behind campus-based instruction with regards to student retention and completion rates, as they are for instance adversely affected by students' lack of readiness (e.g. inappropriate computer skills, technical hurdles). A token of this scepticism is for example the fact that a majority (53%) of community college educators surveyed in 2013 still explained retention for online classes was inferior to those for face-to-face classes. This in turn weighs negatively on faculty-buy in, which stands at the same level as in 2004⁴, and remains a meaningful barrier to greater adoption of online learning (source: Babson survey).

Upfront investments and relatively long timing to profitability is another important feature of enablers

Online programmes are still widely perceived as lagging behind campus-based instruction with regards to student retention and completion rates

Chart 90: Learning outcomes in online education vs. face-to-face (survey on academic leaders, '03-12)



Source: Babson Survey Research Group, Pearson, Kepler Cheuvreux

Nevertheless, this scepticism contrasts with empirical findings suggesting encouraging signs for online learnings models. An in-depth review conducted by the US Department of Education (2010) of a thousand researches on online learning carried out between 1996 and 2008 concluded that 'on average' online learning programs enabled students to achieve slightly higher performance compare to than those sitting in classes. There is more evidence backing this correlation in higher education than K-12, and more for blended learning programs than fully-online courses. The study however cautiously stressed that

An in-depth review conducted by the US Department of Education on distance learning suggested encouraging signs in terms of impact on students' performance

⁴ Proportion of academic leaders reporting that their faculty accepts the value of online education.

the delivery mode may not be the prime explaining variable, and stressed the potential role played by the richer amount of resources and interactions which were specific to blended learning models studied. As the online sector heads towards some maturity, the pressure for more transparency increases, with more demanding questions being raised about the programme outcomes, which implies more data could come out and help fine-tune and improve the efficacy of the online offering.

Challenges with outcomes assessment

Generally, standards for quality and learning outcomes set by accrediting agencies are similar regardless of the delivery. Nevertheless, while there are strong hopes that the greatest potential of online learning, which is to better understand students' individual paths, has not been yet seen, not many colleges (less than 25%) have appropriate analytics to assess courses or strategic progress.

Risks and opportunities for secure online testing

When it comes to risks, it is feared distance education provides a conducive environment to fraud, abuses, with issues around students' identity, the determination of attendance). These concerns led to a US government audit, which identified in early 2014 the need for measures to prevent them as part of its allocation of funding to students (Title IV of the Higher Education Act Programs).

Competency-based education: a favourite among new models

Innovation in online education offering appears necessary to counter slowdown in enrolments amid a more competitive environment. Among most discussed new models, we points out favorable growth prospects in the foreseeable future for Competency-Based Learning approaches, especially in post-secondary education. CBE's expansion could be supported by legislations (Advancing Competency-Based Education Demonstration Project Act, Workforce Innovation and Opportunity Act) and a value proposition aligning a host of particularly appealing features (more direct connections with employers, no set class meeting times, personalisation, timing flexibility, lower cost).

Bridging the US skills gap: a top national priority

With a projected shortage of 11m workers needed with postsecondary education by 2022 (source: Georgetown University Center on Education and the Workforce), the US labour market is facing an alarming supply-demand crisis (e.g. for STEM professions). This "skills gap" has prompted a growing interest in competency-based learnings, from employers, schools, students and policy makers alike. On the students' side specifically, the tendency to raise the education budget in the midst of a more competitive job market environment means mode demand for this type of offer.

CBE⁵, which awards academic credit based on mastery of clearly defined competency ride over a buoyant trend towards linking learning outcomes, employment and government

Distance education creates an environment conducive to fraud and abuse

Expansion of CBE should be supported by recently enacted legislation (and a value proposition aligning a host of particularly appealing features

The "skills gap": a projected shortfall of 11m workers needed with postsecondary education by 2022

⁵ The Advancing Competency-Based Education Demonstration Project Act of 2014 (which passed the House on 23 July 2014) defines "competency-based education" as an education process that is characterised by the direct assessment and measurement of student learning instead of, or in addition to, measuring students' credit or clock hours.

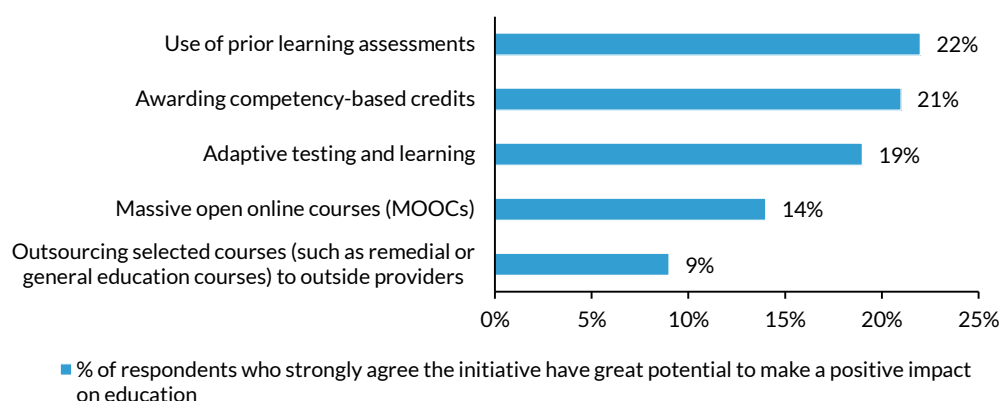
financial aid in higher education, with the step up of cooperation with corporates being a particularly interesting aspect to contribute address this pressing need.

Higher education directors highlight CBE among most promising projects

The potential is reflected in US higher education leaders' views. According to the 2013 reference survey on US higher education school presidents, the awards of competency-based credits is seen as particularly promising among new initiatives, with 21% of all respondents strongly agreeing CBE have a "great potential to make a positive impact on higher education", compared to 15% for MOOCs (source: Inside Higher Ed).

Buoyant trend towards linking learning outcomes, employment and government financial aid in higher education

Chart 91: US higher ed directors' views on the potential of initiatives (2013)



Source: Inside Higher ed

A job-driven approach: better matching learners with employers

While definitions and applied models vary widely, CBE programmes converge in their claims of several benefits compared to traditional approaches, making a case which looks compelling to both sides of the supply-demand to help bridge this skills gap:

- **Disruptive assessment methods within the US context:** CBE involves testing of previous competences acquired during work, periodic assessments looking at progress, likelihood to succeed, and, overall, direct assessment⁶. The latter is a particularly disruptive innovation within the US context as it involves a revamp of the "credit hours" system which is central to the US model, where assessment is attached to seat time and grades. In this respect, it is noteworthy that other markets, such as the UK, have had a focus on competencies rather than seat time for a while.

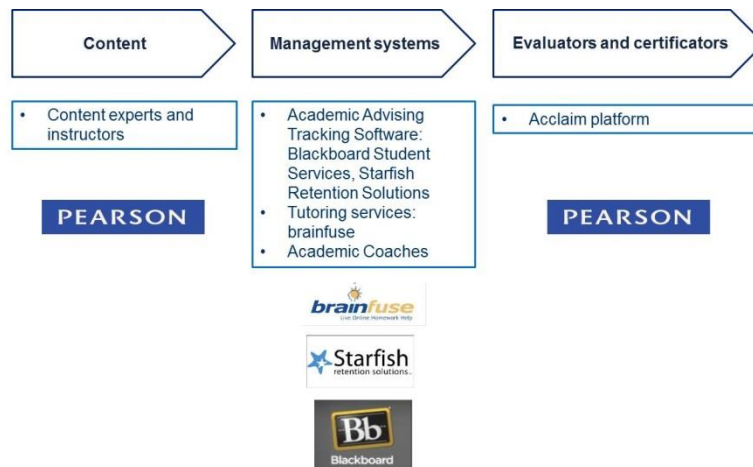
New assessment methods involve a revamp of the "credit hours" system which is central to the US model, where assessment is attached to seat time and grades

⁶ **Federal definition:** A direct assessment program is an instructional program that, in lieu of credit hours or clock hours as a measure of student learning, utilizes direct assessment of student learning, or recognizes the direct assessment of student learning by others. The assessment must be consistent with the accreditation of the institution or program utilizing the results of the assessment. (Source: U.S. Government Printing Office)

- Fostered collaboration between schools and companies across the value chain:** CBE provides an opportunity to connect higher education institutions with business partners, academics, policy makers, accreditors e.g. with publishers when building curriculum design, or when it comes to third party assessments, back-office functions (e.g. learning analytics, IT). Pearson rolled out its new learning model for CBE in July, providing schools with readiness assessment. Market/market test vocational/testing & tutoring (market sizing US versus UK)

CBE fosters more direct collaboration between schools and companies across the value chain...

Chart 92: The CBE value chain



Source: Kepler Cheuvreux

- An associated factor is the focus on targeted learning outcomes supposed to enhance employability**, with a clearly stated objective to help matching students with the relevant competencies and skills needed by employers. The apprenticeship model is attracting increasing attention in the US, driven by German companies (e.g. Siemens, BMW) importing their domestic apprenticeship practices to the US, and being imitated by their US counterparts.
- Personalisation:** CBE are described as “student-centric models”, with an emphasis on non-traditional students e.g. adult learners (working adults, returning adults) and a granularity in the specific objectives integrated in the curriculum which are supposed to meet students’ profiles.
- Timing flexibility:** this implies they can be accelerated degree program (increasingly popular in post-secondary education worldwide) and supposedly enable students to learn at their own pace.
- Lower cost:** They are usually offered at a reduced tuition cost compared to traditional programmes. A community college in Texas offers for example a one-year subscription tuition and fee model of USD750/term, with six 7-week terms a year, for both hybrid and fully online programmes.

...with a focus on targeted learning outcomes supposed to enhance employability

CBEs are usually offered at a reduced tuition cost compared with traditional programmes

Table 26: Differences between competency-based education and traditional approaches

CBE Approach	Traditional approach
Curriculum	
Variable class structure, testing out of subject matter at different levels	Standardised class structure, regardless of prior knowledge
Student Advancement	
Learning	Time
Mastery	Grades (scaled)
Location Indifferent	Location Specific
Individualised	Group-based
Class completion	
Students finish as they are able	End of term
Average time to graduate	
30 months (WGU only)	60 months (WGU only)
Program Delivery	
Unbundled	Bundled (instruction & assessment)
Personalized	General
Mentors	Instructors

Source: Kepler Cheuvreux, adapted from Kentucky Community & Technical College System and Western Governor University

Firm push from schools with low-cost online models to expand the offer

While hundreds of schools reportedly already consider developing CBE, a limited number of schools have jumped in and are elaborating on their approach and progress as they attempt tweaking their offer, with the lower cost online approaches and eligible for Title IV seeing good early developments e.g. Texas A&M University Commerce, Kentucky Community & Technical College System, WGU Indiana, Northern Arizona University (Source: The Parthenon Group). The increase in CBE models using lower costs online models is benefitting Pearson which is forging partnerships with schools.

Going forward, CBE programs are set to develop more and more as it actually changes the delivery model in a way that can address both affordability and potentially quality issues.

Lower-cost online offer and eligible for Title IV seeing good early developments

Table 27: Competency-based models

	Online competency-based models	On-ground competency-based models	Correspondence Schools	Other Credit Bearing Competency-based models
Eligibility	Title IV Eligible (Direct Assessment)	Title IV Eligible	Not Title IV Eligible Correspondence	Not Title IV Eligible
Institutions	Western Governors University, Southern Hampshire University, in Salt Lake City, Utah, UniversityNow	Excelsior College, Westminster College DePaul University	Penn Foster College, Ashworth College	LearningCounts, StraighterLine, Sophia
Enrollment growth	36%	0%	na	na
Annual tuition	USD2.5K to USD6K	USD1K-USD20K	~USD3K	USD750

Source: The Parthenon Group

From “credit hours” to competencies: revolutionising time & accreditation

Although seen as cautious, the Obama administration has been showing recently further support for CBE and more broadly for a more job-friendly approach to education, which involves somewhat shifting away from traditional “credit hours” models (encouragement of CBE demonstration programs) and support to job training programs (the workforce law had lapsed in 2003). The possible evolution in regulations covering credit is central for determining the future of online learning options

The Obama administration has recently been showing further support for CBE and more broadly for a more job-friendly approach to education

Table 28: Latest legislation on CBE and job training

Name	Status	Purpose	Key points
Advancing Competency-Based Education Demonstration Project Act	Bill being examined by the Senate (The House of Representatives approved on July 23)	To establish a demonstration program for competency-based education No more than 20 programs are entitled to grant CBE degrees while partly breaching federal legislation.	No more than 20 demonstration programs are entitled to grant CBE degrees while partly “breaching” federal legislation (receiving waivers).
The Workforce Innovation and Opportunity Act (a key component of the overhaul of the Higher Education Act by small steps)	Became law on July 22	Supporting workforce development system through innovation in, and alignment and improvement of, employment, training and education purposes	Authorizes job training programs for six years and requires them to document how many people are newly employed as a result Overhauls the existing workforce development schemes, including via the introduction of job-related indicators into the federal training support and a specific focus on the middle class. It.

Source: US Congress, The Hill, Kepler Cheuvreux

However, early adopters among US institutions still face substantial challenges to build and scale up their experimental CBE:

- **A secured regulatory environment:** Although there may be hundreds of institutions actively considering using CBE models, the regulatory challenges hamper their potential launch due to the need for department and regional accreditation agencies’ approval. Revamped federal aid rules could help (Source: Inside Higher education).
- **IT and cost issues:** A key success factor is to get the support of LMS, student information system, predictive analytics, CRM. IT integration and faculty buy in may pose a significant challenge as for instance current SIS and LMS are based on a specific time schedule and enrolment systems are still manual. Concerning the impact on the related business model, although they may be seen as more affordable/cost effective, CBE do entail significant costs for the institution. The magnitude of the final cost balance is therefore uncertain.

More broadly, there is host of questions yet unanswered, such as on the relevant organisations which can determine the areas of competencies depending on each field, in the third party conducting the assessment, possible conflicts between different models, or in the employers readiness (although recent findings suggest a clear appetite for the development of such approach).

The regulatory challenges are for the time being hampering their potential launch due to the need for department and regional accreditation agencies’ approval

IT integration and faculty buy-in may pose a significant challenge

Uncertainties on the exact magnitude of cost savings

Open Badges: crafting the accreditation infrastructure for MOOCs

More broadly, accreditations in CBE may be seen as a way to advance open badges (web-enabled version of the traditional credentials) which would give credits for competencies and represent an alternative to traditional diplomas, and interestingly be potentially used by other online education providers such as MOOCs (e.g. Udacity's ongoing nanodegrees experimentation with Georgia Institute of Technology and AT&T).

Learning outcomes: a model particularly difficult to assess

There is greater interest in measuring the effect of the various practical experimentations, which might however imply a change in the existing ways of assessing student outcomes, for instance due to the individualised characteristics of each students' degree (which makes comparisons and generalisations difficult), the variety in students competencies and work goals (e.g. internships, jobs) as the main value proposition lies in linking education to work opportunities. Besides, it is unclear how research on CBE could dissociate the competency components from all other variables in play (e.g. the technology, the favoured educational methods, for instance in terms of the degree of individualisation in the project and curriculum). Lastly, this exercise is made harder by the fact that CBE itself can be perceived as a new approach of defining outcomes (source: Christensen Institute).

Adaptive learning: big promises, big question mark

Adaptive Learning holds a big promise via the potential use of students data to improve instruction, and showcases encouraging benefits from studies on learning outcomes, it remains however to be seen how much of this value proposition (students' data particularly) can be delivered. The scope of AL seems limited for now (predominantly in the US and not yet widespread among programmes). For publishers, this currently looks to be more of marketing added value that may stimulate their existing offers under their wider "personalised learning" umbrella.

Open data: improved instruction holds the largest potential value

Adaptive learning, MOOCs, and other new digital platforms basically bear the promise of using data to better understand students and improve learning objectives

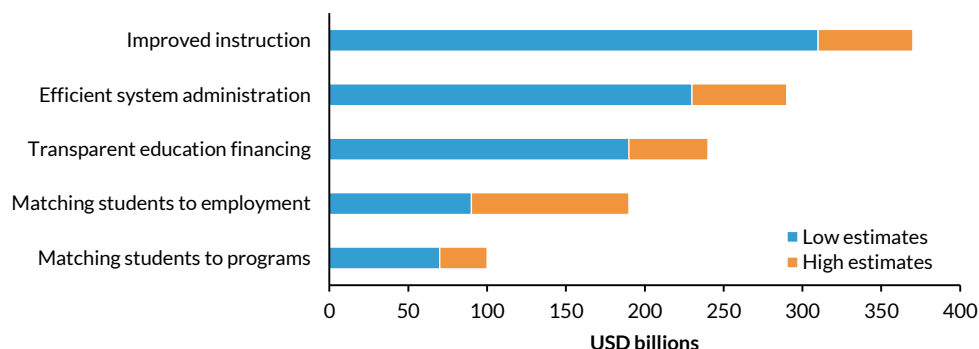
The use of open data in the education sector has been estimated to generate potentially c.USD890bn-1.2trn of value per year (source: Mckinsey), mainly fuelled by efficiency gains in terms of strategies and tools used in the classroom as open data is expected to drive positive changes in a wide string of areas: improved instruction (USD310-370m), matching students to programmes or employment and education financing. Management of student data is indeed valuable from a spending perspective for schools and also opens up opportunities for companies to better target their offer to their customer's base.

Accreditations in CBE may be seen as a way to advance open badges, which would award credits for competencies and represent an alternative to traditional diplomas

Not much is yet available on outcomes achieved, however

CBE itself can be perceived as a new approach to defining outcomes

The use of open data in the education sector has been estimated to generate potentially c.USD890bn-1.2trn of value per year (Source: Mckinsey)

Chart 93: Open data market value per year in education (low-high estimates)

Source: Mckinsey, Kepler Cheuvreux

Using data to inform support for educators and decision-making is a central objective of the USD4.35bn Race to the top. ('using data to improve instruction' is a key part of the State Reform Conditions Criteria'). Data mining and learning analytics⁷ in general is benefitting from schools demand to store and report students data.

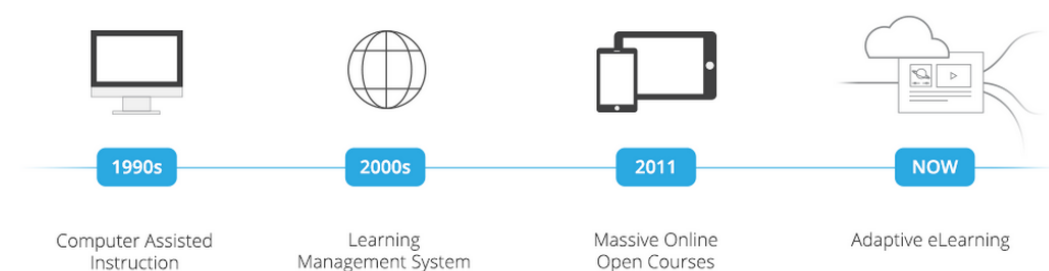
Adaptive learning: could it be the next big thing?

Among the numerous studies and claims on digital solutions benefits, adaptive learning – a term which essentially describes data-driven approaches to learning and assessment which aims at literally adapting learning to the student via the use of software⁸ - has benefitted in the recent period from particular attention from publishers and for profit school chains.

There is a very wide spectrum of adaptive learning offers (content model, maturity and operational environment etc.) supplied by more than 70 companies.

Using data to inform support for educators and decision-making is a central objective of the USD4.35bn Race to the Top

A patchwork of adaptive learning offers (content model, maturity and operational environment, etc.) supplied by more than 70 companies

Chart 94: Evolution of technology in education

Source: Smart Sparrow

⁷ Learning analytics is an educational application of web analytics, a science that is commonly used by businesses to analyse commercial activities, identify spending trends, and predict consumer behaviour (source: NMC's Horizon report)

⁸ Adaptive technology is defined as software that learns and alters itself based on the user's inputs, while allowing for interaction with a broad base of learning styles (source: Fraser Institute).

Chart 95: Mapping of adaptive learning suppliers (illustrative)

SUPPLIER	PRIMARY CUSTOMER SEGMENT TO DATE*	TARGET USER	PRIMARY INSTRUCTIONAL APPLICATION	INSTALLED STUDENT BASE OF PRIMARY USE-CASE**
ADAPT COURSEWARE	• Postsecondary	• Professors • Students	• Whole course delivery	• Small
CEREGO GLOBAL	• Corporate • Consumer	• Executives and employees • Individuals	• Practice aide • Test prep	• Large
COGBOOKS	• Corporate	• Trainers • Knowledge workers	• Whole course delivery	• Small
JONES & BARTLETT LEARNING	• Postsecondary	• Professors • Students	• Homework tool • Practice aide • Test prep	• Small
LOUDCLOUD SYSTEMS	• Postsecondary • K-12	• Professors • Teachers • Students	• LMS • eReader platform	• Small
MCGRAW-HILL EDUCATION (LEARNSMART)	• Postsecondary	• Professors • Students	• Homework tool • Interactive labs • Practice aide • Test prep	• Large
OPEN LEARNING INITIATIVE	• Postsecondary	• Professors • Students	• Whole course delivery	• Moderate
SMART SPARROW	• Postsecondary	• Professors • Students	• Homework tool • Interactive labs • Simulations	• Small

* Represent primary customer segments as of January 2013

** "Small" = < 100,000 users; "Moderate" = 100,000 – 500,000 users; "Large" = > 500,000 user

Source: Education Growth Advisors

Table 29: Adaptive learning suppliers solution models (illustrative)

Company	Business solutions		Instructional model	
	Platform	Publisher	Supplemental instructional resource	Whole course delivery
Adapt Courseware	X		X	
Anewspring	X			X
Cerego Global	X		X	
Cogbooks	X			X
Jones & Bartlett learning	X	X		
Knewton	X			X
Loudcloud systems	X			X
Mcgraw Hill Education (learnsmart)	X	X		
Open Learning initiative	X		X	
Quantum solutions	X	X		
Smart sparrow	X		X	

Source: Education Growth Advisors

This enthusiasm has been fuelled by early positive signs of positive impact from a number of researches, particularly those from the frontrunner adaptive learning company, Knewton, an infrastructure platform which counts 4.1m students in 120 countries (Over USD100m has been raised), which has for instance shown via dedicated studies with several universities potential significant rise in pass rates in Knewton courses.

The frontrunner adaptive learning company Knewton, an infrastructure platform, has 4.1m students in 120 countries (over USD100m has been raised)

Table 30: Knewton's impact on math readiness at schools (experimental programs)

School	Traditionally	With Knewton	Program
Arizona State University	64%	75%	Developmental math s
University of Alabama	70%	87%	Remedial math courses
University of Nevada Las Vegas	66%	85%	Summer math program

Source: Knewton

In terms of target audience, Knewon began with pilot projects in test prep in higher ed and today works with a wide range of publishers and digital learning companies across the education market spectrum and ecosystem, licensing its technology (e.g. K-12, higher education, vocational training). Some key aspects of its development:

- Pearson's MyLab/Mastering offerings (11m student registrations in total for both products in 2013, +9% YOY) are now powered by the Knewton Adaptive Learning Platform (eleven subjects for more than 200 products).
- Recently, in the academic publishing space, Reed Elsevier announced in June that it is trying Knewton's adaptive learning solutions, which would mark the company's entrance into health sciences.
- Knewton is also lining up a product to reach out directly to students, teachers and parents.
- In terms of regions, Knewton is setting up an office in London and has global ambitions.

Knewon began with pilot projects in test prep in higher ed and today works with a wide range of publishers and digital learning companies across the education market spectrum and ecosystem

Among success stories in the realm of educational assessment and learning analytics integrating adaptive learning (e.g. computer adaptive reading test), we would point out the US company Renaissance Learning, which was bought for USD1.1bn by private equity company Hellman & Friedman in May 2014. RL is specialised in cloud-based assessment, teaching, and learning solutions in K-12 and already hosts data for over 38,000 students and reading, and records for nearly 11m US students (source: Education Investors). Google Capital had previously invested USD40m in RL and was expected to keep a minority stake post-acquisitions.

The Apollo Group's bet on adaptive learning

The Apollo Education Group (which owns Phoenix University) built its adaptive learning offer via a mix of acquisition and product development:

- Apollo paid USD96m for Carnegie Learning, a publisher of math curriculums, and related technology. Carnegie Learning's adaptive math software is dubbed Cognitive Tutor, and it is developing a Cognitive Tutor application for English classes, with an eye on helping students improve their grammar and writing (Source: Inside Higher Education).

- The total infrastructure including the new CRM, portal, and administrative systems in the new learning platform is USD1bn.

Table 31: Schools adaptive learning experimentations

School	Details
Career Education Corporation	Career Education Corp. has started one of higher education's broadest experiments with adaptive learning. Institutions in the for-profit chain have powered more than 300 online course sections with the emerging technology, and enrolments in those courses have topped 11,000 students. Career Education's American InterContinental University reported positive results from an experimental experience using adaptive learning programs in English and mathematics.
American Public University System	PUS has begun incorporating the technology into the instructional design of some of its courses, all of which are online.
University of Phoenix	Phoenix has used a different form of adaptive technology in automated personal study guides for 50 of its courses. Those "Knowledge Checks" steer students to materials to help them brush up on learning concepts. Knewton collaborates with Arizona State University in a broad effort to "power" university courses with adaptive software.

Source: Inside Higher edx

While several publishers have their adaptive learning platform in-house (e.g. Carnegie Learning, McGraw Hill, Newscorp. /Amplify), most others have opted for partnerships with startups, enabling them to incorporate adaptive learning into their existing products

Two models: in-house (McGraw Hill) versus outsourced (Pearson)

While several publishers have their adaptive learning platform in-house (e.g. Carnegie Learning, McGraw Hill, Newscorp. /Amplify), most other publishing companies have opted for partnerships with startups (e.g. Career Education with CCKF, John Wiley & Sons with Snapwiz), enabling them to incorporate adaptive learning into their existing products. Pearson cumulates for example connections/partnerships with at least four adaptive learning companies (Knewton, Adapt Courseware, Dub Labs, Smart Sparrow).

Table 32: Focus on McGraw-Hill Education's adaptive learning offer (LearnSmart Advantage Suite)*

LearnSmart Advantage Suite	Details
Overview	LearnSmart (initially launched in 2008), is the adaptive product line for McGraw-Hill Education (1m new users in 2012 alone). McGraw-Hill Education embeds its LearnSmart adaptive platform into e-textbooks. Inside Higher Ed McGraw-Hill has built upon the widespread adoption and use of the LearnSmart product to expand the platform; in January 2013, the Company announced the LearnSmart Advantage suite with four additional offerings: SmartBook, LearnSmart Prep, LearnSmart Labs, and LearnSmart Achieve
Funding	The technology has been funded exclusively by McGraw-Hill via an exclusive development relationship with Area9. In January 2013, the Company announced it had acquired a 20 percent equity stake in Area9.
Business model	McGraw-Hill offers LearnSmart in its Connect homework manager platform; fees for its use are included in the overall price when a professor and/or institution adopt Connect. LearnSmart is also offered as a stand-alone product with two different price points based on one- or two-semester use. Pricing for the LearnSmart solution – across both models – varies based on the subject area adopted; e.g., LearnSmart is more expensive in a chemistry course than in a sociology one. McGraw-Hill also established a performance-based fee model in 2012 through its relationship with Western Governors University. The deal involves a flat fee per student for a suite of McGraw-Hill instructional resources and includes a premium fee for each student who uses the materials (e.g., LearnSmart) and passes the course.
The Company also introduced a direct-to-student model for LearnSmart in the summer of 2012.	

* McGraw Hill broadened its offer by acquiring ALEKS Corporation in 2013 (McGraw-Hill Education continues to sell ALEKS as a standalone solution over the near term, but the company plans deeper integration between ALEKS and its content and digital platforms)

Source: Education Growth Advisors

Table 33: Knewton's partnerships with publishers and learning companies (e.g.)

Publisher	Date	Details
Sanoma (Malmberg)	Apr-14	Sanoma Learning plans to use the Knewton API to create adaptive learning experiences for products developed by its Dutch publisher Malmberg. The first adaptive learning courses powered by Knewton will be made commercially available to teachers and pupils in the Netherlands in 2015 following rigorous field-testing
Houghton Mifflin Harcourt Pearson	Nov-12	Launch in June 2014 of HMH Player for Google Chrome and iPad, an app which enables offline access to content, allow students and teachers to collaborate in real time, and offers the opportunity to enhance HMH content through extensive customisation tools
	Oct-11	MyLab (4.8m registrations, +4% in H1-2014)/Mastering offerings are powered by the Knewton Adaptive Learning Platform (eleven subjects for more than 200 products). Usage continues to grow strongly (11m student registrations in total in 2013, +9% YOY). Evaluation studies show that the use of MyLab programmes, as part of a broader course redesign, can significantly improve student test scores and institutional efficiency
Elsevier	Jun-14	Starting with courses for nursing and health professions students, Elsevier will use Knewton's infrastructure to power personalized digital solutions that continuously adjust to each individual's unique learning needs.
Gyldendal	May-14	Gyldendal will use Knewton technology to power digital math products. Gyldendal's Smart Øving Powered by Knewton will provide personalized learning experiences for primary and secondary students.
Adaptive curriculum	Mar-14	Adaptive Curriculum will integrate Knewton technology into its innovative web-based math and science lessons for grades 5-12. Adaptive Curriculum's rich interactive library has been honoured with numerous recognitions, including five CODiE awards from SII
Microsoft	Mar-14	Microsoft plans to introduce its vast partner and publisher ecosystem to Knewton so these partners can leverage the Knewton API and create learning experiences that adapt to each student. Microsoft can also introduce Knewton technology to Ministries of Education, with the goal of streamlining nationwide deployments of adaptive learning material. Microsoft can also introduce Knewton technology to Ministries of Education, with the goal of streamlining nationwide deployments of adaptive learning materials
Cengage learning	Jan-14	Cengage Learning will integrate Knewton adaptive learning features into select higher education products across Management and Sociology disciplines.

Source: Knewton

Focus on Knewton's model: a platform for digital learning companies

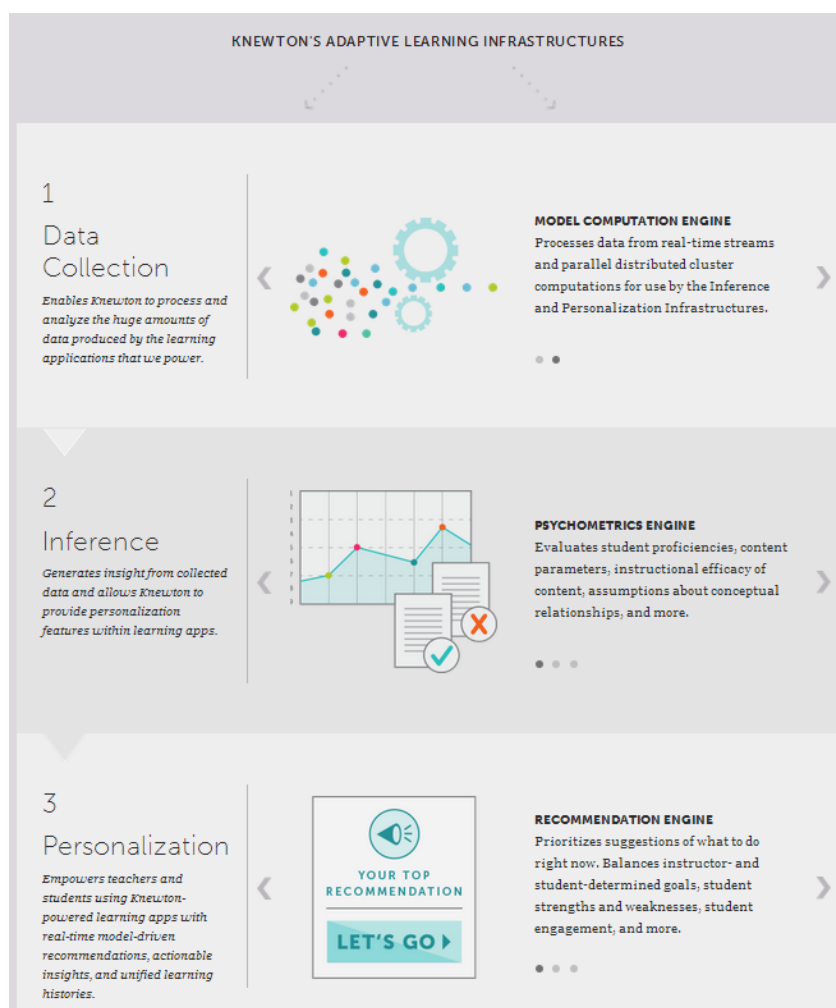
Knewton enables companies to conduct periodic assessments and evaluations of students' online, leading to real-time adjustments to the content being learned. The point for publishers is to use Knewton to transform digital content into a personalised experience.

Knewton provides an infrastructure platform that allows others to build powerful proficiency-based adaptive learning applications (NB: sophisticated and expensive models which can estimate what students know, how prepared they are for further instruction or assessment, and how their abilities will evolve over time). Knewton technology consolidates data science, statistics, psychometrics, content graphing, machine learning, tagging, and infrastructure in one place in order to enable personalized learning at massive scale. Knewton allows partners to create adaptive experiences for any type of content, in nearly any subject matter, for every student. Partners can use the Knewton platform to enhance existing digital products, or build new solutions using the Knewton framework. Other apps connect to the platform via an enterprise API, continuously sending anonymized data to Knewton and receiving data back in the form of activity recommendations and analytics metrics. Analysis of data allows Knewton to provide instructors with answers to questions like:

- Exactly what concepts does a student know, at exactly what percentile of proficiency? (Proficiency goes much deeper than a single test score, taking into account content difficulty, a student's past and predicted future performance, and many other data points.) Was an incorrect answer due to a lack of proficiency, or forgetfulness, or distraction, or a poorly worded question, or something else altogether? Of all the educational goals facing a student across an array of courses or subjects, what should she focus on right this moment?
- What is the probability that a student will pass next week's quiz, and what can she do right this moment to increase it? (A quiz is an arbitrary example here for a goal an instructor sets in place to observe what a student is learning.)

Source: Knewton

Chart 96: The three pillars of Knewton's adaptive learning infrastructures



Source: Knewton

Market opportunity and investment returns: low visibility

Adaptive learning is often presented as the most advanced phase for technology adoption, and also the one where returns on education are supposed to start becoming substantial due to improved efficiencies and cost savings (source: The Parthenon Group). However, there is no evidence yet that this value proposition can materialise.

When it comes to the business model for adaptive learning specialists, is suspected that Knewton is loss-making in its individual partnership and the platform could in total cost way more than USD100m (Cognitive Learning was bought for USD96m). There was also speculation that Knewton's value was USD150m when it totalled USD54m in fund raising in 2011.

Although there are no market estimates, we reckon that it remains fairly small as it is mostly confined to English-speaking markets, and primarily a US phenomenon. Adaptive learning involves outsourcing lessons to software kits, which would encounter substantial reluctance from teachers (with the software effectively substituting some of their tasks e.g. tutoring). Only a couple of suppliers already have a substantial installed base of users (>500,000) e.g. Cerego Global, McGraw-Hill Education (Learnsmart).

- The level of readiness and potential to embrace such an offer in the US is more substantial, at both ends of the teacher quality spectrum, poor teachers relying on curriculum, and US teachers looking to integrate more sophisticated approaches.
- The challenge elsewhere lies less on the demonstration of the effectiveness than in getting teachers' buy-in, reflecting the importance of teachers' readiness and motivation in the success of an educational model.
- There is also a perceived complexity due to a patchwork of adaptive learning offers.

Software curriculums already pervasive in K-12

In K-12, we highlight mounting teacher and student awareness and comfort in adopting a classroom-based software curriculum (as exemplified by Scholastic's Read 180's success).

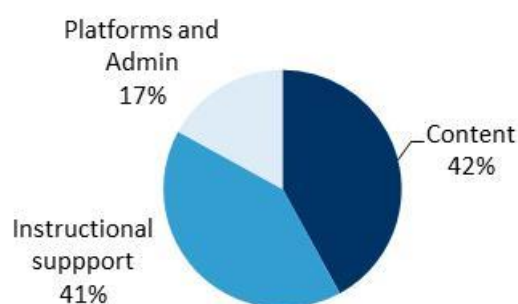
A c. USD3bn software market in Pre-K-12 (c. 40% of total non-hardware)

The software and digital content market in Pre-K-12 only grew slightly in 2012, from USD7.8bn to USD7.9bn (c. 80% of schools' total IT spending in K-12 as of 2014), with predictions suggesting a slowdown in the strong momentum for testing and assessment (the most substantial category), while the general appetite for personalised learning solutions is expected to support the market (source: SIIA).

The overall market for software specifically in K-12 (USD3bn during the 2011–2012 school year) is benefitting from schools' budget being reallocated to other spending than contents.

No evidence yet that the investment return value proposition can materialise

The market looks small for now as it is mostly confined to English-speaking countries

Chart 97: Pre-K-12 Ed Tech extrapolated market segments (2012)

Source: SIIA

When it comes to the funding landscape, the level of investor interest in companies providing various digital products to K-12 has increased accordingly over the past three years, with cumulated deals funding climbing from USD13m in 2010 up to USD262.1m in 2013 (source: Capital IQ, GSVEdSurge, CB Insights, CrunchBas, Bill & Melinda Gates Foundation).

Scholastic's Read 180's: a success story among instructional materials

Among specific classroom-based software curriculums having reached a substantial scale and seemingly exemplifying relatively robust evidence of a significant positive impact on educational outcomes, Scholastic's Read 180 (a comprehensive system of curriculum, instruction and professional development targeting reading intervention) stands out from both a revenues and educational value perspective. It claims to be the '*the most thoroughly researched reading intervention program in the world*', with the many studies conducted encompassing at least 60,000 students, and has proved especially popular. Scholastic expanded its product range last year, and for the fiscal year 2014 MATH 180 became the most successful product rollout, boosting the results of the Educational technology and services business segment (14% of Scholastic's fiscal 2014 revenues).

Scholastic's Read 180 stands out from both a revenue and educational value perspective

Table 34: Efficacy studies on software (examples)

Product	Company	Short description	Authors	Date	Findings from pilots and experiments on learning outcomes
Read 180	Scholastic	A comprehensive system of curriculum, instruction, assessment, and professional development proven to raise reading achievement for struggling readers in grades 4–12+.	Kim, Capotosto, Hartry & Fitzgerald,	2011	Significant increase in reading achievement
Cognitive Tutors	Carnegie Learning (Apollo Group)	Intelligent tutoring systems (step-by-step guidance to students in complex problems solving activities).	Ritter, Kulikowich, L ei, McGuire and Morgan,	2007	Increased math achievement levels
Destination reading	Houghton Mifflin Harcourt	Supplemental integrated learning system (ILS) developed by Riverdeep. It includes lessons in phonemic awareness, phonics, vocabulary, fluency, and comprehension for children in grades K-3	Slavin, Lake, Alan Cheung, Susan Davis	2009	Insufficient evidence of Effectiveness
Writing to read	Carnegie Learning (Apollo Group)	Writing to Read (WTR), originally developed by IBM but now distributed by Bright Blue Software, is a computer-based program created to develop the writing and reading skills of K-1 children.	US Department of Education	n.a.	Unproven results
Waterford Early Learning	Pearson	Supplemental self paced CAI program designed to develop kindergartners' and first graders emergent literacy skills. Its activities include letter recognition, phonemic awareness, vocabulary and comprehension	Nielsen, Sunmonu	2012	Unproven results

Source: Best evidence, Sholastic, Carnegie Learning, Houghton Mifflin Harcourt, Pearson, VMwire, New York Times, Kepler Cheuvreux

The challenge to build consensus on educational value

Assessing accurately the evidence of the educational value of specific software used at school is difficult, on the whole and when considering specific technologies, given the differences in technology types, methodology, local factors, etc. There are widely varying results from studies displayed in companies' communication when compared to findings from independent research such as What Works Clearinghouse, the initiative of the US Department of Education which reviews studies of software used in education using standardised test scores and looking at their impact on maths and reading achievement.

Many opportunities on the horizon for mobile Education

There are plenty of growth drivers across the board, for the USD3.4bn mEducation market, which is already quite mature in the US.

Mobile education gaining momentum: a USD38bn global market in 2020E

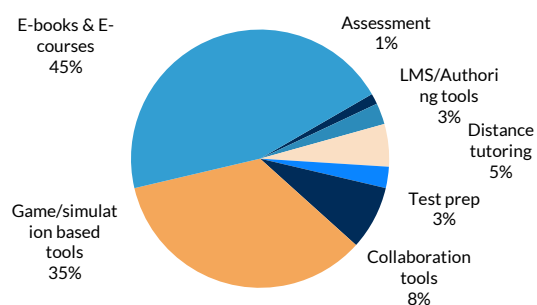
The USD3.4bn "mEducation" market worldwide represents a tiny fraction of total expenditure in education (USD4trn) but looks promising (USD38bn in 2020E for mEducation products; excluding the sale of devices), with plenty of growth drivers across the board, such as:

- Greater government support, for example via programs financing mobiles devices for schools.
- Rising mobiles adoption (c. 45% global penetration for personal mobiles for children aged 10).
- Educational, apps' proliferation (over 80,000 educational apps are already provided by Apple, Android, BlackBerry and Windows). (source: GSMA).

mEducation value drivers: content is king

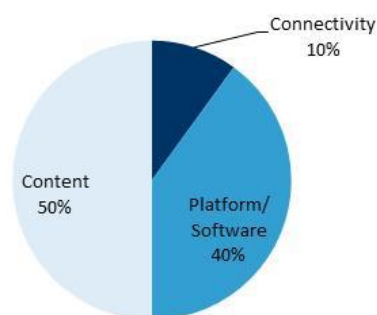
mEducation products cover the whole spectrum of the education market. Higher ed and K-12 are dominant segment-wise (75-80% of expenditure) while in terms of product and assessment, represent half of the projected market (45% for e-books and e-courses). Less formal tasks (e.g. educational apps) also open up new opportunities.

Chart 98: 2020 mEducation market by product



Source: GSMA (excluding device sales), Kepler Cheuvreux

Chart 99: 2020 market for mEducation by value driver



Source: GSMA, Kepler Cheuvreux

A snapshot of the business model: do carriers compete with publishers?

As connectivity represents the tiniest chunk of the market (10%), some carriers have opted for the end-to-end mEducation provider model e.g. Telefonica has set up its own online learning business unit named Telefonica Learning Services which is made up of educators and target all customer segments.

Table 35: Main business models

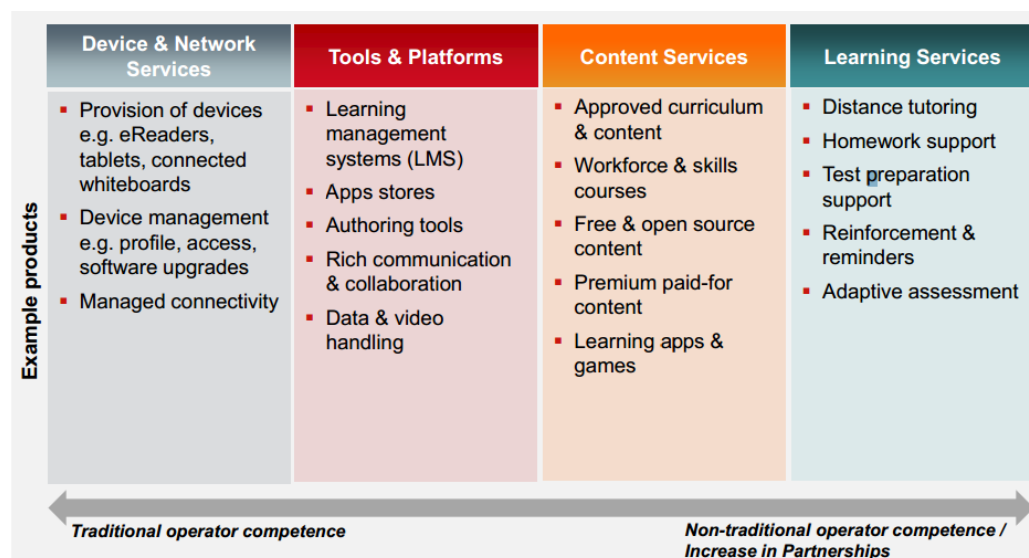
Solutions	mEducation Product or Service Delivery		Distribution	Target Customers	Business Model		Impact on learning outcomes
	Operator Role	Partners & Roles			Charging Model	Business Model with Partners	
'mEducation for Schools' solution	The mobile operator delivers the end-to-end solution, covering devices and device management, connectivity, LMS platform and learning content. The service is operator branded	Content supplier – supplies education content; LMS vendor – licenses the LMS to the operator; Device vendor – sells devices to the operator	The solution is marketed to both individual schools and Regional School Supplier Organisations (RSSO). All schools belong to an RSSO which maintains a list of pre approved education services.	Primary schools (with students ages 5-18) in the country, including state, independent and private schools.	Schools are charged an annual license fee per user type covering devices, content and connectivity. Each device comes with standard monthly mobile data included with charges for over-limit data usage.	Revenue share agreement with content provider; Operator pays LMS vendor license fee per user; Operator pays devices vendor per device	Students: latest learning material at fingertips both in and out of classroom, collaborative tools; Teachers: variety of teaching materials to choose from, can personalise lessons and track individual and overall class progress
Proposition for 'Learning English' solution	Teachers: variety of teaching materials to choose from, can personalise lessons and track individual and overall class progress	Content Provider – provides language content to the operators	The service is distributed directly to consumers who can sign up for the service on-line or in a retail store	Aspirational youth (15-35) who wish to improve their English to enable further employment opportunities.	Users are charged a fixed price per module of content. Users on the service operator's network are offered a significant discount compared to users from alternative networks	Operator pays the content provider revenue share per module of content purchased	Students: learning material provided on feature phone on-demand; ability to revise past lessons 'Learning English'
Collaboration Platform' solution	The operator runs the collaboration platform	None	None	In the education sector, the target customers are on-line learning and training institutions	The institutions are charged based on number of active users on the platform as well as volume of different message types generated each month.	N/A	Students: collaborative platform where they can converse, message, share files and other content with teachers and other students

Source: GSMA,

Content providers can also team up with carriers (e.g. In July 2011, SK Telecom launched "T Smart Mobile Learning Platform"—offers premium high-quality content from the major educational publishers in South Korea; source: Ambient Insight).

Content providers can also team up with carriers

Chart 100: mEducation product landscape



Source: GSMA

Carriers in Europe are also stepping into the market e.g. in K-12 for Orange (pilot) and TI, although they seem at a very experimental stage.

Table 36: Orange and TI's commercial projects in K-12 in Europe

Company	Education segment	Country	Project	Launch	Description	Status	Model
Orange	K-12	France	Tablette Elève Nomade	2011	Cloud-basedFirst trial involving 3G environment to allow and the whole control tablet computers to and management be used by 300 system (300 children learners aged 11-12involved). Commercial pilot project launched in 2014		na
Telecom Italia	K-12	Italy	TimCollege	2014	The solution offers a tablet 10" with 3G connectivity, a bundle of data traffic from 2 GB and a series of educational content in digital format dedicated to children between the ages of 14 and 18 years. The price is 10 euro per month for Telecom Italia fixed clients	It was launched in July, TI charges parents' credit cards (as for other offers) and has a revenues share agreement with some of the most important contents owner in Italy (e.g. DeAgostini, Hoepli)	

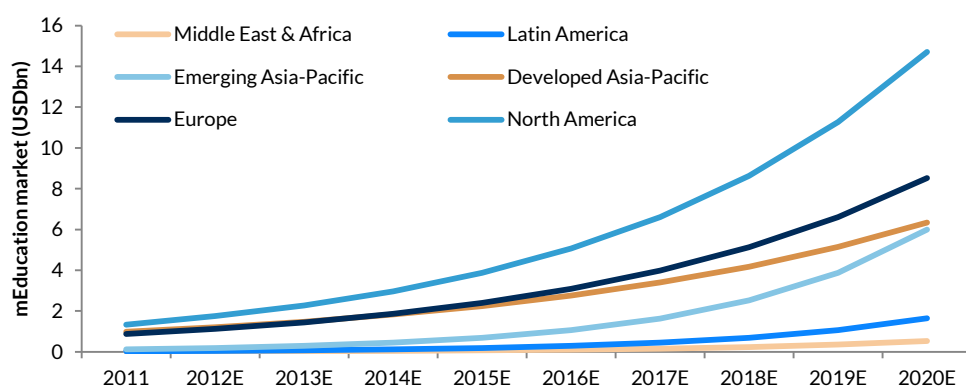
Source: Orange, Telecom Italia

Mobiles in the US: New delivery channels

With a USD1.4bn value, North America is the second biggest market in revenues globally (the first market is Asia) with most of the sales coming from the US, where stiff competition and pricing counter revenues growth (6.1% growth rate). Policy-wise, the US government's latest plan for high-speed internet connectivity via ConnectEd whose funding earmarked breaks down into USD2bn of public funding via the FCC with a view to connect 20m students and USD750m from the private sector.

US the largest market, where, however, stiff competition and pricing counter revenue growth (6.1% growth rate)

Chart 101: mEducation market growth by region (USDbn)



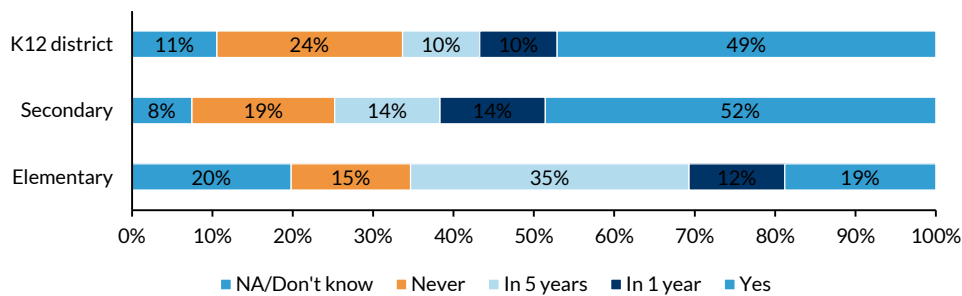
Source: GSMA, Kepler Cheuvreux

BYOD use in K-12 prompted mobile surge

The broad rise of BYOD (Bring Your Own Device) or BYOT (Bring your Own Technology)⁹ policies, meaning more students can bring their personal technologies into school, has prompted a significant rise in the use of mobile devices in class, which are currently authorised by about half of K-12 District and secondary schools in the US (source: SIIA) and reportedly used by 25-30% of students when provided by the school (source: Project Tomorrow). Two key obstacles to mass adoption are safety and district liability (e.g. students managing to access non-educational contents on tablets) and inequalities between students in device access.

The broad rise of BYOD policies, meaning more students can bring their personal technologies into school, has prompted a significant rise in the use of mobile devices in class

⁹ BYOD, also referred to as BYOT (Bring Your Own Technology), refers to the practice of people bringing their own laptops, tablets, smartphones, or other mobile devices with them to the learning or work environment (source: NMC). BYOD is a common mobile implementations among others (Learning apps, Online courseware, 1:1 initiatives, eBooks)

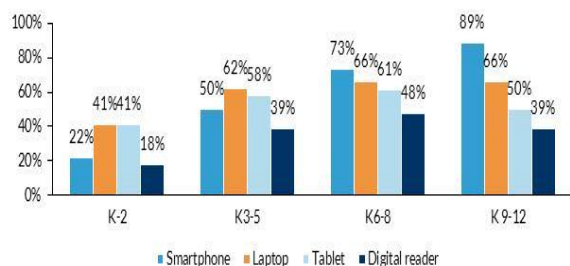
Chart 102: Use of BYOD: K-12 schools authorising mobile devices in the US (2013-14)

Source: Kepler Cheuvreux, SIIA

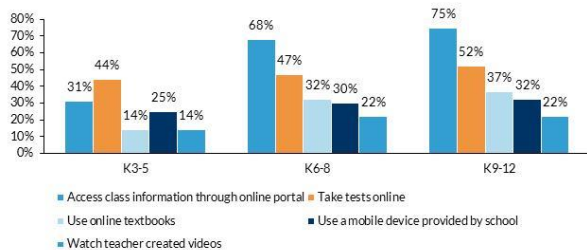
Actual use: a third of K6-12 US students use technology to access e-books

While online videos remain the most widely used digital content in the classroom, about a third of K6-12 US students use technology to access e-books. As regards the different products which are widely distributed (tablets, digital reader), it remains unclear which one will reach first mass adoption in the classroom.

As regards the different products that are widely distributed (tablets, digital readers), it is still unclear which one will reach mass adoption in the classroom first

Chart 103: K-12 students' personal access to mobile

Source: Project Tomorrow 2014, Kepler Cheuvreux

Chart 104: Students' use of technology

Source: Project Tomorrow 2014 (Students' Use of Teacher-Facilitated Technology in the Classroom), Kepler Cheuvreux

Latest trends: tablets shipments slowdown, Chromebooks making inroads

Shipments of notebooks passed the 2.4m mark as of August 2014 (YOY growth of 12%) supported by the adoption of Chromebooks in education (85% of Chromebook's 2013 revenues; source: Gartner) while tablet shipments dropped by nearly 10% in Q2-2014 amid rising competitive pressure (source: Futuresource consulting), with Los Angeles' districts cancellations of large iPad order (640 000) in August being the latest setback for Apple.

A total of 3.5m tablets are nevertheless projected to be bought by US schools by the end of the year, while schools prepare for the new online state exams as part of the Common Core standards implementation (40 states concerned for states scheduled in H1 2014).

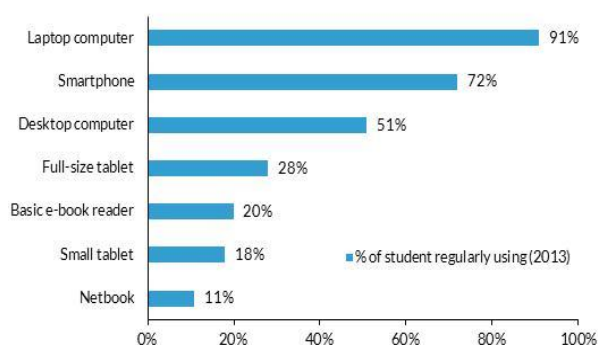
Shipments of notebooks passed the 2.4m mark in August 2014 supported by the adoption of Chromebooks in education, while tablet shipments dropped

Mobiles in higher ed: tablets have yet to convince for mass adoption

Beyond K-12, there is a push from students themselves, with tablet ownerships among college students rising too (25% of college students and college-bound high school seniors; Source: Pearson). With laptops by and large dominating the market and use, the actual usage of tablets for educational purposes is still limited as they haven't proved their case with regards to their added value when it comes to any tasks involving more than reading and accessing digital file or content.

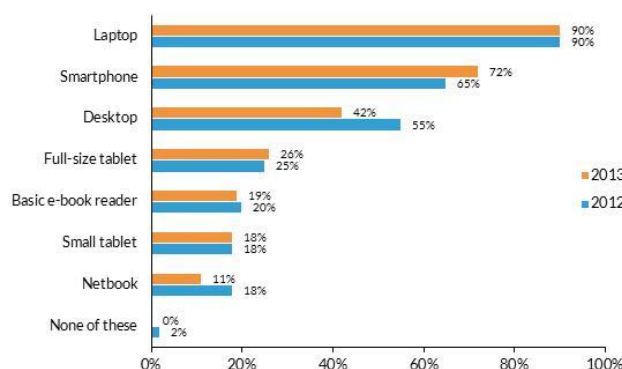
With laptops by and large dominating the market and use, the actual usage of tablets for educational purposes is still limited as they haven't yet proved themselves in terms of added value

Chart 105: College students device usage (2013)



Source: Pearson, Kepler Cheuvreux

Chart 106: College students device ownership (2013)



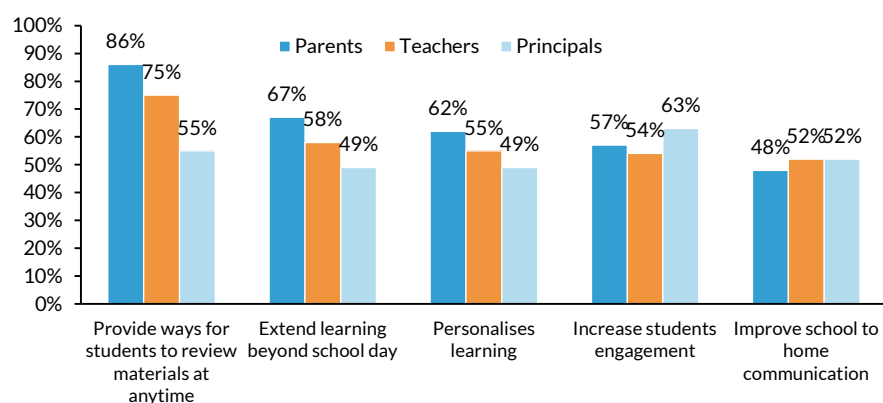
Source: Pearson, Kepler Cheuvreux

Amplify's bet on tablets (in partnership with AT&T, they were launched in March 2014 for a price of USD199), which provides contents aligned with the Common Core, has not yet led to the disclosure of numbers showing signs of success.

Learning outcomes: access unverified, unintended consequences to watch

The main benefits of mobile learning centre on the access to content at any time, and rooms for personalisation. Data on practical achievements are however, particularly scarce, at this stage. As regards the prospects for a greater use of mobiles in the classroom, inequalities are a top concern to see more districts embracing mobile learning. Additionally, we would stress some concerns related to their use among children, such as addiction or adverse impact on their concentration (e.g. reports have underscored that they present learning challenges for students).

Inequalities is a top concern for seeing more districts embracing mobile learning

Chart 107: Benefits expected of mobile learning

Source: Blackboard

4) Emerging markets: the second future

Emerging markets are lagging the US on 1) the availability of private “premium” educational options (mostly in K-12), as well as 2) on the technological side. Private providers typically spearhead the use of technology in education (e.g. online education in US driven by private higher education providers). This is especially the case in emerging markets where the government has limited funds and therefore prioritises investments to increase capacity and access. Emerging markets offer high growth potential for publishers, we have here examined the opportunities for Pearson and Prisa specifically.

Emerging markets through the lens of Pearson

NB The following section on industrial opportunities in Emerging Markets for Pearson has been developed in partnership with Abhinav Mital, Partner at the Parthenon Group in Singapore (contact: abhinavm@parthenon.com). All views on specific stocks and industrial assets mentioned in this report belong to Kepler Cheuvreux analysts.

Upselling from private education and technology

Technology can be a big enhancer of access in emerging markets, but is currently limited by telecom/ internet infrastructure. Once a technology is available, emerging markets tend to “crash the timetable” and adopt them very quickly, according to Abhinav Mital.

Technology in developed countries is about giving access to education to people who were not previously able to enrol in education. This is not because students lacked access to educational options, but rather due to other socioeconomic issues such as working hours, pace of completion, etc., Technology has given them the desired flexibility to continue education at their own terms as well as in some cases, made it more affordable (MOOCs for instance). In emerging markets, the role of technology is still to be determined but there is opportunity to use it to increase access as well as increase the quality of education and the number of available options for the existing student population.

The constrained public budgets in some emerging markets (Brazil, India, Africa, etc.) have driven some governments to stimulate the more efficient private schools to develop the skills required by the country. In turn, private education has spearheaded the penetration of technology. While public schools in emerging markets tend to prioritise the number of student enrolled over quality, private schools are the first to adopt new tools, and can command a premium in the market, according to industry consultant Abhinav Mittal, at The Parthenon Group.

Brazil’s public policies paved the way for private for-profit schools in the nineties, and the sector since then has seen high growth, especially in post-secondary education. Private enrolments currently represent 75% of higher-ed students. Malaysia’s private higher education sector also account for 55% of the total, but these schools are growing at twice the rate of public schools. In K12, the share of private sector is usually much lower (Brazil is ~16%, while many developing markets in Asia and Africa <10%), and limited to very elite groups of people who can afford private schooling. However, in almost every market, the private sector is taking share from the public sector across segments driven by increasing affordability as well as increasing competitiveness of private operators to deliver on student outcomes.

Emerging markets are lagging the US on 1) the availability of private “premium” educational options (mostly in K-12), and 2) on the technological side

In emerging markets, the role of technology has yet to be determined but there are opportunities to use it to increase access, the quality of education and the number of available options for the existing student population

Brazil: expect 5% underlying market revenue growth in 2014-17E

Brazil is Pearson's second-largest emerging-market presence after China. In Brazil, Pearson operates the "Sistema" schools and digital platforms, as well as the market-leading English language teaching "Grupo Multi", and Wall Street English.

Outlook for "Sistema" remains supportive. "Sistema" schools and digital platforms are well positioned to exploit the surge in private education. While 2013 registrations at Pearson's Sistemas were down by 7% to 497,000 YOY, part of this is likely to be related to local elections creating swings in contracts. The slowdown is likely to be temporary, in our view.

The underlying market for private school services in Brazil is likely to continue growing by c. 5-7% in the coming years YOY, according to Parthenon's Abhinav Mital, as private education reaches the more under-penetrated territories in northeastern Brazil. There is also an element of consolidation in the market, as the largest players benefit from a scale advantage. Pearson could easily identify more acquisition targets in the area (

Going forward, Pearson could develop its business to address a working student population, a market which is currently being pioneered by Anhanguera (not owned by Pearson).

English language teaching (ELT) in Brazil a long-term opportunity Pearson's Grupo Multi, acquired in late 2013 for GBP440m (10.5x EV/EBIT) is the largest ELT provider in Brazil. Brazil is the one of the largest English-language education markets, worth about GBP2bn, according to Pearson. The second largest operator is Wise Up, purchased by Abril PE funds in early 2013 for 10x EBITDA at USD448m). Only 2-4% of Brazilians can speak the language, compared with at least 10% in Mexico and developing economies in Asia, according to Abril at the time of the acquisition.

Asia: expect 8% organic revenue growth in 2014-17 driven by China

The ELT market in China is driven by affluent clients and is a strong growth market. Wall Street English is a lifestyle product as well, due to its brand. Pearson's Wall Street English enrolments did not grow much across the globe in 2013 (+0.3%), but the company confirmed to us that China is still posting "double-digit" growth and has not experienced any slowdown recently.

Global Education and Technology Group saw very strong growth in registrations in 2013 (+19% YOY to 1,306,000). Pearson's outlook on the business remains strong, and its competitor New Oriental recently reported better trading following a deceleration last year, as the strategy focused on more tailor-made, richer ("VIP") preparation courses.

India remains a very tough market to crack, due to the very cheap content and widespread photocopying of content. Pearson recently secured a teacher-testing assignment from the Central Board of Secondary Education, as part of an ongoing partnership. Still, the government is very price-sensitive, and contracts in the field are not rich. Some opportunity in India comes from supplemental materials in K-12, while in higher education piracy is widespread.

Prisa's golden asset: Santillana in LatAm

We reproduce here the view of our Head of Iberian Research (Inigo Egusquiza Castellanos; iegusquiza@keplercheuvreux.com) on Prisa's opportunities in education in LatAm via its publishing arm: Santillana.

A dominant player

Santillana enjoys a dominant market share and scale in Latin America, with a much larger scale than its global educational peers (EUR600m sales in 2013, 2x Pearson Education or McGraw-Hill) as well as local educational players (larger than Anhanguera, Estácio, Abril or Kroton Educacional).

Positive outlook supported by digitalisation

Since 2008 Santillana has positioned itself to take advantage of digital educational trends by building the first unique digital platform (Sistema UNO Internacional). It launched the platform in Mexico in 2011 (more than 100,000 students in the first two years), and Brazil and Colombia in 2012 (more than 50,000 and 20,000 respectively, in the first year). The future looks bright, given the following: 1) basic education is key for families; 2) further investments are likely in private education, linked to economic growth in order to meet ambitious targets; 3) fast growing student populations should continue to drive robust demand for books; 4) printed books are less threatened by PCs and mobile devices than in developed markets; and last but not least 5) learning systems have emerged that have been proven to improve test scores (explaining their increasing weight within the private sector, reaching close to 40%, versus less than 5% in the public sector in Brazil). This is a huge opportunity for Santillana, considering that Brazil's schools are split 85% public and 15% private.

The digitalisation process (Learning systems, Sistema UNO Internacional, and Compartir, the last of which was a lighter version of the more advanced one) is taking slightly longer than expected (USD400-500 a year per school equipment versus less than USD250-300 for the traditional system), but expectations of value creation and maximising EBITDA contribution are very promising, in our view. The reasons are a lower number of students than previously expected in Mexico (a full new learning system has to be implemented in the country) and a slightly tougher than expected competitive environment in Brazil (the system has existed there for 60 years). These are two different markets, and Prisa has created two different commercial networks. The good news is that Prisa is not seeing any cannibalisation impact on the implementation of the learning system, as the school targets are completely different.

According our estimates, Sistema Uno Internacional might double Santillana's 2014 EBITDA margin of 25% starting in year four. The agreements with schools are for four years, and the renewal rate should be high, considering customer satisfaction and corresponding switching costs.

Santillana Compartir is a light version of the UNO Internacional system (intermediate system), which basically introduces the educational digital world rather than an alternative educational proposal. Santillana signs contracts with the schools for three years in exchange for a subscription. It was already launched in 2013 in Brazil, Colombia and Mexico, reaching close to 200,000 students and obtaining very promising numbers.

Since 2008 Santillana has positioned itself to take advantage of digital educational trends by building the first unique digital platform (Sistema UNO Internacional)

On our estimates, Sistema Uno Internacional could double Santillana's 2014 EBITDA margin of 25% as from year four

Mobile's bright prospects in emerging markets

The fastest growing markets, with good momentum for VAS

With a 20%+ CAGR in Asia, Africa, LatAm, there is massive scale for mobile learning in emerging markets. Mobile learning value-added services (VAS) products (e.g. mHealth, literacy, and "agro" educational content) are growing exponentially e.g. 200m subscribers in Asia (source: Ambient Insight).

With a 20%+ CAGR in Asia, Africa, LatAm, we see massive potential for mobile learning in emerging markets

Chart 108: mEducation applications

	Schools	Higher Education	Workplace	Skills & Employment	Lifelong Learning
Formal Learning	Connected Class/School Out-of-school Education Teacher Training	Connected Lecture Halls / University Distance Education	Compliance Training & Assessment Workforce Development	Vocational Training MOOC	Distance Learning MOOC Badges
	Collaborative Learning Assessment, Electronic Certificate wallet Secure Access, Registration, financial systems Communication systems } System Automation				
Non Formal Learning	Supplemental Learning Distance Tutoring Exam Preparation	Distance Tutoring Exam Preparation MOOC	Enterprise University	Career Information Job Search Expert Gateways	Clubs/Communities Knowledge Acquisition e.g. Search & MOOC Crowdsourcing Platform
Informal Learning	Secure Social Spaces	eBooks MOOC	Intranet based social / Community Platforms	Employment Clubs	Social Media Rich Communication Services Community Platforms

Source: GSMA

Africa and Middle East a small pocket, mobile can become an opportunity

The penetration of mobile education through smartphones is a great longer-term opportunity for enablers in Africa (as well as in modern and highly committed countries such as South Korea) where students would be ready to pay a premium for exclusive access to educational content through mobile devices.

Learning outcomes: mixed results in EMs

The potential social impact of Mobiles looks particularly meaningful for developing countries with regards to improved access for the low-income customers. Studies conducted have showed mixed results, though, on the potential for improved educational outcomes.

The penetration of mobile education through smartphones is a great longer-term opportunity for enablers in Africa

Studies have shown mixed results, though, on the potential for improved educational outcomes

Table 37: Main studies on mlearning impact on educational outcomes in emerging markets

Report	Authors	Date	Geographical scope	Findings
ABC, 123: The Impact of a Mobile Phone Literacy Program on Educational Outcomes	Jenny C. Aker, Christopher Ksoll and Travis J. Lybbert	2010	Niger	Overall, students demonstrated substantial improvements in literacy and numeracy test scores, suggesting that the adult literacy curriculum is effective in increasing learning.
Using Mobile Phones to Improve Educational Outcomes: An Analysis of Evidence from Asia	John-Harmen Valk, Ahmed Rashid and Laurent Elder	March – 2010	Asia	There is important evidence of mobile phones facilitating increased access, much less evidence exists as to how mobiles promote new learning

Source: Kepler Cheuvreux, Pearson

European carriers' projects: broadly experimental

While European operators' mEducation activities look still predominantly at an exploration/pilot among other digital commerce and services priority segments (e.g. mhealth), and confined to philanthropic projects, some carriers have been building up dedicated commercial offers, e.g. Millicom rolled out in July this year its low-cost mobile education brand (EdMe), beginning with English language training in Rwanda.

On the whole, there is a wide variety of numerous mlearning initiatives in EMs, increasingly coming from companies with commercial ambitions while it used to be mostly non-profit projects with a dominant focus on vocational training, supplementary information. Typical offering is a kind of application using basic features, e.g. to improve language skills, and charging a fee.

Opportunity to step up impact investments in education

There is no shortage of statistics on unmet educational needs globally. Education is part of the extensive list of UN Millennium Development Goals (MDGs) set to be missed by 2015, with the objective of providing Universal Primary Education (UPE) still out of reach according to the latest data, showing that 57m children still not enrolled in primary schools (of whom 31 million girls). Beyond existing government spending, there is an estimated growing shortage of USD26bn in financing per year (versus USD16bn in 2010) which would be needed to provide basic lower and secondary education by 2015 (source: UNESCO).

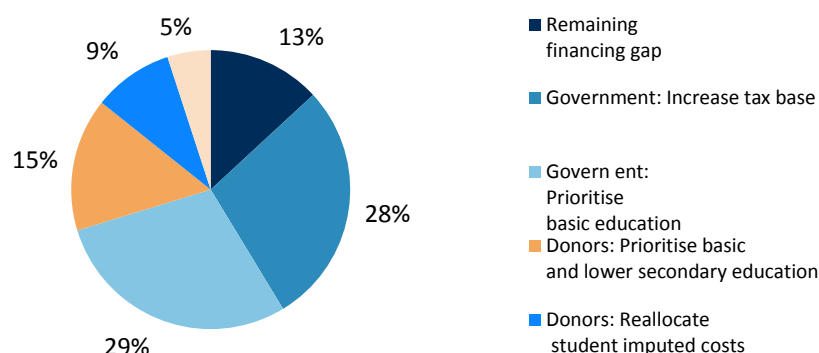
Only USD126m of the total amounts invested in basic education, however, currently come from private corporations and foundations. While various sources of private capital and resources could play a meaningful role in boosting this number and help to bridge this education financing gap, we highlight here the case for stepping up impact investing initiatives, and outline two particular – and very distinct – possible types of intervention:

1. Direct or indirect investments in education delivery (mostly schools) and student finance for underserved populations in emerging and developing markets.
2. An innovative financing mechanism in partnership with public authorities, social impact bonds or SIBs, in developed markets, focusing on disadvantaged young people.

Some carriers have been building up dedicated commercial offers, e.g. in July this year Millicom rolled out its low-cost mobile education brand (EdMe), beginning with English language training in Rwanda

UN Millennium Development Goals (MDGs) to provide Universal Primary Education (UPE) set to be missed by 2015

Two distinct types of possible intervention

Chart 109: Breakdown of USD26bn financing gap to meet the “Education for All” goals by 2015

Source: UNESCO, Kepler Cheuvreux

A sector neglected by impact investors

Impact investing¹⁰ is a term coined to name investment strategies primarily motivated by the positive social impact they may drive, with a focus on the most underserved sections of society, who can be referred to as the “base of the economic pyramid” (or BoP¹¹). In other words, impact investing approaches stand somewhere in the investment spectrum between philanthropic and purely commercial approaches.

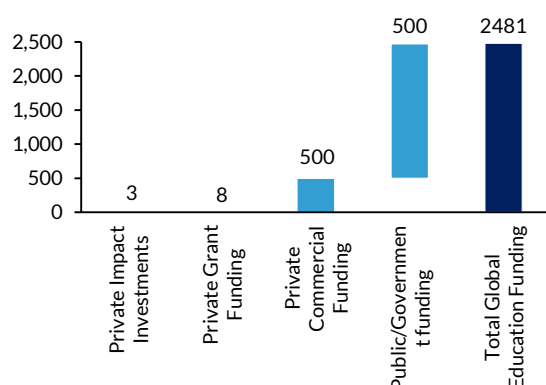
While impact investing has gained ground among investors (USD10.6bn invested in 2013; source: J.P. Morgan, GIIN) and policy-makers (the G8 Social Impact Investing taskforce released its recommendations to prop up the market on 15 September 2014), education has nevertheless so far attracted limited interest from this investment niche¹², with a mere USD3bn devoted globally compared with USD2.5trn of total funding in education (source: Open Society Foundation).

The education market has so far attracted relatively limited interest from impact investors

¹¹ The base of the economic pyramid is commonly defined as people earning <USD8/day in purchasing power parity (Source: WRI and IFC).

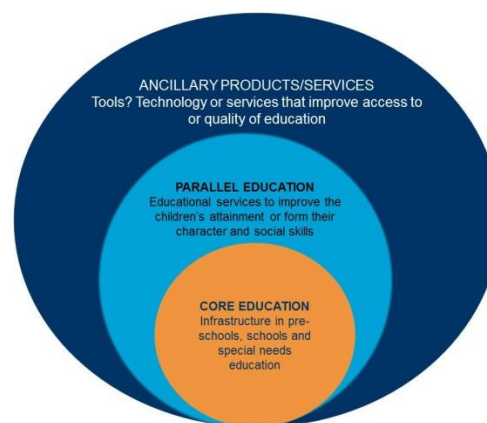
¹² Impact investments are commonly defined as ‘investments in companies, organisations and funds with the intention of generating measurable social and environmental impacts alongside a financial return. Impact investments can be made in both emerging and developed markets, and target a range of returns from below-market to market rate, depending on the circumstances’ (source: GIIN). Development finance institutions, family offices and HNWIs have been typical sources of funds for impact investing but a growing number of institutional investors are entering – or looking to enter – the space. See also our report *Investors’ Impact Integrated* = I3 (November 2013).

Chart 110: Global education funding (USDbn)



Source: D. Capital Partners, Open Society Foundation

Chart 111: Education market segments



Source: Impact in Motion, adapted from Kaizen Private Equity

A lack of opportunities amid a widespread perception in many markets that education is no place for the private sector has played a significant role in deterring impact investors from expanding in education, with a mere USD1.4m targeting the sector in 2013 (3% of total impact investing AuM), according to the latest and most comprehensive survey conducted on a sample of this market (source: GIIN, J.P. Morgan).

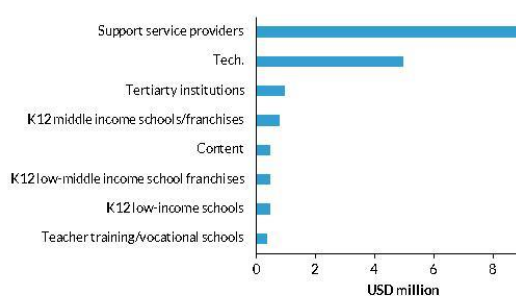
While not challenging the fact that ensuring provision of basic education is the prime responsibility of governments, there is a growing sense that private companies and impact investors could in many useful ways help accelerate efforts to tackle the alarming shortages of education services and capacity. The case for a change is supported by the general context of education, namely constrained governments budgets compounded by the development of innovative commercial approaches addressing underserved customers in emerging and developing countries (so called “inclusive business models” e.g. low-cost private schools).

For now there are still typically few tiny impact investing deals taking place (with an estimated size of USD0.5-5m), mostly in schools, and via three types of intermediaries (technology VC funds, education financing companies and bank loan facilities; source: D. Capital Partners, Open Society Foundations).

Widespread perception in many markets that education is no place for the private sector...

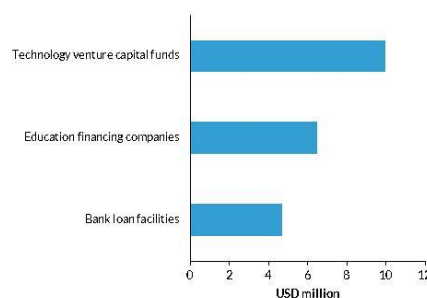
...but we sense a growing awareness that impact investors could in some useful ways help accelerate efforts to tackle the alarming shortages of education services and capacity

Chart 112: Typical deal size: direct investments



Source: D. Capital Partners, Open Society Foundations

Chart 113: Typical deal size: indirect inv't



Source: D. Capital Partners, Open Society Foundations

Among impact investors involved in education, their profiles can be broadly divided between different groups:

- Those with education-dedicated portfolios (e.g. First Education Holding) and those with education as one of their targeted sectors (e.g. Sequoia Capital).
- As in the rest of the impact investing market, there is a wide range of investors, with “impact-first” investors (social impact is the priority, a trade-off can be made with regards to financial returns) and “financial-first” (the prime objective is financial returns). Each focus has implications on the targeted customers group, with the former more likely to target businesses serving the more impoverished customers (typically foundations) while the latter would look more at the middle to low-income groups (bigger funds and institutional investors).

Table 38: Investors by targeted beneficiaries

Targeted beneficiaries by income level	Investors
Upper-middle income (>100+/day)	AfricInvest, FirstEducation Holdings, Fanisi
Middle income (USD20-50/day)	Sequoia, SONG, IFC, GroFin
Low income (<20/day)	Gray Ghost, Eleos, Omidyar, Echoing Gree,
Low income BoP (USD3-5/day)	
Subsistence (USD1-3/day)	Acumen, Dell/Hewlett/MacArthr, Rockefeller
Extreme poverty (>USD1/day)	Foundations

Source: D. Capital Partners, Open Society Foundations

Opportunities in emerging markets: student finance and low-cost schools

The market estimated potential for impact investment in education at USD5-10bn, with profits of USD2.6-10bn. Based on our review of multilateral development banks' portfolio (IFC & IDB's Opportunities for the Majority or OMJ) and recent developments, we would emphasise here two particular types of inclusive business models¹³ that could complement the public sector role in useful respects:

- Low-cost for profit schools e.g. Bridge International academy providing high-quality-education for low-income groups in Kenya (low cost network of K-12 schools).
- Student finance: non-banking financial institutions (NBFIs) mulling models providing fairer terms for students (e.g. Eduloan in South Africa or Ideal Invest in Brazil), notably tied-to-job programmes (Source: The Parthenon Group).

The market estimated potential for impact investment in education at USD5-10bn

¹³ This term refers to sustainable business solutions that go beyond philanthropy and expand access to goods, services, and livelihood opportunities for low-income communities in commercially viable ways (source: WBCSD).

Table 39: Inclusive business models (education in emerging markets)

Organisation	Country	Key data on the size, recent fundings	Short description
Schools			
Bridge International Academies	Kenya	USD16m raised with the IFC and CDC in January 2014. 95k students enrolled	Low-cost network of nursery and primary schools in Kenya
Colegios Peruanos	Peru	Raised USD15m with the IFC in 2012	Network of private schools (K-12 in impoverished parts of Lima)
Faculdade Mauricio de Nassau	Brazil	na	Post-secondary education provider targeting low- and middle-income students
Students finance			
Eduloan	South Africa	c.50k-80k students in tertiary education per year	Non-banking financial institution specialised in education finance
FINAE	Mexico	US12m+ raised with the IDB in 2011, 2012	Financial institution specialised in providing educational loans to middle- and low-income students
Ideal Invest	Brazil	Raised USD7.5m with the IFC	Non-banking financial institution
Laudex	Mexico	Raised USD10m from the IDB. Objective to reach 14,000 low-income students by 2018	Financial institution that offers student loans to students at the base of the pyramid
Trustco Finance	Namibia	40,000 active students	Microfinance institution that offers student loans

Source: IFC, IDB

We have nonetheless low visibility on the detailed profiles of the beneficiaries (with a breakdown by income level) or the profitability of these businesses. We would estimate the latter as fairly limited in the case of low-cost commercial schools, although they arguably constitute commercially viable business models given multilateral development banks' criteria.

As regards other possible subsets, although technology could open up new promising options, there seem to be few opportunities at this stage (poor deal activities).

Publishers' inclusive business: Pearson's USD15m fund

Pearson set up a specific fund focusing on underserved customers in developing countries. The USD15m Affordable Learning fund, which was launched in 2012, specifically targets investment in companies serving the BoP, and totals five investments, including a primary school provider (Spark Schools) and an Indian edtech startup (Zaya Labs).

Social impact bonds: innovative financing tool targeting education (DM)

In Western markets, jobs reinsertion, unemployment and improved education have been central themes of the first wave of social impact bonds (e.g. GBP2m "It's All About Me (IAAM)" in the UK and USD13.5m New York State's bond target directly education improvements), a new financing tool created to leverage private capital to improve the effectiveness of public social services.

To define our terms, "social impact bonds (SIBs) are designed to help reform public service delivery. SIBs improve the social outcomes of publicly funded services by making funding conditional on achieving results. Investors pay for the project at the start, and then receive payments based on the results achieved by the project" (source: UK government). SIBs were introduced in the UK, which has already seen 14 SIBs launched and others in development, and then expanded to other markets, primarily the US. More SIBs could be created come on the back of supportive policies e.g. President Obama earmarked USD200m in the Federal budget to pay for outcomes from social impact bonds (source: Social Finance).

Table 40: Active Social Impact Bonds and Social Impact Bond Funds (illustrative, not exhaustive)

Commissioner/Enabler	Area/Name	Size	Date of launch	Country	Theme	Description
SOCIAL IMPACT BONDS						
Social Finance UK, Big Lottery Fund, Ministry of Justice	Ministry of Justice/Peterborough Prison	GBP5m	2010	UK	Offenders released from prison	Aims to reduce re-offending among men who are released from Peterborough Prison
Essex County Council, Big Society Capital, Bridges Ventures	Essex County Council/Essex	GBP3.1m	2012	UK	Children at risk of going into care	Helps vulnerable young people avoid care or custody and stay safely at home with their families.
Consortium of Voluntary Adoption Agencies, Big Society Capital, Bridges Ventures	It's All About Me (IAAM)	GBP2m	2013	UK	Disadvantaged young people	The voluntary adoption agencies will actively seek families for harder-to-place children, matching their training to the child, and crucially, will offer the necessary training in therapeutic parenting and 24-hour support during the first two years after placement to optimise the effectiveness of the parenting and reduce the risk of breakdown.
Social Finance, The Young Foundation	Greater London Authority/GLA Homelessness	GBP5 m	2012	UK	Homeless people	The programme would target sustainable improvements in the lives of entrenched rough sleepers, as well as contributing to the Mayor's 2012 goal
na	Manchester City Council/Manchester SIB	na	2014	UK	Disadvantaged young people	Its aim is to transform the lives of adolescent children who are looked after by the local authority. It focuses on young people aged 11-14 with the highest level of need who are placed in residential care and young people in foster placements who are at risk of entering residential care.
Goldman Sachs, Bloomberg Philanthropies, MDRC	New York City	USD9.6m	2012	USA	Offenders released from prison	Aims to reduce recidivism among young men exiting the Rikers Island corrections facility.
Goldman Sachs, Bloomberg Philanthropies	Utah/Utah High Quality Preschool Social Impact Bond (US)	USD7m	2013	USA	Disadvantaged young people	Increase enrollment in a high-quality preschool programme in order to reduce the need for special education and remedial services
Social Finance US, Bank of America Merrill Lynch	New York State	USD13.5m	2013	USA	Offenders released from prison	Expand access to a workforce development programme for formerly incarcerated individuals in order to boost their employment rates and reduce repeat incarceration
Goldman Sachs	Massachusetts/The Massachusetts Juvenile Justice Pay for Success Initiative	USD18m	2014	USA	Offenders released from prison	Scales up a programme delivered by a local service provider, Roca, to reduce recidivism and improve employment outcomes for young men at high risk of reoffending
Westpac Institutional Bank, Benevolent Society, Commonwealth Bank of Australia	Westpac Social Benefit Bond/New South Wales	ASD7m	2013	Australia	Disadvantaged young people	Reducing the number of family breakdowns and children placed in the foster care system
ABN Amro, Start Foundation	Rotterdam	EUR680k	2013	Netherlands	Disadvantaged young people	Tackle youth unemployment in Rotterdam

Source: Social Finance, Big Society Capital, Goldman Sachs, Bridge Ventures, Triodos Bank, UK Government, Kepler Cheuvreux (* note the UK government decided to Government's decision to restructure the provision of probation services nationally, which let the Ministry of Justice to announce on 24th April 2014 that it would bring the Peterborough pilot to a close early

Table 41: Active Social Impact Bonds and Social Impact Bond Funds (illustrative, not exhaustive)

Commissioner/Enabler	Area/Name	Size	Date of launch	Country	Theme	Description
SOCIAL IMPACT BOND FUNDS/IMPACT FUNDS						
Bridges Ventures, Big Society Capital	Bridges Social Impact Bond fund	GBP14m	2013	UK	Various	Invest in bonds for charity and social enterprise programmes designed to produce social outcomes in areas such as education, employment, housing and care for vulnerable young people.

Source: Social Finance, Big Society Capital, Goldman Sachs, Bridge Ventures, Triodos Bank, UK Government, Kepler Cheuvreux

(* note the UK government decided to restructure the provision of probation services nationally, which led the Ministry of Justice to announce on 24th April 2014 that it would bring the Peterborough pilot to a close early

5) The dark side of technology

The use of technology fuels new risks and concerns for companies and society alike. For technology solutions, obstacles to scale comprise data privacy concerns, including attempts to use student data to improve educational quality (e.g. both adaptive learning and MOOCs could allow a huge amount of data on students to be collected).

Our impression is nevertheless that tensions over data privacy and security, while far from being eradicated, may become increasingly manageable if governments and companies step up their efforts to show greater transparency and consistency, which could ease concerns over misuse of student data, such as for advertising rather than educational purposes.

Data privacy and security: mounting concerns over misuse

Over the past few months the US government and several States toughened regulations covering data privacy as part of a move to ease tensions following controversies expressed over Google and InBloom, a non-profit company backed by the Bill & Mellinda Gates Foundation.

The social acceptance challenge of data collection & use in schools

The Common Core Standards initiative has spurred investments from schools in software to examine student performance, fuelling opportunities for companies like InBloom, a non-profit data aggregator which offers to cut the costs of assessment services via a standardisation of data collection, storage and security. In what looked like landmark cases on fears related to cloud-based, open-source system's use of students data, the edtech software market suffered however a blow in April 2014 when InBloom revealed it intended to close down following privacy and security concerns raised among parents.

The InBloom setback sparked greater scrutiny over data privacy

Among over 400 data areas, it was alleged InBloom was collecting some sensitive information, such as Social Security Numbers, children's family connections and motives for modifications in enrolments (e.g. disease, incident). As parents expressed concerned about the misuse of those information and several schools subsequently opted for stopping using InBloom amid parents and regulatory pressure as some States like New York rolled out regulation banning the transfer of data to companies from state department of education. Iwan Streichenberger, InBloom CEO, acknowledged the acceptance challenge was undervalued "Building public acceptance for the solution will require more time and resources than anyone could have anticipated" (Iwan Streichenberger, InBloom CEO).

Google embroiled in controversies around its education business

At the end of the same month, Google reacted to rising concerns related to its own practices by issuing a statement announcing it would cease scanning student Gmail accounts for Google Education Apps (>30m users worldwide) and would not gather or use students' data for advertising objectives. With more recent allegations emerging during the summer that Google is contemplating the launch of online accounts for children aged between 13, while it is launching its new K-12 education product (Google classroom), worries surrounding the role of technology in the classroom and associated data privacy and security issues arising, particularly for younger children, are not set to fade soon.

Privacy concerns are among the top barriers curbing the adoption of technology and new models, and more specifically the potential use of students' data to improve educational quality

Recent concerns expressed over Google and a non-profit data aggregator InBloom

Google reacted to rising concerns related to its own practices by issuing a statement announcing it would cease scanning student Gmail accounts for Google Education Apps (>30m users worldwide)

Microsoft had already vowed to not use any students' data for commercial purposes. We nonetheless don't foresee a major risk there as this would be too damaging for their business prospects to use data on children.

The backdrop: cloud-based services on the rise in schools

With outsourcing from schools on the rise, a host of software tools (mostly SaaS) have now become prevalent in K-12 schools. Pearson has for example its own paid Administrative and Student Information Services (SIS): Powerschool, which assist teachers in the handling of students' attendance, grades and timetables data (3m users in 70 countries). The company has rolled out student databases or school-work tracking software for PCs or mobiles and is therefore facing expectations to display best practices in terms of data privacy and security policies.

A host of software tools (mostly SaaS) have now become prevalent in K-12 schools

Table 42: K-12 Edtech Cloud Service ecosystem (illustrative, not exhaustive)

Company	Product	Pricing model	School/district approval required	Extensibility	Mobile integration
INFRASTRUCTURE AS A SERVICE					
Amazon	Amazon Web Services	Paid (per virtual server, per hour)	Yes	Not applicable	None
COLLABORATION AND IDENTITY PLATFORMS					
Google	Google Apps for Education	Free	Yes (Google verifies ownership of the domain name associated with the school or district)	Additional services through Google Apps Marketplace, third party applications can use Google accounts for identity management, third party applications can be downloaded through Google Play for Education, can connect to existing user databases on school- or district-owned computers	Android and iOS apps available for most services; school-owned Android devices (e.g. Chromebooks) can be centrally managed; managed tablets available for use with Google Play for Education
Microsoft	Office 365 for Education!	Freemium (Google verifies ownership of the domain name associated with the school or district.)	Yes	Can connect to existing user databases on school- or district owned computers	Android and iOS apps available
ADMINISTRATIVE AND STUDENT INFORMATION SERVICES (SIS)					
Pearson	Pearson PowerSchool	Paid (license negotiated at school or district level)	Yes	Data import/export possible via Schools Interoperability Framework data standard.	Android and iOS apps available for data input (teachers and administrators) and viewing (students and parents)
BloomBoard	BloomBoard	Paid (license negotiated at school or district level)	Yes	Continuing education content available from BloomBoard-curated 'marketplace'; student/class metadata can be imported from other student information databases	Web portal is optimized for iPad and Android
Illuminate	Illuminate	Paid (license negotiated at school or district level)	Yes	Data import/export possible	None
LEARNING MANAGEMENT SYSTEMS (LMS)					
MyBigCampus	MyBigCampus	Free	No	Can integrate content that other teachers and schools have designated as shareable. Can use Google Apps for Education to manage identity	Android and iOS apps for students and teachers. Mobile-optimized web interface
Desire2Learn	Desire2Learn	Paid (free to try; license negotiated at school or district level)	No	Programming interface allows third parties to create apps that can be embedded into Desire2Learn's interface	Android and iOS apps for students and teachers
Edmodo	Edmodo	Free	No	Third-party applications available in Edmodo store	Android and iOS apps for students and teachers

Source: The Berkman Center for Internet & Society (Isaac Meister, Alicia Solow-Niederman)

Table 43: K-12 Edtech Cloud Service ecosystem (illustrative, not exhaustive) - continued

Company	Product	Pricing model	School/district approval required		Extensibility	Mobile integration
CLASSROOM FEEDBACK TOOLS						
ClassDojo	ClassDojo	Free	No	None	Android and iOS apps available	
Socrative	Socrative	Free	No	None	Android and iOS apps available	
STUDY AND ASSESSMENT TOOLS						
Quizlet	Quizlet	Freemium (paid teacher-only accounts remove inline advertising for students)	No	Content can be embedded into web pages and LMSes	Android and iOS apps available	
Voki	Voki	Freemium (student-teacher interactive features are paid only)	No	Content can be embedded into web pages and LMSes	None	
Turnitin	Turnitin	Paid (license negotiated at school or district level)	Yes	Integrable into most LMSes, including Desire2Learn	iPad app (for teacher grading)	
PARENT-TEACHER COMMUNICATION TOOLS						
MommaZoo!	MommaZoo!	Freemium (school-level accounts incur fees)	No	None	Mobile device-aware web interface+N30. Android and iOS apps available	
Chalk	Chalk	Free to try (trial accounts are manually vetted by Chalk for standing)	No	None	Mobile device-aware web interface	

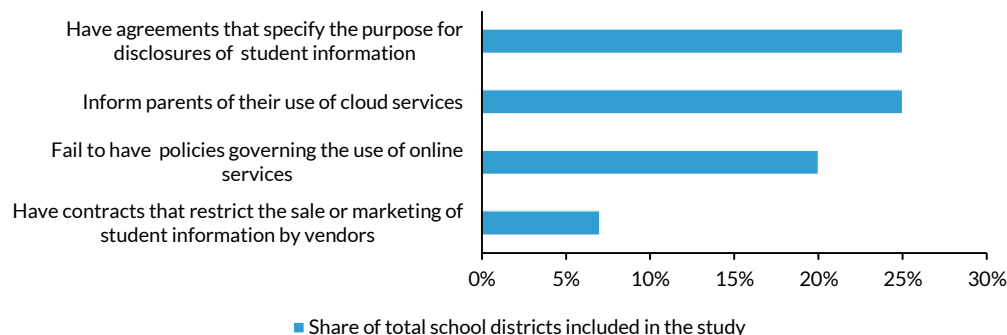
Source: : The Berkman Center for Internet & Society (Isaac Meister, Alicia Solow-Niederman)

A problematic context (1/2): schools' policies are lagging

Schools are struggling with the use of cloud services, with policies falling short of expectations. A 2013 report by the Fordham School on US school districts' use of cloud computing suggested a clear lack of safeguards, appropriate policy and measures.

A 2013 report by the Fordham School on US school district's use of cloud computing suggested a clear lack of safeguards, appropriate policy and measures

Chart 114: Key findings from a study on privacy and cloud computing in US public schools

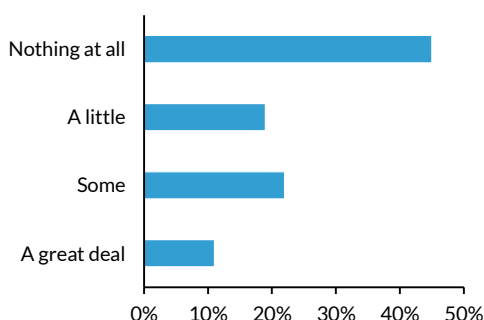


Source: Fordham Law School, Kepler Cheuvreux

A problematic context (2/2): parents' awareness is lagging too

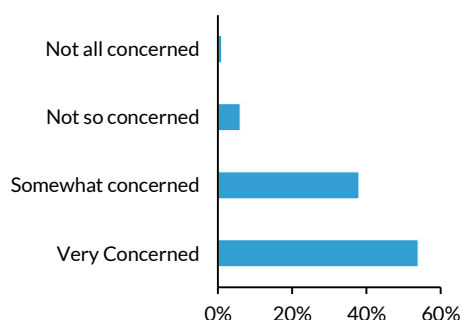
Parents lack awareness and are highly sceptical about the use of data, as highlighted in the findings of a 2013 SafeGov survey on US parents. Most parents felt companies and schools should directly prohibit online tracking.

Chart 115: Awareness of online tracking (US)



Source: Kepler Cheuvreux, SafeGov (How much have you seen, read, or heard about online advertising companies tracking the email and Internet usage habits of children while at school?)

Chart 116: Concern about online tracking (US)



Source: Kepler Cheuvreux, SafeGov (How concerned you would be if online advertising companies were tracking the email and Internet usage habits of your child while at school?)

Are data privacy and security regulations lagging too?

In Bloom’s closure coincided with growing calls to fix the shortcomings of the cornerstone of online privacy laws covering students’ data in the US, the 1974 Family Educational Rights and Privacy Act and Protection of Pupil Rights Amendment (FERPA).

FERPA, which bans the disclosure of so-called personally identifiable information (“PII”) from education records to third parties without written parent consent, does not encompass all student data that schools and companies collect due to three notable exceptions: “Directory Information” (essentially data deemed not detrimental to students’ privacy e.g. name, address, date of birth), metadata, and organisations classified as ‘school officials’ (which may include for-profit companies).

Yet our understanding is that none of these exceptions means that students’ data can be sold by schools to for-profit companies, and the use of these data for commercial purposes is not permitted under these exceptions

FERPA does not encompass all student data

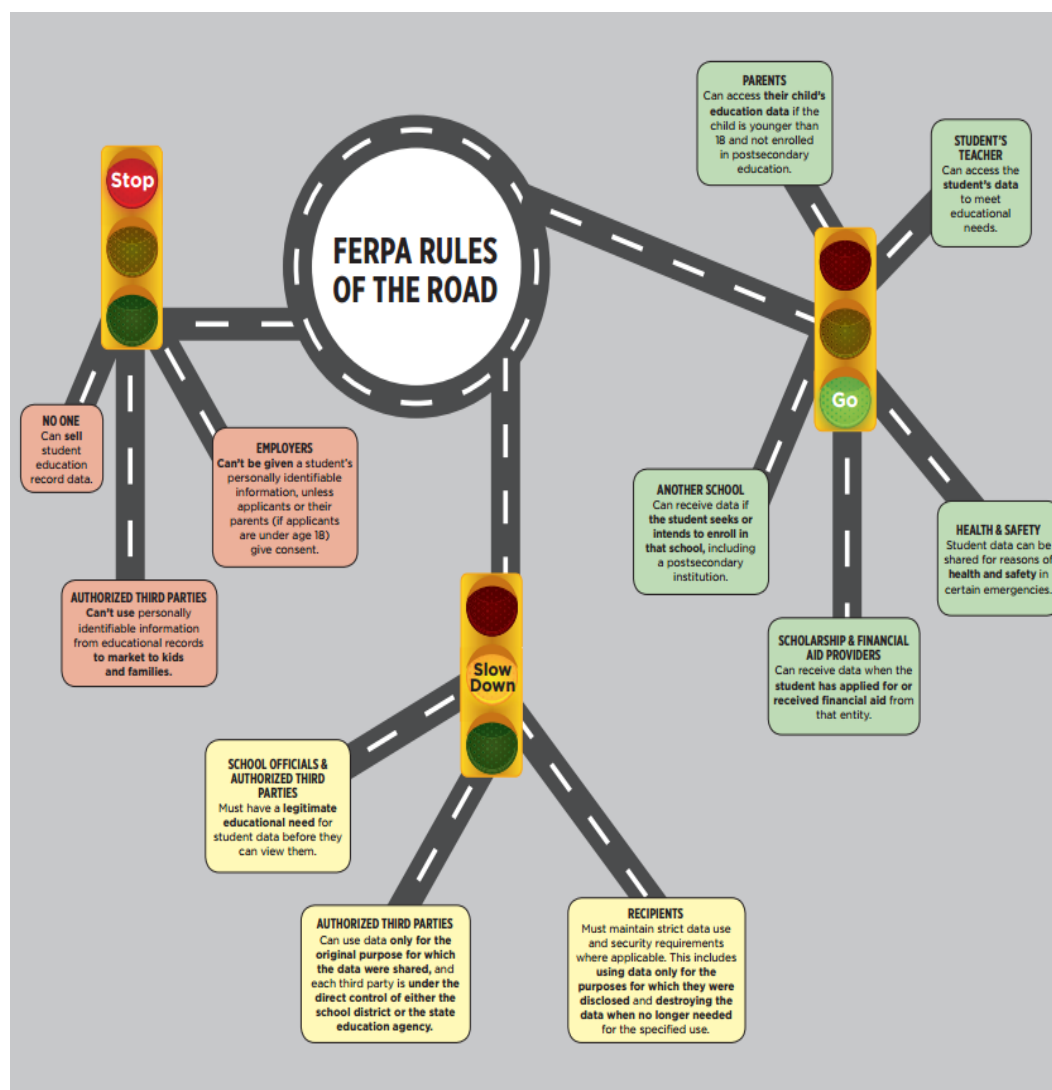
Our understanding is that none of these exceptions means that students’ data can be sold by schools to for-profit companies, and the use of these data for commercial purposes is not permitted under these exceptions

Table 44: Notable exceptions from FERPA

Types of data/organisation	Description
Directory information	Directory Information is information contained in the education records of a student that would not generally be considered harmful or an invasion of privacy if disclosed. Typically, "directory information" includes information such as name, address, telephone listing, date and place of birth, participation in officially recognized activities and sports, and dates of attendance. A school may disclose "directory information" to third parties without consent if it has given public notice of the types of information which it has designated as "directory information," the parent's or eligible student's right to restrict the disclosure of such information, and the period of time within which a parent or eligible student has to notify the school in writing that he or she does not want any or all of those types of information designated as "directory information".
Metadata	Information that provides meaning and context to other data being collected; for example, information about how long a particular student took to perform an online task has more meaning if the user knows the date and time when the student completed the activity, how many attempts the student made, and how long the student’s mouse hovered over an item (potentially indicating indecision). A provider that has been granted access to PII from education records under the school official exception may use any metadata that are not linked to FERPA-protected information for other purposes, unless otherwise prohibited by the terms of their agreement with the school or district.
School officials	School Official means any employee, including teacher, that the school or district has determined to have a “legitimate educational interest” in the personally identifiable information from an education record of a student. School officials may also include third party contractors, consultants, volunteers, service providers, or other party with whom the school or district has outsourced institutional services or functions for which the school or district would otherwise use employees under the school official exception in FERPA. A provider that has been granted access to PII from education records under the school official exception may use any metadata that are not linked to FERPA-protected information for other purposes, unless otherwise prohibited by the terms of their agreement with the school or district. Under the school official exception, schools and districts may disclose PII from students’ education records to a provider under certain conditions. First, the provider of the service receiving the PII must have been determined to meet the criteria for being a school official with a “legitimate educational interest” as set forth in the school’s or district’s annual FERPA notification. Second, the framework under which the school or district uses the service must satisfy the “direct control” requirement by restricting the provider from using the PII for unauthorized purposes.

Source: US Department of Education

Chart 117: FERPA Rules



Source: Data Quality Campaign

Towards a more consistent legal framework

In a move to ease stakeholders' worries, the US government recently stepped up its efforts to: 1) educate on data privacy and security matters; and 2) toughen federal regulations covering for-profit companies' use of students' data.

1. There are particular worries about the right interpretation of existing regulations such as FERPA and the US government released guidance aiming at bringing clarity to the debate.
2. The *Protecting Student Privacy Act of 2014* sought to amend FERPA in an effort to spur schools receiving federal funds to implement stricter security policies. The legislation would have introduced legally binding additional precautionary measures, including further restrictions on the disclosure of data to for-profit companies.

In a move to ease stakeholders' worries, the US government recently stepped up its efforts to: 1) educate on data privacy and security matters; and 2) toughen federal regulations covering for-profit companies' use of students' data

Table 45: Key online privacy federal laws covering children in the US

Law	Main organisation directly covered	Obligations	Update
Family Educational Rights and Privacy Act	Educational institutions	Prohibits disclosure of personally identifiable information from student education records to third parties without written parental consent. Schools also must maintain records of requests for access to and disclosure of personally identifiable information	Protecting Student Privacy Act of 2014 tightens controls on 'any outside party' (including for-profit companies) who get access to those records
Protection of Pupil Rights Amendment	Educational institutions	Schools must obtain parental consent before requiring students to fill out surveys that ask about sensitive issues such as political affiliation, income or sexual behavior	n.a.
Children's Online Privacy Protection Act and the Children's Online Privacy 54 Protection Rule	Operators of websites or online services	Requires website operators to obtain parental consent before collecting personal information from children 12 and younger. Parents also have the right to bar the company from sharing that information with third parties	A bill enacted in May 2014 amends the Children's Online Privacy Protection Act of 1998 to apply the prohibitions against collecting personal information from children to online applications and mobile applications directed to children. Establishes additional privacy protections against the collection of personal or geolocation information from children and minors

Source: Berkman Center for Internet & Society Research, US Congress

States legislations on data privacy pile up

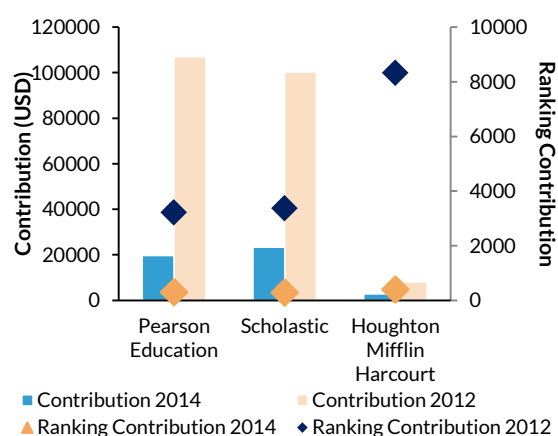
The same trend can be observed at the state level as, this year, legislation restricting the sharing of student data with providers has been enacted in 8 states, while around 80 student privacy bills in total have also reportedly been introduced (source; Scholastic). California's Assembly approved in August a new bill banning the use of student data for commercial purposes. These policy developments may not be enough, though, to eradicate privacy concerns: on the corporate side, edtech leaders will have to display continuous accountability and clear communication to convince stakeholders' fears might be overblown.

Legislation restricting the sharing of student data with providers has been enacted in 8 states

Fairness of contracting and lobbying: no major blows

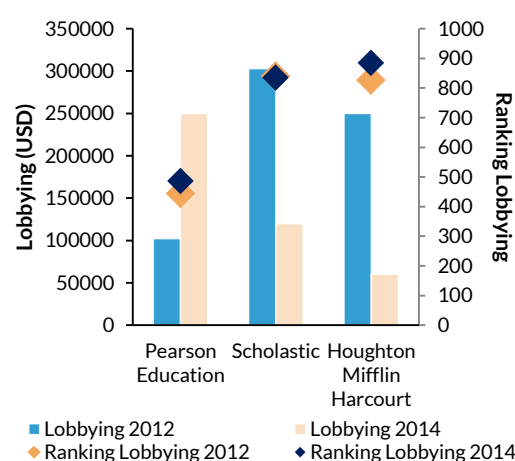
Lobbying has been surging in the US in the education sector and most issues arisen are concerning for-profit universities (links with federal subsidies). With USD126,270 of cumulated spending as contributions and USD2.35m as lobbying in 2011-2013, Pearson has been among the 2nd and 3rd deciles of organisations donating with top 3 issues lobbying related to education (36 reports), taxes and finance (15), copyright, patent and trademark (10) (source: Opensecrets).

Chart 118: Contributions spending (2012, 2013)



Source: Kepler Cheuvreux, Opensecrets (15,602 organisations were ranked in 2014 and 20,766 in 2012)

Chart 119: Lobbying spending (2013, 2014)



Source: Kepler Cheuvreux, Opensecrets (20,766 organisations were ranked in 2014 and 4,373 in 2012)

Testing and assessment carry the highest reputational risk for publishers, as contracts are large and the reputation and track record of the contractors among the most important factors of choice. As regards issues around the fairness of contracting (e.g. in obtaining contracts for instructional materials, or in public procurement contracts), we are not aware of any publisher having recently faced any major setback since the "Pineapple gate".

We would note that there have however been voices criticising the standardisation of tests in the US (e.g. FairTest). More recently, in July this year, New Mexico State Purchasing Agent turned down a protest brought against Pearson's Common-core contract over allegations of unfair process.

Education and technology: jobs and inequality concerns

Heated debates about the adverse impact of the use of technology often focus on two major social concerns: unemployment and inequalities.

Technology: massive secular drivers threatening jobs

At the whole economy level, academics have warned 47% of total US employment is at risk due to computerisation, according to a 2013 survey from Oxford Marting. When it comes to the link between jobs and technology in education specifically, a significant concern is to see jobs loss due to possible productivity improvements which would lead to a lowered ratio of students per school. This may in turn increase the resistance from teachers, while

In July this year, New Mexico State Purchasing Agent rejected a protest brought against Pearson's Common-core contract over allegations of unfair process

involving them in product design can alleviate their rejection, while showing benefits from technology (Amplify has for instance crafted an override that enables teachers to lock devices). Conversely, though, this perspective would have to be balanced with the broader impact of technology on jobs in the economy, driving automation, also means a greater demand for education as there is a greater demand for continuous education.

The race between education and the technology model

Worries over the uncertain impact on students themselves (e.g. in terms of employability opportunities, wages) seem to us a particularly important area. A popular economic model developed by Claudia Goldin and Lawrence F. Katz¹⁴ pointed to the slowdown of educational attainments in the US (the US is one of the countries where the relative earnings by level of education is the highest in the OECD), which raised the higher education wage premium, as the main cause of the sharp increase in wage inequalities in the US from the 1980s to 2005. It describes this trend as a race between technological change and the expansion of education as growing educational attainments moving quicker than technology progress drive down inequalities, while technological progress moving faster than education has the opposite effect. The model also suggests that increasing tuition in all colleges played a role in this relative scarcity in the number of skilled and educated workers, which had become more in demand.

A significant concern is that jobs could be lost as a result of productivity improvements, leading to a lowered ratio of students per school

An economic model identified the slowdown in educational attainments in the US and the subsequent increase in the education wage premium, as the main cause of the sharp rise in wage inequality in the US between the 1980s and 2005

¹⁴ "The Race between Education and Technology by Claudia Goldin and Lawrence F. Katz. Cambridge: Harvard University Press, 2008."

The investable space

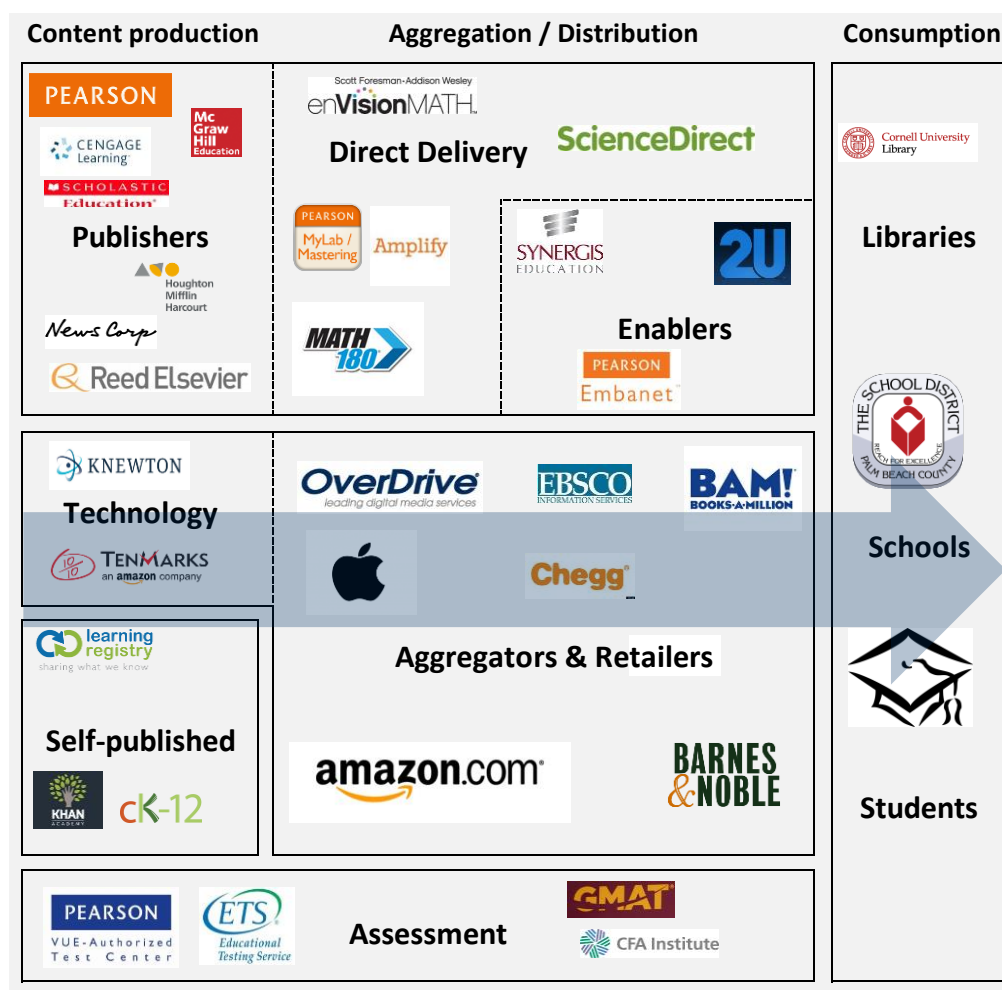
The development of enterprise value (EV, excluding dividend) of listed educational companies over the last ten years shows that investable value has polarised on the sides of 1) publishers, at the top of the value chain, and 2) retailers (Amazon in particular) at the bottom. Little value is left in educational technology pure plays, and only few disruptors lived up to expectations. Across the transition to online, academic and educational publishers have been able to deliver steady and growing earnings and dividends. We recommend listed equity investors to focus on listed, cash-generative publishers in education.

Narrow definition: educational publishing value chain

We have narrowed the scope of this report to companies operating in the field and value chain of primary, secondary, vocational and professional education. Those include Pearson and Lagardère, two listed stocks covered by Kepler Cheuvreux. We have excluded professional publishers such as Reed Elsevier, Informa and Wolters Kluwer as they operate mostly in businesses outside the scope of this report, and mainly respond to drivers not directly related to education, such as research and development spending or professional information. However, some of those share the value chain of educational publishers, as shown in the chart below.

Our definition of the educational industry includes educational publishers, aggregators/distributors of published content, technology companies enhancing the content, enablers and other types of inside services, and assessment services. The value chain must also account for the sprawling self-published content, which finds its way to the market directly or via aggregators. Pearson is the largest company operating in each of these segments. The list is for illustrative purposes, and should not be seen as a list of investment recommendations (see our list of covered stocks and ratings for investment purposes).

Chart 120: Educational publishing value chain: from content owners to consumers



Source: Kepler Cheuvreux

Educational publishing: Pearson leader in all sub-fields

Content publishing and testing companies are traditionally at the core of the industry. Listed players exist in both rich and developing countries, and some only recently came to the open market (Houghton Mifflin Harcourt) or will most likely shortly be introduced to investors (McGraw-Hill Education). While Pearson is the most advanced in the transition of its business from print to electronic services and preparation, other US players have considerably accelerated their transition in recent years. Among the largest listed companies in emerging markets are Educomp in India (partnering with Pearson) and Saraiva in Brasil.

Testing/assessment is an area that has strong synergies with content, as curriculum materials must have the strongest fit with the exams, in turn paving the way to preparation and tutoring activities. It also involves considerable scale economies and the highest reputational risk, as contracts are large and the reputation and track record of the contractors among the most important factors of choice. Assessment is still run by schools in most countries, with the US and the UK being the markets where it has been privatised the most. Pearson and ETS are the most well-established commercial players, while other publishers (McGraw-Hill in particular) and independent testers hold minor positions.

Table 46: Publishing and testing

Company Name	Status	HQs	Activity scope	Grade	Employees (2013)	Revenues (2013, USDm)	Business	Website
K-12								
Pearson	Listed	UK	Global	K12	42,980	9559	Publishing	www.pearson.com/
Scholastic	Listed	USA	USA only	K12	9,600	1792	Publishing	www.scholastic.com/
Cengage	Private	USA	USA only	K12	5,500	1678	Publishing	www.cengage.com/
Houghton Mifflin Harcourt	Listed	USA	USA only	K12	3,300	1380	Publishing	www.hmhco.com/
Newscorp. (Amplify)	Listed	Australia	USA only	K12	<10000	NA	Publishing	newscorp.com/
Prisa (Planeta)	Listed	Spain	Spain/Latam	K12	11,504	2680	Publishing, broadcasting	www.planeta.es/
Abril Educação	Listed	Brasil	Brasil	K12	<10000	465	Publishing	www.abrileducacao.com.br/
Sanoma	Listed	Finland	Finland	K12	9597	2219	Publishing, broadcasting	www.sanoma.com/
Mondadori	Listed	Italy	Italy	K12	3436	1276	Publishing	www.mondadori.com
Lagardère	Listed	France	France	K12	24006	7216	Publishing	www.lagardere.com/
Saraiva SA	Listed	Brasil	Brasil	All	6000	839	Publishing, distribution	www.editorasaraiva.com.br
Higher Education Publishing								
Pearson	Listed	UK	Global	Hi-Ed	42,980	9559	Publishing/EdTech	www.pearson.com/
Cengage	Private	USA	USA	Hi-Ed	5,500	1678	Publishing	www.cengage.com/
McGraw-Hill Education	Private	USA	USA	Hi-Ed	<5000	1242	Publishing	www.mheducation.com/
Macmillan Education	Private	London	USA	Hi-Ed	<5000	NA	Publishing	www.macmillanenglish.com/
Saraiva SA	Listed	Brasil	Brasil	All	6000	839	Publishing, distribution	www.editorasaraiva.com.br
e-Supplemental publishing								
Pearson (SES)	Listed	UK	Global	Hi-Ed	42,980	2219	Publishing/EdTech	www.pearson.com/
K12	Listed	USA	USA only	K12	3,500	848	EdTech	www.k12.com/
Discovery (+ Espresso Ed.)	Listed	USA	Global	All	5,700	5535	Supplemental (sciences)	www.discoveryeducation.com/
Cambium Learning	Listed	USA	USA	K12	526	149	Supplemental (reading)	www.cambiumlearningtechnologies.com/
Edmentum	Private	USA	USA	K12	<500	NA	Supplemental	www.edmentum.com
Educomp	Listed	India	India	All	16,919	105	College chain, DLP, Supplemental	www.educomp.com/
Infinitas Learning	Private	Europe	Europe, USA	All	800	NA	Supplemental	www.infinitaslearning.com/
Testing/assessment (part of public curricula)								
Pearson	Listed	UK	Global	All	42,980	9559	Publishing	www.pearson.com/
ETS	Private	US	Global	All	<5000	NA	Testing	https://www.ets.org/

Source: Thomson Reuters (revenue data), Kepler Cheuvreux

Technology enhancing cost-effectiveness: DLPs, enablers, open source

Technologies helping governments and students to “do more with less” are at the core of this report and entail the best investment opportunities, in our view. A detailed overview of some “best-in-class” new ventures is provided in the section on technology. The list below is ranked by size of the player involved (when data is available) and only includes the largest and most established categories (for the time being).

Digital learning platforms (DLPs) are the oldest among the new technologies in education. Most schools in the US and many in Europe already use interactive whiteboards and more-or-less developed web tools to keep in touch in real time with students. Due to the rather low barriers to entry, DLPs have quickly become a very competitive space where IT scale and reputation represent the highest barriers to entry. Its terminology is also the most complicated, as different types of products are available according to the type and depth of the service required (by schools) and licensed.

- DLP = digital learning platform (including all or some of IMS, LMS, SIS). There is a clear trend towards integration/bundling of those tools.
- IMS = interactive management system. Used to share materials during class time, such as sharing images from the teacher's computer on a LED display.
- LMS = learning management system. Used to distribute content and communicate after school hours. Includes a digital repository; a relatively old technology.
- SIS = student information system. Monitoring student attendance, tracking, grading, and administrative services.
- Repository = storage of digital contents and access rights management. Usually part of a LMS.
- PL (also “101”) = Personalised learning environments where teachers can focus on the needs of individual students, rather than on the classroom. To be implemented a PL requires a DLP, contents, and a teacher.

A remarkable new entrant in this area is Amazon. In October 2013 the company acquired TenMarks, an online maths app for the US, whose basic contents are free but which requires a payment of USD20/student for student customisation, student data management and intervention.

Enablers were pioneered by Embanet in 1993 but are only recently becoming a real trend under the impulse of Pearson and Wiley. They allow for distance and blended learning delivered by both existing universities and online-only newcomers. Schools extending their offer through enablers can capture the unfulfilled demand for post-secondary and further education, university courses and vocational training.

We see enablers as the most promising market opportunity in rich markets due to their revenue-enhancing characteristics for schools (as compared with DLS, which enhance the quality of interaction between schools and students but allow for little new revenue). We believe most of the market opportunity (growth from the current level) in for-profit and vocational education will be captured by enablers.

MOOCs and open content platforms are discussed in the technology section of this report, but have limited investment consequences as their business models are either embryonic or voluntary free contributions of time and funds from donors.

Table 47: Education technology

Company Name	Status	HQs	Activity scope	Grade	Employees (2013)	Revenues (2013, USDm)	Business	Website
Digital Learning Platforms (DLP)								
Amazon (TenMarks)	Listed	USA	Global	K12	117,300	74,452	Free Online Math Curriculum	www.tenmarks.com/
Pearson (Fronter, PowerSchool, Chancery, ...)	Listed	UK	Global	K12	42,980	9,559	SIS, common core testing	www.pearson.com/
Educomp	Listed	India	India	All	16,919	105	College chain, DLP, Supplemental	www.educomp.com/
Cengage (MindTap)	Private	USA	USA only	All	5,500	1,678	LMS (basic features)	www.cengage.com
John Wiley (Cross Knowledge)	Public	USA	Global	Hi-Ed	5,100	1,775	LMS	www.crossknowledge.com
McGraw-Hill (CTB, Tegrity, ...)	Private	USA	USA only	All	<5000	1,242	SIS, customised testing (basic features)	www.ctb.com
Vitae	Private	Brasil	Brasil	K12	<5000	NA	SIS	www.vitaebrasil.com.br/
Houghton Miffl. (Choice Solutions, SchoolChapters, ...)	Private	USA	USA	All	3,300	NA	SIS	www.choicep20.com
Blackboard	Private	USA	USA, CAN, FR	All	1,870	NA	Integrated DLP (IMS, LMS, SIS)	www.blackboard.com/
Desire2Learn	Private	Canada	Global	All	<1000	NA	LMS, SIS	www.desire2learn.com/
Higher One (Campus Labs)	Listed	USA	USA	Hi-Ed	<1000	211	SIS, common core testing	www.campuslabs.com/
Promethean	Listed	UK	USA, UK	All	<1000	237	Integrated DLP (IMS, LMS, SIS)	www.prometheanworld.com
Jenzabar	Private	USA	USA	Hi-Ed	<500	NA	LMS, SIS, school ERP	www.jenzabar.com/
Canvas (by Instructure)	Private	USA	USA	All	>200	NA	LMS for MOOCs	www.instructure.com/about-us
Adaptive Curriculum	Listed (Turk Telekom)	Turkey	USA	K12	<200	NA	IMS for Math and Science	www.adaptivecurriculum.com/us/
NetSupport	Private	UK	UK	K12	<200	NA	IMS for IT classrooms	www.netsupportschool.com/
Knewton	Private	USA	USA	All	<200	NA	LMS, SIS	www.knewton.com
Educational Elements	Private	USA	USA	K12	<200	NA	LMS, SIS	www.edelements.com/
Escholar	Private	USA	USA	K12	<200	NA	SIS data sharing platform	www.escholar.com
Edmodo	Private	USA	Global	Hi-Ed	<200	NA	LMS, SIS, social-network-like	https://www.edmodo.com
Web Courseworks	Private	USA	USA	Hi-Ed	<50	NA	LMS	www.webcourseworks.com/
Moodle	Private	Australia	Global	Hi-Ed	NM	NA	LMS, Open Source	moodle.com/hq/
Enablers (also known as School-as-a-Service, Inside Services, Online Program Management, ...)								
Pearson (eMBAnet)	Listed	UK	Global	Hi-Ed	42,980	9,559	Enabler	embanet.com
John Wiley (Deltak)	Private	USA	USA	Hi-Ed	5,100	1,775	Enabler	www.deltak-innovation.com/
2U	Listed	USA	USA	Hi-Ed	<1000	83	Enabler	http://2u.com/
Bertelsmann (Synergis Education)	Private	Germany	USA	Hi-Ed	>10000	NA	Enabler	www.synergiseducation.com/
Uni of Florida Online	Private	USA	USA	Hi-Ed	<500	NA	Enabler	http://www.distance.ufl.edu/
Open SUNY	Private	USA	USA	Hi-Ed	NA	NA	Enabler	http://open.suny.edu/
Udacity (SJSU, Ga Tech)	Private	USA	USA	Hi-Ed	<200	NA	MOOC, Enabler	https://www.udacity.com/
Academic Partnership	Private	USA	USA	Hi-Ed	NA	NA	Enabler	http://www.academicpartnerships.com/
Bisk	Private	USA	USA	Hi-Ed	<1000	NA	Enabler	http://www.bisk.com/
Educators Serving Educators	Private	USA	USA	Hi-Ed	<10	NA	Enabler	http://www.eseserves.org/
The Learning House	Private	USA	USA	Hi-Ed	<200	NA	Enabler	http://www.learninghouse.com/
Colloquy	Private	USA	USA	Hi-Ed	<50	NA	Enabler	http://www.colloquy360.com/
MOOCs and Open Content platforms								
Coursera	Private	USA	USA	Hi-Ed	<200	NA	"Badges" MooC	www.coursera.org
edX	Private	USA	USA	Hi-Ed	<200	NA	"Badges" MooC	www.edx.org
Udacity	Private	USA	USA	Hi-Ed	<200	NA	"Badges" MooC	https://www.udacity.com/
Ampush (Academic Earth)	Private	USA	USA	Hi ED	<200	NA	Free Online Courses	academicearth.org/
Futurelearn	Private	UK	UK	Hi-Ed	<50	NA	"Badges" MooC	https://www.futurelearn.com/
Khan Academy	Private	USA	USA	K12	<50	NA	Free Online Tutoring	www.khanacademy.org/

Source: Thomson Reuters (revenue data), Kepler Cheuvreux

Broader definition: school chains and ancillary services

A broader definition of the investable space should include private school chains, tutoring services, providers of IT software, hardware and infrastructure for education, and retailers. Innovation and competition are the most vital in this second tranche. We include in our mapping established players as well as a selected list of start-ups that are leaving their footprint in this changing landscape.

School chains, ELT, tutoring, professional

In the categories below the company not only provides the content, but is directly in charge of the education and follow-up of the student. These areas offer much higher revenue per student in the form of tuition fees, but also require a more personnel-intensive and personalised service and a lower level of automation.

Private education is the largest investable area in education by listed market cap. In the US, private colleges have absorbed c. 80% of enrolment growth in the last 10 years, to match demand unmet by public universities. The credit squeeze and tighter regulation have decelerated this trend in the US, but we see growth of private education as a structural trend, due to the constraints of public budgets and to the strong propensity of individuals to invest in their own education. Brazil, the UK, France and Italy, are other areas where private education is gaining traction.

Private education is in many cases still partly or totally subsidised by public grants. Going forward, however, an ever-increasing share of the global educational spending is likely to be funded by private, rather than public, money.

English language teaching and tutoring services to better prepare students to high-stake exams for instance, or to college admission exams, reflect the trend towards the privatisation of education. These are large areas of investment opportunity over the short to medium term, seeing an ongoing flight to quality by students searching for better preparation.

The Asian market is the most developed in this sense and the opportunity is material, with English speakers expected to increase from 510m today to 2bn by 2020, driven by China. New Oriental is the largest listed company in the world focusing on test admission and preparation to university. We flag among recent news the USD100m investment by Alibaba in the Asian online language learning platform Tutorgroup (more than 2,000 teachers in 30 countries and 60 cities around the world), announced on 16 February 2014.

Professional education and certification partly overlaps with vocational and MOOCs as it targets adult students with relevant professional experience. We include in our list players whose clients are corporates, instead of professionals paying from their own pockets to skill up. Professional education also benefits from the privatisation trend in education, and is likely to be made more efficient by adaptive learning techniques.

Table 48: Private school chains (all have some degree of online presence) (1/2)

Company Name	Status	HQs	Activity scope	Grade	Employees (2013)	Revenues (2013, USDm)	Business	Website
US Private School Chains (list is not exhaustive)								
Apollo Group	Listed	USA	USA	Hi-Ed	29,000	3,681	Private college	www.apollo.edu/
Corinthian Colleges	Listed	USA	USA	Hi-Ed	10,100	1,600	Private college	www.cci.edu/
DeVry	Listed	USA	USA	Hi-Ed	9,833	1,964	Private college	www.devry.edu/
Capella	Listed	US/UK	USA/UK (RDI)	Hi-Ed	2,829	416	Online education	www.capellaeducation.com/
ITT Educational Services	Listed	USA	USA	Hi-Ed	4,900	1,070	Private college	http://www.ittesi.com/index.php
Education Management Corp.	Listed	USA	USA	Hi-Ed	12,500	2,499	Private college	http://www.edmc.edu/
Grand Canyon Education	Listed	USA	USA	Hi-Ed	3,100	598	Private college	http://www.gcu.edu/
Strayer Education Inc	Listed	USA	USA	Hi-Ed	1,485	504	Private college	http://www.strayereducation.com/index.cfm
Career Education	Listed	USA	USA (formerly also EU)	Hi-Ed	5,141	1,057	Private college	www.careered.com/
Bridgepoint University	Listed	USA	USA	Hi-Ed	320	751	Private college	bridgepointeducation.com/
Lincoln Education	Listed	USA	USA	Hi-Ed	2,409	345	Private college	www.lincolnedu.com/
National American University Holdings	Listed	USA	USA	Hi-Ed	82	84	Private college	www.national.edu/
American Public Education, Inc.	Listed	USA	USA	Hi-Ed	2,250	330	Private college	www.americanpubliceducation.com
Bright Horizons	Listed	USA	USA	K	25,000	1,218	Private Kindergarten	www.brighthorizons.com/
Bertelsmann (Patten University)	Private	USA	USA	Hi-Ed	<100	NA	Online education	patten.edu/
Non-US Private School Chains (list is not exhaustive)								
Kroton Educacional	Listed	Brasil	Brasil	Hi-Ed	1,769	938	College chain	www.kroton.com.br/
Laureate International Universities	Private	USA	International	Hi-Ed	10,000	NA	College chain	www.laureate.net/
Estacio	Listed	Brasil	Brasil	Hi-Ed	11,440	773	College chain	www.estacioparticipacoes.com.br/
Anhanguera	Acquired by Kroton (2013)	Brasil	Brasil	Hi-Ed	18,300	809	College chain	www.anhanguera.com/home/
Universidade Cruzeiro do Sul	Private (Actis)	Brasil	Brasil	Hi-Ed	<1000	NA	College chain	www.cruzeirosul.edu.br
Noah Education Holdings	Taken private (2014)	China	China	K-12	897	NA	K-12 school chain	ir.noaheducation.com
Nord Anglia Education	Listed	China	China	K-12	3,548	324	International British Schools	www.nordangliaeducation.com/
HSM Educação	Private	Brasil	Brasil	Hi-Ed	<200	NA	High-end college and professional training	www.hsmeducacao.com.br/
SER Educacional	Listed	Brasil	Brasil	Hi-Ed	7,000	61	College chain	ir.sereducacional.com
Anima Educação (GAEC)	Listed	Brasil	Brasil	Hi-Ed	4,046	215	College chain	www.mzweb.com.br
Educomp	Listed	India	India	All	16,919	223	College chain, DLP, Supplemental	www.educomp.com/
Cognita	Private	UK	UK	Hi-Ed	<5000	NA	College chain	http://www.cognitaschools.com/
Alpha Plus	Private	UK	UK	Hi-Ed	<50	NA	College chain	http://www.alphaplusgroup.co.uk/
Bellevue	Private	UK	UK	Hi-Ed	<5000	NA	College chain	https://www.bellevuecollege.edu/
100% Online Universities								
Open University	Private	UK	UK	Hi-Ed	<10000	NA	Private virtual college	www.open.ac.uk/
Florida Virtual School	Private	USA	USA	Hi-Ed	<5000	NA	Private virtual college	www.flvs.net
Bertelsmann (New Charter University)	Private	USA	USA	Hi-Ed	<50	NA	Private virtual college	new.edu/info/

Table 49: Private school chains (all have some degree of online presence) (2/2)

Tutoring Services / exam preparation								
New Oriental	Listed	China	China	All	21,248	1,140	Tutoring/exam preparation	english.neworiental.org
Ambow Education	Private	China	China	K12	5,991	188	IT career enhancement/ college and high school entrance exams	www.ambow.net/en/
Xueda Education Group	Listed	China	China	K12	15,025	347	Tutoring/exam preparation	ir.xueda.com
TAL Education Group	Listed	China	China	K12	6,375	313	Tutoring/exam preparation	en.100tal.com/
Triumph Learning	Private	USA	USA	K12	<500	NA	Tutoring/exam preparation	https://www.triumphlearning.com/
Megastudy	Listed	S. Korea	Asia	All	659	203	Tutoring/exam preparation	corp.megastudy.net/main.asp
Pearson (TutorVista)	Listed	UK	USA	Hi-Ed	42,980	9,559	India-based VoIP tutoring to US students	www.tutorvista.com/
English language teaching (ELT)								
Pearson (Wall Street English/Institute)	Listed	UK	China, Europe	NA	42,980	9,559	English tutoring	www.pearson.com/
Pearson (Grupo Multi)	Listed	UK	Brasil	NA	42,980	9,559	English tutoring	www.mh1.com.br/
CNA	Private (Actis)	Brasil	Brasil	NA	NA	NA	English tutoring	http://www.cna.com.br/speakingexchange/
St.Giles International	Private	UK	UK, US, Brasil	NA	440	50	English tutoring	http://www.stgiles-international.com/
Education First (EF)	Private	Switzerland	Global	NA	<10000	NA	English tutoring	www.ef.com.fr/
Rosetta Stone	Listed	USA	Global	NA	<2000	265	Online ELT	www.rosettastone.com/
Professional education and certification								
Pearson	Listed	UK	Global	NA	42,980	9,559	Professional education	www.pearson.com/
Graham Holdings	Listed	USA	Global	NA	14,000	3,488	Professional education	www.ghco.com/
Wilmington	Listed	London	90% Europe, 10% US	NA	742	133	Professional education	www.wilmington.co.uk/
Smarterer	Private	USA	USA	NA	<10	NA	Skill assessment	www.smarterer.com
Grovo	Private	USA	USA	NA	<50	NA	e-Training platform, IT skills	http://www.grovo.com/
Treehouse	Private	USA	USA	NA	688	NA	e-Training platform, IT skills	teamtreehouse.com/
Lynda.com	Private	USA	USA	NA	<500	NA	e-Training platform, IT skills	www.lynda.com/
Pluralsight	Private	USA	USA	NA	<200	NA	e-Training platform, IT skills	www.pluralsight.com/training
Logical Operations	Private	USA	USA	NA	<200	NA	e-Training platform, IT skills	logicaloperations.com/welcome

Source: Thomson Reuters (revenue data), Kepler Cheuvreux

Ancillary services: IT, retailers, open source initiatives...

A plethora of services facilitate interactions between the actors who are involved in education and provide services that are neglected by the companies mentioned above. They are mostly outside the scope of this report, and operate in some cases in poorly known micro-niches.

IT hardware and infrastructure for education includes most IT contractors to schools, providing hardware (in many cases the first wave of investment in technology by schools), cloud services, and only in few cases also some content. Telecom operators are not mentioned for the sake of simplicity, but many have ambitious programmes of mobile education (mEducation) that could at some point be spun off, or even start to represent a meaningful area of revenue for some operators in a more distant future.

Content distribution and rental represents an important investable pocket thanks to the fast development of Amazon as a dominant market player in the US and UK, and on track to extend its leadership in emerging economies. Recent developments include the college rental service and social community Chegg, and the older Barnes & noble which is rapidly scaling up its rental business. From an earnings point of view, however, investors' value remains concentrated in the publishing part of the value chain.

Open source publishing, software and repositories are piling up thanks to the contributing teachers and faculties, and are likely to continue to complement existing for-profit initiatives for the foreseeable future. They do not represent an investment opportunity per se. Some more proactive companies are, however, helping schools to better manage the access and intellectual property created through online repositories, such as Pearson's Equella (<http://www.equella.com/>).

Table 50: Distributors and complementary ecosystem players (1\2)

Company Name	Status	HQs	Activity scope	Grade	Employees (2013)	Revenues (2013, USDm)	Business	Website
IT hardware and infrastructure for education (list is not exhaustive)								
Hardware								
Apple (leading PC/tablet supplier to US schools)	Listed	USA	Global	NA	80,300	170,910	Tablets and PCs. iTunes accounts.	www.apple.com
Samsung	Listed	Korea	Global	NA	95,648	144,753	Hardware, network	www.samsung.com
Sony	Listed	Japan	Global	NA	146,300	77,903	Hardware, network	www.sony.net/
Amazon	Listed	USA	Global	NA	117,300	74,452	eTailer, cloud	www.amazon.com
Google	Listed	USA	Global	NA	47,756	63,126	Cloud	www.google.com
Dell	Listed	USA	Global	NA	108,800	56,940	Hardware, network	www.dell.com
Microsoft	Listed	USA	Global	NA	99,000	86,833	Hardware, network, cloud	www.microsoft.com/
IT network/connectivity infrastructure/hardware procurement for schools								
Cisco Meraki	Listed	USA	Global	NA	74,000	132,629	Network, cloud	https://meraki.cisco.com/
Amazon (AWS Education)	Listed	USA	Global	NA	117,300	74,452	Network, cloud	https://aws.amazon.com/education/
Oracle Student Cloud	Listed	USA	Global	NA	122,000	37,180	Network, cloud	www.oracle.com
Intel (Intel Education)	Listed	USA	Global	K-12	104,900	52,708	Network, cloud	newsroom.intel.com/docs/DOC-4202
CDW Government	Listed	USA	Global	NA	7,100	10,769	IT solutions, procurement facilitator (how to get funds)	www.cdwg.com/
PC Connection (GovConnections)	Listed	USA	Global	NA	1,961	2,200	IT solutions, procurement facilitator (how to get funds)	www.govconnection.com
Retail, distribution and logistics (list is not exhaustive)								
Physical content retailers and distributors								
Amazon	Listed	USA	Global	K12	117300	74452	eTailer	www.tenmarks.com/
Barnes & Noble	Listed	USA	Global	Hi-Ed	33,850	6,381	College and retail bookstores	www.barnesandnoble.com/
Follett	Private	USA	USA	All	>10000	2700	Book/eBook distribution	www.follett.com
School Specialty, Inc.	Listed	USA	USA	K12	1450	NA	Furniture and supplies	https://store.schoolspecialty.com
Borders	Defaulted	USA	USA	Hi-Ed	NA	NA	College and retail bookstores	NA
Books-A-Million (BAM!)	Listed	USA	USA	All	5500	504	College and retail bookstores	www.booksamillioninc.com/
Saraiva SA	Listed	Brasil	Brasil	K12	5518	997	Publishing, distribution	www.editorasaraiva.com.br/didaticos/
Online content retailers and textbook rental								
Amazon	Listed	USA	Global	K12	117300	74452	eTailer	www.tenmarks.com/
Overdrive	Private	USA	USA	All	<500	NA	eTextbooks DRM (libraries)	https://www.overdrive.com/
Barnes & Noble	Listed	USA	Global	Hi-Ed	33,850	6,381	College and retail bookstores	www.barnesandnoble.com/
Chegg	Listed	USA	USA	All	639	256	Textbook rental	www.chegg.com/
Loan and Payment Services								
Sallie Mae Bank	Listed	USA	USA	Hi Ed	7200	3709	Student Loans	www.salliemae.com
Higher One	Listed	USA	USA	Hi Ed	<1000	211	Student Payment Services	www.higherone.com
Open Source (list is not exhaustive)								
Open Source publishing and software								
Amazon (Direct Publishing)	Listed	USA	Global	K12	117,300	74452	eTailer	www.tenmarks.com
Kno (Acquired by Intel)	Private	USA	USA	K12/Hi-Ed	<200	NA	eTextbooks DRM	www.kno.com
Inkling	Private	USA	USA	Hi-Ed	<200	NA	eTextbooks, graphics	www.inkling.com
FlatWorld	Private	USA	USA	Hi-Ed	<50	NA	eTextbooks DRM, self-publishing	catalog.flatworldknowledge.com
Trunity	Private	USA	USA	All	<50	NA	eTextbooks DRM, self-publishing	www.trunity.com
ACE-learning	Private	USA	USA		<50	NA	Supplemental	www.acelearningco.com

Table 51: Distributors and complementary ecosystem players (2\2)

Open Source Repositories (pools of free contents)								
Pearson (Equella)	Listed	UK	Global	K12	42,980	9559	Integrated DLP (IMS, LMS, SIS)	www.equella.com/
The Learning Registry	Gov't	USA	USA	All	NA	NA	Publicly-funded contents	learningregistry.org/
Gooru	Private	USA	USA	K12	<50	NA		www.goorulearning.org
BoundLess Learning	Private	USA	USA	Hi-Ed	<50	NA		www.boundless.com
CK-12	Private	USA	USA	K12	<50	NA		www.ck12.org
Noodle	Private	USA	USA		<50	NA	Content / college / tutor search engine	https://www.noodle.org/
WebLettres	Private	France	France	K12	30	NA	Literature teaching portal	www.weblettres.net/index.php
Sesamath	Private	France	France	K12	NA	NA	Math open content repository	www.sesamath.net/
Clionautes	Private	France	France	Hi-Ed	NA	NA	HSS content repository	http://college.clionautes.org/
CNED	Gov't	France	France	All	NA	NA	Online course repository	www.cned.fr/

Source: Kepler Cheuvreux

De-correlation of expectations and earnings

The evolution of enterprise value (EV, excluding dividend) of listed educational companies over the last ten years depicts well how investable value moved according to expectations, more than actual earnings. Investable value within the educational value chain has accumulated at the level of publishing, and of distribution.

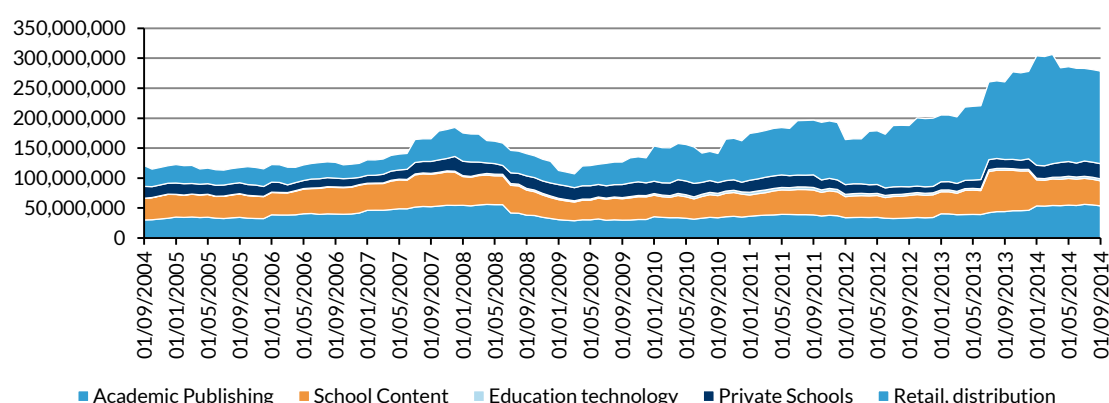
- Investor perception of value has remained rather steady in publishing, broadly unchanged over time, thanks to a successful shift to digital of most of its copyrighted contents (Academic Information is more digital than School Publishing). Since publishers pay higher dividends than the average of other categories, the chart even under-estimates their actual value.
- Investor perception of value has increased materially in distribution and Amazon in particular.
- The interest in learning management systems technologies (LMS) also benefitted from some interest, which however so far has not lived up to expectations.

A look at the history of the market capitalisation of listed educational companies (including stocks that were delisted over time) shows that 1) only in a few cases did newcomers live up to expectations and 2) value has de-correlated from earnings over time. Retailers have traditionally low margins and Amazon is further driving down profitability, making publishers the investment yielding the highest return. This is particularly the case for scientific information (SMTS).

We included in our historical sample the following stocks: *Reed Elsevier, Wolters Kluwer, Informa, Pearson, John Wiley & Sons, K-12, Blackboard, Abril Educação, Lagardère, Sanoma, Mondadori, Prisa, Saraiva, Cambrium Learning, Prometheus World, Higher One Holdings, 2U, Apollo Education, Corinthian Colleges, Devry Education Group, ITT Education, Estacio, Ser Education, Anima, Kroton, Capella Education, Educomp, New Oriental, Ambow Education, Xueda, TAL, Graham holdings, Wilmington Group, Amazon, Barnes & Noble, Anhanguera.*

Improved expectations in distribution and delivery

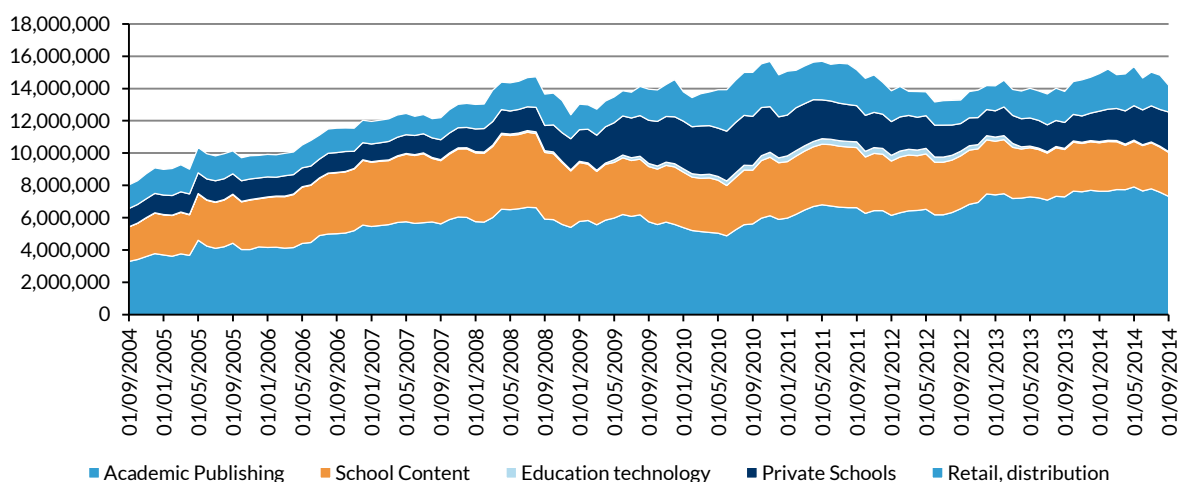
Chart 121: Evolution of the enterprise value of listed educational companies over the last 10 years (USDm)



Source: Datastream, Kepler Cheuvreux

Earnings accumulating in educational content

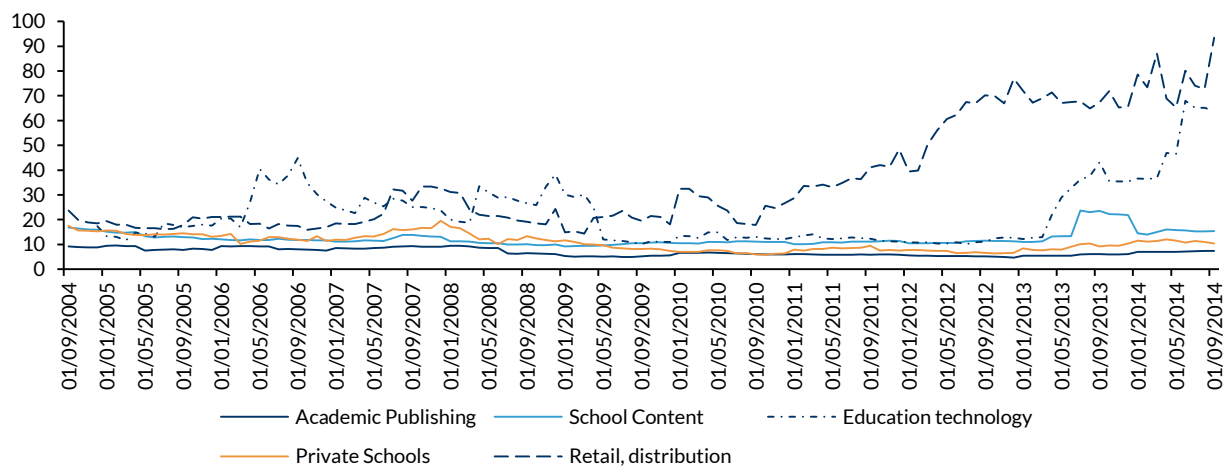
Chart 122: Evolution of the EBIT of listed educational companies over the last 10 years (USDm)



Source: Datastream, Kepler Cheuvreux

Valuation consequences: multiples inflation in retail and technology

Chart 123: EV/EBIT (x) of selected listed educational companies over the last 10 years



Source: Datastream, Kepler Cheuvreux

Selection of agents with the highest reach on social outcome variables

Last but not least, we have narrowed down our educational publishing universe by screening companies that we identify as at the forefront of the long-term transformation of the education sector expected to potentially impact positively our key social impact variables: namely affordability, access and efficacy, or improved learning outcomes.

While their value propositions may overlap in many ways (e.g. the development of MOOCs could affect potentially all three variables), we have classified a selection of innovative models gaining ground according to what we have primarily analysed here in terms of likely social impact reach. With a focus on the higher end of online degree pricing, an online enabler such as 2U has for instance a stronger case for its ability to broaden access to education by removing geographical barriers and increase flexibility in terms of time, rather than via cutting costs (online degrees are offered for the same price, although they turn out cheaper for the students when including all costs). Likewise, we believe the prime educational value of adaptive learning solutions tends to lie in their ability to improve directly learning outcomes or effectiveness of education.

Our selection can be broken down into the following groups:

- **Edtech startups with a for-profit model.** Mostly US non-listed edtech startups, two companies that were IPOed recently (2U, Chegg) and a few startups outside the US (e.g. Bussuu, Infomentor, Moodle).
- **Non-profit organisations,** mainly MOOC (e.g. Edx) and open-content organisations (e.g. OpenStax).
- For impact investors, **inclusive business models** in emerging markets and developing countries (low-cost schools or financial institutions providing fairer term to students) and **social impact bonds** (SIBs) targeting disadvantaged young people in developed markets (see the Impact Investing section of this report).

This list is neither aimed at being comprehensive nor provides a recommended list of companies to trade or invest in (although some may constitute good opportunities for attractive financial returns), but rather illustrates some of the wide range of organisations, sub-sectors and models driving these technology changes via, in our view, promising social value propositions.

Chart 124: investing in a lower total cost of education and improved social outcomes

Aim	Variable	Innovation	Investment universe
Lower Total Cost of Education	Broader access	✓ Online enablers ✓ Distance tutoring / preparation ✓ Mobile education	✓ Innovative publishers (incl. Pearson) ✓ Blended learning in emerging markets ✓ Telecom services & equipment (long-term)
	Higher effectiveness	✓ Adaptive learning ✓ Competency-based education ✓ Digital learning platforms (DLP), software	✓ Innovative publishers (incl. Pearson) ✓ Blended vocational learning ✓ Pure play DLPs, software
	Complement to existing models	✓ Massive Open Online Courses (MOOCs) ✓ Social learning	✓ MOOCs (venture capital, donation) ✓ Listed social learning networks
	Disruptive new models	✓ Textbook rental ✓ Open content	✓ Textbook rental companies ✓ Self-publishing platforms

Source: Kepler Cheuvreux

Table 52: Our selection of agents with the highest reach on social outcome variables

Organisation	Private/Public	Target Subsector	Country	Key data on the size, recent fundings		Short description	Impact on social outcomes
US edtech							
Publicly-listed companies							
2U	Public	Online Service Providers	USA	USD666m market cap	Cloud-based software-as-a-service platform focused on top tier colleges and universities	Improved access to high-quality online courses (reduce geographical barriers)	
Chegg	Public	Textbook rental	USA	USD574m market cap	Connected learning platform providing an array of scholastic materials including textbooks in any format, access to online homework help and textbook solutions, course organisation and scheduling, as well as college and university matching tools and scholarship connections	Access to textbooks at a discount	
For-profit companies in private markets							
Clever	Private	Online software	USA	USD10.3m raised in its first round of venture financing from Sequoia Capital	Online software aiming at improving class management by enabling teachers to enroll and track students	Empowering teachers (easing manual entry process and class management)	
Coursera	Private	MOOC	USA	Raised USD20m of funding in 2010-11. 9m+ users	Forprofit edtech company providing free courses with an option to pay to secure certificates for some courses	Access to free courses with an option to pay to secure certificates for some	
DreamBox Learning	Private	Adaptive learning	USA	USD14.5m raised	Online software focused on mathematics education at the elementary level	Improved math instruction	
Edmodo	Private	Social learning network	USA	40m+ users. USD40m raised	K-12 free social learning community providing resources for teachers and students	Free learning platform facilitating resources sharing	
Flashnotes	Private	Online student-to-student marketplace	USA	USD1.5m raised in 2013	Marketplace for class-specific study material – notes, flashcards and tutorial videos	Enables students to share course materials	
General Assembly	Private	Technology-related courses	USA	USD49m including USD35m raised in March 2014	Provide classes, workshops, full-time immersive programs and online educational programming in web development, user experience design, gidital marketing and data science	Improved access to technology-related courses (online community and courses, and on campuses courses)	
Knewton	Private	Adaptive learning	USA	USD100m+ raised. 4.1m students.	Adaptive learning infrastructure platform	Improved instruction which lead to greater pass rates	
Grockit (Kaplan)	Private	Social learning apps and technologies	USA	Acquired by Kaplan in 2013	Test prep service. Launched Learnist which is a visual interest-sharing website that gives users the possibility to curate content and share their interest	Improved instruction and preparation to college admissions test prep and remedial	
Quizlet	Private	Online learning tool	USA	A million users a day	Free online learning tools and apps for students and teachers, provides also a subscription option with access to additional tools for teachers	Free online learning tools and apps	
Renaissance learning (Hellman & Friedman)	Private	Assessment and learning analytics	USA	Acquired by PE company Hellman & Friedman for USD1.1bn in 2014. Host data for over 38k students and reading records for nearly11m US students	Cloud-based assessment, teaching, and learning solutions in K-12	Greater proficiency in maths, reading	
rSmart	Private	Open source software	USA	USD14.3m raised	Provides service and support to the higher ed Learning Management System (LMS) and Enterprise Resource Planning (ERP) open-source software markets	Provides service and support to open-source software markets	
Udacity	Private	MOOC	USA	USD20m raised	For-profit educational organisation providing free online courses, and the possibility to pay to get certificates awarded by universities	Lower cost online degree	

Source: Kepler Cheuvreux

Table 53: Our selection of agents with the highest reach on social outcome variables

Organisation	Private/Public	Target Subsector	Country	Key data on the size, recent fundings		Short description	Impact on social outcomes
edtech companies outside the US							
Busuu	Private	Social learning network	UK	USD4.7m raised in 2012		Online community for learning languages (freemium model)	Free and low-cost access to language contents
Infomentor	Private	Learning platform	Iceland	na		Learning platform creating a link between curriculum, instructional systems and analytics for primary schools	Improved instruction
Moodle	Private	Open source software	Australia	na		Learning platform designed to provide educators, administrators and learners with a single integrated system to create personalised learning environments	Free software e-learning platform
Nonprofit organisations							
Khan academy	Private	MOOC	USA	c.10m unique users per month. Received USD3.5m of funding from the Gates foundation, Google in 2010		Nonprofit organisation providing free online education resources	Free online courses
Code.org	Private	Coding curriculums	USA	USD10m raised		Nonprofit organisation offering free curriculums in coding	Free online courses
CK-12	Private	Open Source Repositories	USA	38,000 users (schools)		Nonprofit organisation providing free STEM content	Free online courses
Edx	Private	MOOC	USA	USD60m invested by the MIT, Harvard in 2012		Nonprofit organisation providing free online courses and run on an open-source software platform	Free online courses
OpenStax	Private	OER	USA	USD9m grant program		Non-profit initiative organisation by Rice University which provide peer-reviewed open textbooks (colleges, launched K-12 programme recently)	Free open textbooks

Source: Kepler Cheuvreux

Glossary

Adaptive learning: “Adaptive learning” solutions leverage various strands of academic research in areas such as intelligent tutoring systems, machine learning, knowledge space theory, memory, cognitive load theory, etc. in the development of technology-enabled delivery models. As such, adaptive learning solutions represent one instantiation of an institution’s approach to personalized learning.

Application/App: Software designed to perform specific tasks; previously on computing platforms, but now moving towards mobile platforms

Big data: data that exceeds the processing capacity of conventional database systems. The data is too big, moves too fast, or doesn’t fit the strictures of your database architectures.

Blended/Hybrid course: "Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has a reduced number of face-to-face meetings."

Cloud Computing: Delivery of services and storage using shared servers rather than individual local devices.

Community source: A particular governance and funding model for open source projects. The term “Community Source” has a specific meaning and history within higher education. It was first (and possibly only) applied to a series of open source software projects funded by the Mellon Foundation, including Sakai, Quali, Fedora, and DSpace (the latter two of which have merged). As originally conceived, Community Source was an approach that was intended to solve a perceived resource allocation problem in open source. They represent different models of procuring software in a two-by-two matrix, where the dimensions are “authority” and “influence”

Competency-based Learning: "Competency-based Learning is a model of education that uses learning, not time, as the metric of student success. Focusing on competencies derived from the skills proven to be most relevant by educators and employers, students acquire competencies (often in an online, self-paced environment), and may also earn credit for prior learning, thus accelerating their progress toward a credential. In short, Competency-based Learning approaches can be more student-centered: meeting students where they are and focusing on the learning they need."

Flipped Classroom: Inverted teaching method, delivering instruction online outside of class and moving “homework” into the classroom

Game-based learning is a type of game play that has defined learning outcomes. It is generally designed to balance subject matter with gameplay and the ability of the player to retain and apply said subject matter to the real world.

Gamification: Using game design and thinking to enhance non-game content to attract users and increase engagement.

Learning Analytics: The measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs.

Learning Management System (LMS): Software that automates the administration of learning/course delivery events. The LMS registers users, tracks courses in a catalogue, records data from learners and provides management reports. An LMS is typically designed to handle courses by multiple publishers and providers. It usually does not include its own authoring capabilities, instead, it focuses on managing courses created by a variety of other sources.

Learning outcomes: A learning outcome is the particular knowledge, skill or behaviour that a student is expected to exhibit after a period of study. Learning outcomes reflect a nation's concern with the level of knowledge acquisition among its student population. Measuring learning outcomes provides information on what particular knowledge (cognitive), skill or behavior (affective) students have gained after instruction is completed. They are typically measured by administering assessments at sub-national, national, regional and international levels.

Countries decide what the purpose of the assessment is, what population will be assessed, what is to be assessed, how it is to be assessed, and how the measures are to be reported and utilized. Policy makers might decide to focus on a limited amount of domains and grade levels while others will focus on the measurement of student knowledge in a wide range of domains and grade levels (World Bank). Examples of learning outcome measures include scores on standardized tests, scores on researcher-created assessments, grades/scores on teacher-created assessments (e.g., assignments, midterm/final exams), and grades or grade point averages.

Examples of learning outcome measures for teacher learners (in addition to those accepted as student outcomes) included assessments of content knowledge, analysis of lesson plans or other materials related to the intervention, observation (or logs) of class activities, analysis of portfolios, or supervisor's rating of job performance. Examples of nonlearning outcome measures (are attitude, retention, attendance, level of learner/instructor satisfaction).

Mobile education: Extension of mobile learning to include the full range of opportunities mobile technologies and systems offer for improving learning, teaching, assessment and educational administration and management. Mobile education incorporates access to e-books, apps and online learning materials and systems, collaboration, learner/tutor communication, evidence collection, e-portfolios, e-assessment, attendance monitoring, task planning, curriculum and device management.

Mobile learning: Mobile learning involves the use of mobile technology, either alone or in combination with other information and communication technology (ICT), to enable learning anytime and anywhere. Learning can unfold in a variety of ways: people can use mobile devices to access educational resources, connect with others, or create content, both inside and outside classrooms. Mobile learning also encompasses efforts to support broad educational goals such as the effective administration of school systems and improved communication between schools and families.

MOOC: A course of study made available over the Internet without charge to a very large number of people. MOOCs typically differ from "regular" online courses in that:

- Those participating are not registered students at the school.

- They are designed for unlimited participation and open access via the web – no tuition is charged.
- There is typically no credit given for completion of the MOOC. Schools may offer online learning and MOOCs in a variety of ways. The survey asked respondents to characterize their face-to-face, blended, and online learning by the level of the course (undergraduate, graduate, non-credit, etc.). Similarly, respondents were asked to characterise their face-to-face, blended, and online program offerings by level and discipline. They were also asked about any MOOC offerings.

Online course: A course where most or all of the content is delivered online. Typically they do not include any face-to-face meetings.

Open Badges: The Open Badge standard allows any person or organization to define a badge (or a system of badges) to recognize achievements

OpenCourseWare: OCW consists of academic course materials created by universities that are shared freely on the internet

Open Data: Open data is data that can be freely used, reused and redistributed by anyone - subject only, at most, to the requirement to attribute and share alike.

Open Educational Resources: OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.

Open Source: Open Source technology is technology where the source code is “open”, that is, the code is available to the public and free to be modified. Improvements can be made by developers and it can be spread or sold to the wider community.

Personalised learning: Pedagogical method or process that draws on observation to inform tailored student educational interventions designed to increase the likelihood of learner success

SaaS: Software as a service: provide software from the cloud rather than local computers which allow flexibility and more updates.

Traditional course: Course where no online technology used – content is delivered in writing or orally."

Web Facilitated course: Course that uses web-based technology to facilitate what is essentially a face-to-face course. May use a course management system (CMS) or web pages to post the syllabus and assignments.

Source: Babson Survey Research Group, edgrowth advisors, EdTechReview, elearning industry, Forbes, GSMA, GSV (from Wikipedia), Hewlett Foundation IBIS, Michael Feldstein, Open Data Handbook, Oxford Dictionaries, Pearson, Society for Learning Analytics Research, UNESCO, US Department of Education, World Bank

Appendix

Table 54: PISA Proficiency Level 6 vs. key factors tested

Country Name	(%) PISA Mathematics	(%) PISA Reading	(%) PISA Science	(%) PISA Average	GDP per Capita (USD)	Teachers per pupil	(%) Fixed broadband subs	(%) Mobile broadband subs
Source (see bottom)	1	2	3		4	5	6	7
Albania	0.030	0.099	0.021	0.050	4406	0.051	5.753	18.400
Argentina	0.006	0.056	0.003	0.022	14680	0.061	13.855	12.400
Australia	4.295	1.949	2.644	2.963	67436	0.056	25.014	96.200
Austria	3.266	0.323	0.842	1.477	46792	0.092	26.015	55.500
Belgium	6.123	1.377	0.942	2.814	43396	0.089	34.395	33.700
Brazil	0.044	0.014	0.003	0.020	11320	0.049	10.077	36.600
Bulgaria	0.687	0.549	0.276	0.504	7022	0.057	18.969	40.300
Canada	4.322	2.097	1.845	2.754	52409	0.057	33.284	50.000
Chile	0.129	0.015	0.041	0.062	15245	0.047	12.251	28.000
Colombia	0.025	0.008	0.001	0.011	7763	0.040	9.285	4.900
Costa Rica	0.063	0.010	0.011	0.028	9443	0.058	9.721	14.500
Croatia	1.628	0.232	0.314	0.725	13159	0.073	21.537	52.300
Cyprus	0.641	0.510	0.179	0.444	26352	0.073	19.913	33.800
Czech Republic	3.234	0.776	0.896	1.635	18690	0.053	17.034	44.000
Denmark	1.657	0.361	0.686	0.901	56364	0.101	40.174	87.500
Estonia	3.591	0.851	1.708	2.050	16887	0.087	26.538	72.500
Finland	3.544	2.228	3.209	2.994	45649	0.074	30.896	106.500
France	3.126	2.268	0.955	2.116	39759	0.056	38.792	52.200
Germany	4.682	0.674	1.591	2.316	42598	0.085	34.576	41.000
Greece	0.646	0.504	0.194	0.448	22395	0.097	26.151	44.500
Hong Kong SAR, China	12.258	1.864	1.810	5.311	36708	0.069	30.754	73.000
Hungary	2.126	0.391	0.475	0.997	12560	0.095	24.120	23.100
Iceland	2.266	0.558	0.650	1.158	42362	0.103	35.148	71.700
Indonesia	0.004	0.000	0.000	0.001	3551	0.054	1.301	31.900
Ireland	2.163	1.344	1.477	1.661	45922	0.062	24.238	64.200
Israel	2.180	1.526	0.619	1.442	32567	0.080	25.669	65.500
Italy	2.160	0.635	0.578	1.124	33814	0.097	22.299	51.800
Japan	7.630	3.865	3.407	4.967	46548	0.059	28.837	113.100
Jordan	0.076	0.009	0.004	0.030	4909	0.050	2.826	10.700
Kazakhstan	0.079	0.000	0.000	0.026	12120	0.062	11.601	42.000
South Korea	12.128	1.574	1.116	4.939	24454	0.056	38.035	106.000
Latvia	1.522	0.280	0.328	0.710	13947	0.091	24.679	51.200
Lithuania	1.437	0.158	0.355	0.650	14172	0.080	22.011	8.600
Luxembourg	2.643	1.392	1.168	1.734	103859	0.108	33.489	72.600
Macao SAR, China	7.565	0.562	0.439	2.855	6093	0.055	13.634	17.200
Malaysia	0.108	0.000	0.005	0.038	10432	0.080	8.221	13.500
Mexico	0.035	0.018	0.000	0.018	9818	0.036	11.139	9.700
Montenegro	0.112	0.036	0.000	0.050	6514	0.132	12.785	27.000
Netherlands	4.362	0.751	1.337	2.150	45961	0.087	40.079	61.000
New Zealand	4.531	3.045	2.664	3.413	38680	0.069	29.207	65.200
Norway	2.090	1.682	1.128	1.633	99636	0.059	36.430	84.600
Peru	0.027	0.012	0.000	0.013	6424	0.052	5.183	2.800
Poland	4.996	1.378	1.703	2.692	12721	0.098	15.608	49.300
Portugal	2.119	0.469	0.310	0.966	20175	0.085	23.837	32.500
Qatar	0.306	0.214	0.147	0.222	92633	0.104	9.936	72.100
Romania	0.592	0.101	0.048	0.247	8437	0.057	17.328	23.700
Russian Federation	1.492	0.458	0.335	0.762	14091	0.051	16.617	52.900

Sources:

PISA data aggregated by <http://databank.worldbank.org/>. All countries. 2012. Series: PISA (last updated 5-8-2014).

<http://databank.worldbank.org/Data/Views/VariableSelection/SelectVariables.aspx?source=Education-Statistics:-Learning-Outcomes#>

1. PISA: 15-year-olds by mathematics proficiency level (%). Level 6 (Percentage of 15-year-old students scoring higher than 669 on the PISA mathematics scale)

2. PISA: 15-year-olds by reading proficiency level (%). Level 6 (Percentage of 15-year-old students scoring higher than 698 on the PISA reading scale.)

3. PISA: 15-year-olds by science proficiency level (%). Level 6 (Percentage of 15-year-old students scoring higher than 708 on the PISA science scale)

4. The World Bank, latest available value. PPP (current USD).

5. The World Bank, Pupil-teacher ratio, primary (last available data)

6. ITU, "Measuring the Information Society", Fixed (wired)-broadband subscriptions per 100 inhabitants, 2012 (<http://www.itu.int/>)

7. ITU, "Measuring the Information Society", Active mobile-broadband subscriptions per 100 inhabitants, 2012 (<http://www.itu.int/>)

Source: Kepler Cheuvreux

Table 55: PISA Proficiency Level 6 vs. key factors tested - continued

Country Name	(%) PISA Mathematics	(%) PISA Reading	(%) PISA Science	(%) PISA Average	GDP per Capita (USD)	Teachers per pupil	(%) Fixed broadband subs	(%) Mobile broadband subs
Source (see bottom)	1	2	3		4	5	6	7
Serbia	1.055	0.208	0.094	0.452	5294	0.064	13.933	40.200
Singapore	19.023	4.998	5.794	9.939	54007	0.057	25.700	123.300
Slovak Republic	3.125	0.287	0.575	1.329	16893	0.067	15.522	34.900
Slovenia	3.431	0.328	1.211	1.657	22059	0.060	24.964	37.100
Spain	1.275	0.508	0.342	0.708	28282	0.079	25.571	53.200
Sweden	1.553	1.220	0.737	1.170	55039	0.104	32.553	101.300
Switzerland	6.756	0.951	1.000	2.903	78929	0.093	43.009	41.400
Thailand	0.538	0.052	0.057	0.216	5480	0.061	7.351	0.100
Tunisia	0.101	0.008	0.000	0.036	4197	0.058	4.771	5.200
Turkey	1.199	0.268	0.038	0.502	10661	0.050	11.187	16.300
United Arab Emirates	0.549	0.160	0.257	0.322	41692	0.056	11.114	50.900
United Kingdom	2.874	1.267	1.842	1.994	38649	0.055	35.731	72.000
United States	2.191	1.006	1.139	1.445	51755	0.069	28.540	74.700
Uruguay	0.121	0.030	0.049	0.067	14728	0.073	21.132	32.000
Vietnam	3.478	0.372	0.979	1.609	1755	0.052	5.619	19.000

Sources:

PISA data aggregated by <http://databank.worldbank.org/>. All countries. 2012. Series: PISA (last updated 5-8-2014).

<http://databank.worldbank.org/Data/Views/VariableSelection/SelectVariables.aspx?source=Education-Statistics:-Learning-Outcomes#>

1. PISA: 15-year-olds by mathematics proficiency level (%). Level 6 (Percentage of 15-year-old students scoring higher than 669 on the PISA mathematics scale)

2. PISA: 15-year-olds by reading proficiency level (%). Level 6 (Percentage of 15-year-old students scoring higher than 698 on the PISA reading scale.)

3. PISA: 15-year-olds by science proficiency level (%). Level 6 (Percentage of 15-year-old students scoring higher than 708 on the PISA science scale)

4. The World Bank, latest available value. PPP (current USD).

5. The World Bank, Pupil-teacher ratio, primary (last available data)

6. ITU, "Measuring the Information Society", Fixed (wired)-broadband subscriptions per 100 inhabitants, 2012 (<http://www.itu.int/>)

7. ITU, "Measuring the Information Society", Active mobile-broadband subscriptions per 100 inhabitants, 2012 (<http://www.itu.int/>)

Source: Kepler Cheuvreux

Pearson

United Kingdom | Media

Buy (Reduce)

Target price
1540p

Current price
1218p

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Sitting in the front row - upgrade to Buy

While consensus is focusing on the poor 2014 performance, we take a longer-term view on Pearson. We believe the revenue rotation towards growing educational areas is starting to produce sizeable results. In 2015, 15% of Pearson's revenues is expected to come from emerging markets, a further 22% from growing college enablers and assessment services. Meanwhile, headwinds seen in mature businesses are abating. We upgrade from Reduce to Buy, raising our TP from 950p to 1540p.

Valuation premium to peers building up again

Pearson's historical valuation premium to peers, at c. 20%, is gradually rebuilding as the message from the company becomes more assertive on the years 2015 and beyond, while competing publishers report reassuring numbers and outlooks on the back-to-school season. The resilience of the premium has been tested in 2013-14, the operating earnings trough.

Best positioned in growing educational areas

Our discussions with industry consultants, private equities and listed companies confirmed our view that Pearson's leadership in China and Brazil, the largest emerging educational markets, offers a sustainable hedge. Pearson has also become leader in the structurally growing areas in mature markets, both organically (in assessment and testing) and through acquisitions (Embanet, inside services).

Improving momentum in mature businesses

Initial indications from industry peers point to a normal back-to-school period, and no evidence of increase in pressure from book rental or open content. We see cyclical headwinds from US college enrolments gradually abating, US K-12 adoptions gradually normalising after the 2012-13 delays, and adoptions in the UK and Italy picking up by 2015.

Upgrade from Reduce to Buy, TP up from 950p to 1540p

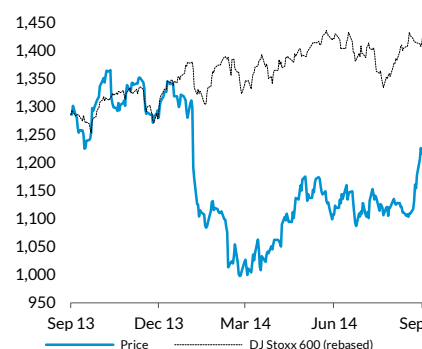
We see earnings and cashflow pressure easing, as restructuring investments are lowered, and the effect of the stronger pound versus the dollar tapers off. We reassess the value of Pearson's growing businesses in our target price, based on the rounded-up average of a SOP and a DCF valuation, consistent with the methodology used for publishers. We raise our TP from 950p to 1,540p, implying a 15.4x EV/EBITDA'16E. We increase our EPS estimates by 4% and 7% respectively for 2014 and 2015 (3% and 5% above consensus) amid easing cyclical and forex headwinds.

A profile of Pearson's key growth assets is provided in the appendix.

Reuters PSON.L
Bloomberg PSON LN
Index DJ Stoxx 600

Market data

Market cap	9.9bnGBP
Free float	100%
No. of shares outstanding (m)	812
Avg. daily trading volume('000)	2,043
YTD abs performance	-9.2%
52-week high (GBP)	1365.00
52-week low (GBP)	998.00



FY to 31/12 (GBP)	2014E	2015E	2016E
Sales (m)	4,849	5,095	5,311
EBITDA adj (m)	882	1,007	1,040
EBIT adj (m)	746	864	891
Net profit adj (m)	538	638	665
Net fin. debt (m)	1,442	1,277	1,109
FCF (m)	418	458	485
EPS adj. and fully dil.	66.33	78.56	81.87
Consensus EPS	64.0	75.3	81.0
Net dividend	48.96	52.39	56.05

FY to 31/12 (GBP)	2014E	2015E	2016E
P/E (x) adj and ful. dil.	18.4	15.5	14.9
EV/EBITDA (x)	13.0	11.2	10.7
EV/EBIT (x)	15.4	13.1	12.5
FCF yield	4.2%	4.6%	4.9%
Dividend yield	4.0%	4.3%	4.6%
Net debt/EBITDA (x)	1.8	1.4	1.2
Gearing	25.2%	22.0%	18.9%
ROIC	7.4%	8.6%	8.9%
EV/IC (x)	1.5	1.5	1.5

Summary

Company profile

Pearson is the global leader in educational publishing. It co-owns the largest tradebook publishing company, Penguin Random House, jointly with the German conglomerate Bertelsmann.

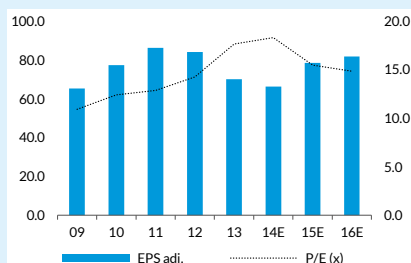
Management structure

John Fallon	CEO
Robin Freestone	CFO

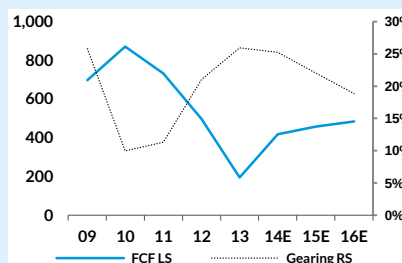
Key shareholders

Blackrock	5.1%
Aberdeen	4.3%
Northern Cross	3.4%

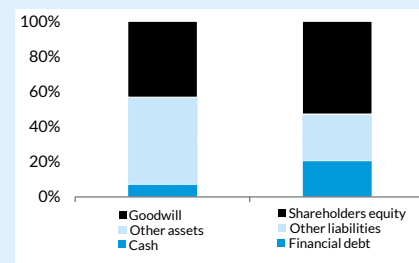
EPS and P/E



FCF and Gearing



Balance Sheet Structure, 2014E



Valuation

Base case

Based on the average of SOP and DCF.

Best case

1,900p. Peak multiples on full delivery on the turnaround

Worst case

1,050p. Revenues in mature markets continue to decline despite the digital migration.

Target price



Risk to our rating

Upside: 1) accelerated execution on cost savings, 2) sale of the FT for >USD1bn. Downside: 1) further market share loss to competitors in US Higher-Ed, 2) disintermediation from technological providers in the school services business, 3) faster takeup of open contents from schools in K-12, 4) price deflation in college from e-textbook borrowing, 5) impact from the Wiley vs. Kirshteng ruling, 6) margin squeeze from FX in Brasil.

Valuation premium to peers building up again

Pearson's historical valuation premium to peers, at c. 20%, is gradually re-building as the message from the company becomes more reassuring on the years 2014 and beyond, while competing publishers report reassuring numbers and outlooks on the back-to-school season. The resiliency of the premium has been tested in 2013-14, the operating earnings trough. We see less risk of a de-rating given an already bearish consensus, and brightening outlook.

Pearson is trading on 13.1x EV/EBITA 2015E, 7% above the median of professional publishers and 13% above the media sector. The stock looks less expensive on 2015 multiples, when most of the benefits from the 2014-15 cost-savings programme will flow through. The company offers one of the best dividend yields among peers, at 4%. The dividend paid out has been increased by 7% in 2014 YOY despite the cash drag flow from the reinvestment programme, pointing to strong management commitment in this sense, while support from FCF will increase in 2015 and beyond.

Table 56: European professional publishers

	Rating	Curr.	Mcap	EV/EBITA		P/E		FCF yield		Div. yield 14E	Net debt/ EBITDA 14E
				14E	15E	14E	15E	14E	15E		
Pearson	Buy	GBP	9,957	15.4	13.1	18.4	15.5	4.1%	4.6%	4.0%	1.8
Informa	Buy	GBP	3,072	11.9	11.5	13.1	12.7	5.8%	5.9%	3.7%	2.2
Reed Elsevier NV	Reduce	EUR	24,857	13.9	12.8	17.3	16.4	5.8%	6.1%	3.2%	1.0
Reed Elsevier PLC	Reduce	EUR	24,857	16.4	14.8	18.4	16.8	5.0%	5.2%	2.7%	1.1
UBM	Buy	GBP	1,501	11.8	10.0	13.6	11.2	3.5%	9.7%	4.4%	2.8
Wolters Kluwer	Reduce	EUR	6,445	11.5	11.2	14.3	13.6	7.3%	7.9%	3.5%	2.1
EU publishers median				12.9	12.2	15.8	14.6	5.4%	6.0%	3.6%	2.0
EU media sector median				13.2	11.6	17.9	15.2	4.5%	6.5%	2.8%	1.5

Source: Kepler Cheuvreux, prices as of 18-9-2014

Why hasn't the stock derated?

In early 2013, CEO John Fallon highlighted the new, unprecedented cyclical (public funding, purchase delays, college enrolments) and structural (print-related) challenges for Pearson. They required a broad restructuring programme including GBP226m of restructuring charges in 2013-14 and GBP50m of further investments in 2014. Still, the stock of has not meaningfully de-rated, and trades ahead of most professional publishers. In our view, three factors prevented the de-rating:

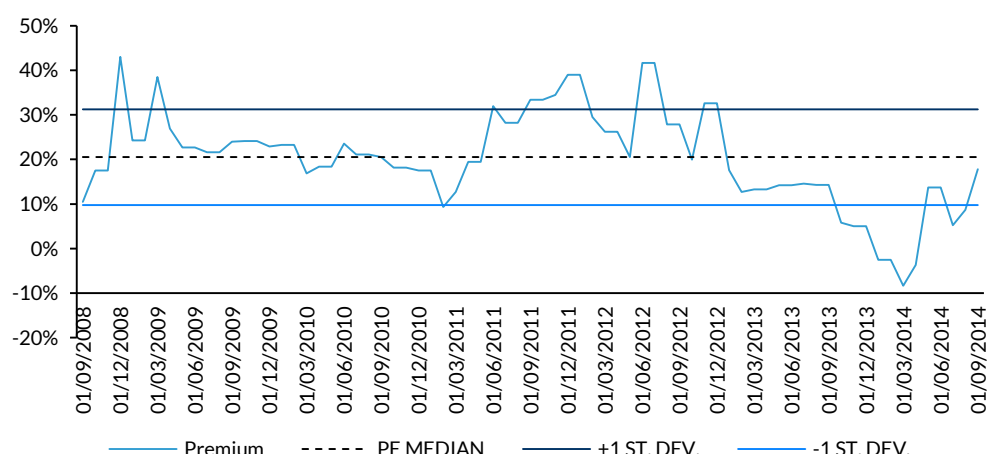
1. **The openness of Pearson's crisis communication.** The company flagged the active shrinking of print sales channels and warehouses, 4,000 layoffs including a large section of the sales force, an increased focus of the variable sales force compensation scheme towards digital targets, and the progress made in the transition towards digital and services, now representing 60% of revenues. Pearson actively downsized the riskiest sales channels, including those that could create streams of print exports to the US following the Kirtsaeng vs. Wiley Supreme Court ruling on first-sale.

2. **The lack of valid investment alternatives in education.** While most educational start-ups have been unable to live up to profitability expectations in recent years, and educational technology pure plays have managed to deliver satisfactory earnings post IPOs, competing “traditional” publishers tend to lag Pearson in terms of scale, geographical positioning in emerging markets, and technological positioning in mature markets. None matches Pearson’s comprehensive presence in the field of education, or its proactiveness in occupying growing fields.
3. **The H1 asset rotation towards defensives.** At end-2013, European cyclical stocks already appeared fully valued. In general, H1 saw an outperformance of more defensive names, including Reed Elsevier and Wolters Kluwer in professional publishing. While Pearson underperformed against those in relative terms, the rotation towards defensives helped avoid a de-rating.

P/E premium versus peers converging back to average

The trading premium of Pearson versus professional and educational publishing peers (Reed Elsevier, Wolters Kluwer, John Wiley, Scholastic, Informa, UBM, DMGT) based on 12m forward P/Es deflated in early 2013, but is rapidly closing the gap versus the historical median of 20%. It has started expanding again since the profit warning issued with FY 2014 results, and continued after the interims.

Chart 125: Valuation premium versus peers (12m forward P/E)



Source: Datastream, Kepler Cheuvreux

What will happen next?

1) 2014 guidance leaves ample room (and time) for manoeuvre

Analysts' consensus on Pearson has clustered around the guidance of 62-67p with an average of 64-65p on Bloomberg, in the middle of the range. Such number appears conservative. Excluding the effect of the restructuring and reinvestment programme, earnings at 65p would imply a 25% drop (GBP140m) in baseline net income. Such a fall would be bigger than the one seen in 2013 (-15% adjusted for the shift to IAS19, or net income of -GBP111m).

We believe 2014 will be another tough year for Pearson, due to: 1) unsupportive underlying market trends, similar to those seen in 2013; 2) a relatively untested organisation of the US sales force following the 2013 layoffs; 3) additional costs to be carried to reorganise the business around the “efficacy” framework; 4) new management layers. Still, we expect slightly better underlying trends than in 2013.

2014 is also likely to see a favourable textbook adoption calendar in the US (Pearson's largest markets) and Italy (where the company is market leader). The guidance appears set to leave ample room (and time) for manoeuvre to the management in 2014 and the years thereafter. Even if the disappearance of restructuring charges is mostly offset by the planned investments, including cash to be used to develop Embanet, we expect a beat of c. 6% versus 2014 consensus EPS.

Table 57: Baseline consensus' NI implies 25% drop in 2014

(GBPm)	2013	2014	2015	2016
Restructuring costs P&L 2013 & reversal	-176	176		
Other restructurings & reversal	-50	50		
Reinvestment	0	-50	0	0
Cost savings	41	60	45	24
P&L impact for the year (vs. previous)	-135	136	95	24
Cumulated P&L Impact (vs. 2013)		136	231	255
Post-tax cumulated P&L impact (@24% rate)		103	176	194
Ratio restructuring costs/savings				
Tot. restr. Costs (excl. Reinvestments)	226			
Tot. savings run-rate	170			
Costs/savings (x)	1.33			
(A) Consensus' adj. NI (Bloomberg)	567	530	616	669
NI growth, consensus		-7%	16%	9%
(B) NI impact of cost savings, cumulated		103	176	194
(A) - (B) = Consensus' baseline NI	567	427	440	475
Baseline NI growth, consensus		-25%	3%	8%

Source: Bloomberg, Kepler Cheuvreux

2) 2015: earnings growth continues thanks to testing

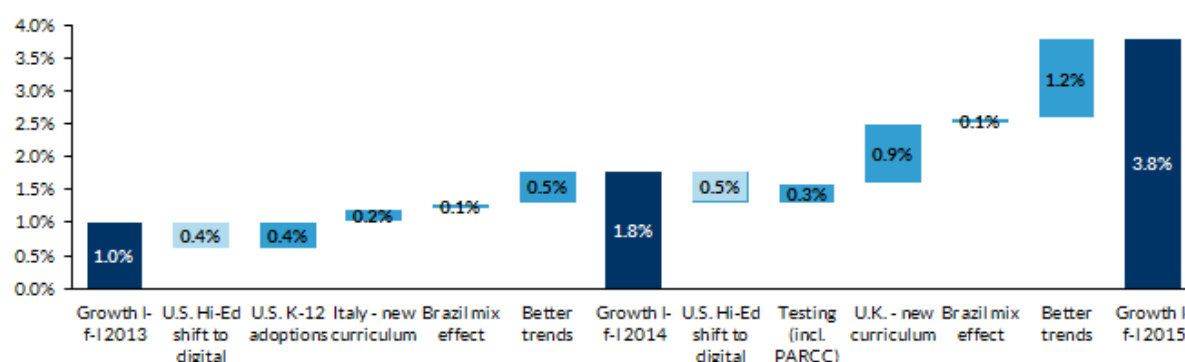
The UK textbook adoption cycle will be the key mechanical addition to Pearson's revenue growth in 2015. Next year should also see the benefit of the market share gains in the PARCC consortium contract in particular (net of the loss of Florida testing), which we estimate at c.GBP90m of incremental revenues spread over 3 years. Such estimates may be conservative, and include a >40% discount in the price per student offered to states, as explained below.

In 2012, Pearson was already the company testing the most students in the US, with 8.8m K-12 students tested in the 45 largest states (Brookings) for high-stakes tests. This was twice the number of students tested by its closest competitor, McGraw Hill, and represented a market share of 44% in a market worth USD700m (Brookings). Each percentage point of the market represented therefore c. USD70m in revenues. We refer here to the mere high-stakes testing contracts, and exclude revenues from test preparations sold to families, as well as complementary services provided to educators.

Having secured the testing contract for the 14 states involved in the Partnership for Assessment of Readiness for College and Careers (PARCC) consortia, Pearson's share increased to 78% in our estimates (based on the number of students in each state tested). However, the total size of the market post PARCC is unknown, as one of the advantages of consortia is to negotiate better prices. In a flat market versus 2012, Pearson would benefit from incremental revenues of c. USD240m (GBP140m). Moreover, Pearson is positioned in some of the states that outsource the most tests, on average 1.8 additional test types on top of the four key common core curriculum standard tests (reading and maths in grades 4 and 8). Additional test types can include science, social studies, writing, high school, and testing for students with disabilities. In turn, more tests included lead to a higher cost per student.

Among the other noticeable components that could contribute to the acceleration of organic growth, a favourable mix effect towards fast-growing economies (especially Brazil) and a better state of public finances (in the US in particular) should contribute to better revenue trends, together with the increasing push towards cost-effective education solutions.

Chart 126: Estimated organic revenue growth acceleration 2013-15, by component



Source: Kepler Cheuvreux

3) Likely sale of FT and The Economist by end-2015

Pearson's repositioning in fast-growing educational markets has been financed in recent years through cash acquisitions, backed by a mix of FCF generation and sales of professional information assets. The latter included IDC in 2010 (GBP1.31bn), the stake in FTSE in 2011 (GBP450m), and Mergermarket in 2013 (GBP382m). In the meantime, Pearson has continued to pay an ever-increasing dividend to shareholders. Financial leverage in our calculations, including pension provisions, has increased from 0.7x in 2010 to 1.9x in 2014E.

Pearson's investment profile (a defensive stock with steady and recurring FCF generation) provides an incentive to management to continue growing the dividend, while pursuing the repositioning of the core business in emerging educational markets.

- **A sale of the FT by end-2015 would allow the group to meet both targets.** The EBITDA and cash contribution from the FT are negligible, while the title could be sold at a “trophy asset” valuation of up to USD1bn/GBP600m (we currently value it at USD700m/GBP410m in our SOP, or 3% of Pearson’s total asset value).
- **Pearson’s 50% stake in The Economist also falls outside the scope of education.** The Economist generates more earnings than the FT, at GBP25m of pro-rated, post-tax contribution to Pearson in 2014. We value the stake at the average EV/EBITDA multiple of listed professional publishers. It represents c. 4% of Pearson’s total asset value.

Potential suitors for both the FT and The Economist could include Bloomberg, Thomson Reuters, and NewsCorp., as well as conglomerates and tech companies with an eye on financial information.

Table 58: Net debt/EBITDA forecasts

	2007	2008	2009	2010	2011	2012	2013	2014E	2015E	2016E	2017E
Adj. EBITDA	844	958	987	998	1,060	950	873	882	1,007	1,040	1,073
Financial debt (cash if positive)	-1,048	-1,678	-1,258	-576	-682	-1,210	-1,497	-1,461	-1,296	-1,128	-962
Pension provisions	-95	-167	-339	-148	-166	-172	-142	-142	-142	-142	-142
Net debt	-1,143	-1,845	-1,597	-724	-848	-1,382	-1,639	-1,603	-1,438	-1,270	-1,104
ND / adj. EBITDA (year-end)	1.4x	1.9x	1.6x	0.7x	0.8x	1.5x	1.9x	1.8x	1.4x	1.2x	1.0x

Source: Kepler Cheuvreux

4) IPO of Penguin Random House is a longer-term option

We welcomed the merger and deconsolidation of Penguin as a positive for both Pearson (which gains a richer bestsellers front-list) and Random House (which will share the pain of the end of the *Fifty Shades* saga with new co-owner Pearson). Consolidation of facilities in consumer (trade) book publishing is a sensible move in light of the market’s transition to digital (eBook).

Still, the US e-book market flattened in 2014 at around one-third of consumer book revenues (and a higher share of total copies sold). As the transition approaches the end, its effects on revenue and margins become clearer, opening an option for Bertelsmann and Pearson to float Penguin Random House.

We value Pearson’s 47% stake on PRH based on the average EV/EBITDA of listed consumer publishers, at c. GBP520m. It represents c. 4% of Pearson’s total asset value.

3% and 5% upside to consensus EPS in 2014 and 2015 respectively

Our EPS estimates are above consensus for 2014 and 2015. They account for the earnings we believe Pearson can achieve each year, based on the reported restructuring costs, benefits and reinvestments, and for some FX uplift. We account for a customary investments/savings ratio of 1.33x. We believe consensus revenues are not meaningful, as they may still partly account for the contribution of Mergermarket in H1 2014.

Given the early stage of the restructuring programme, Pearson’s management may decide to reinvest more in 2014 (e.g. in Embanet programmes) to reap more benefits in 2015. We do not see such a scenario as a risk to our investment case, and believe the guidance given by the company is conservative, as explained in the previous sections.

Table 59: Kepler Cheuvreux estimates versus consensus

	Revenues		Adj. EBITA FC (*)		EPS	
	2014	2015	2014	2015	2014	2015
Kepler Cheuvreux	4,849	5,095	692	809	66.3	78.6
Consensus	4,937	5,216	677	775	64.2	75.0
% diff.	NM	NM	2%	4%	3%	5%

(*) = from fully consolidated assets, incl. restructuring benefits and charges. Source: Bloomberg, Kepler Cheuvreux

Income statement forecasts and valuation

Table 60: Pearson income statement forecasts, new divisional reporting

P&L (GBPm)	2007	2008	2009	2010	2011	2012	2013	2014E	2015E	2016E	2017E
GBP USD	2.00	1.85	1.57	1.55	1.60	1.59	1.57	1.69	1.66	1.66	1.66
GBP EUR	1.46	1.26	1.12	1.17	1.15	1.23	1.17	1.24	1.27	1.25	1.25
Revenues – cont. operations	4,162	4,811	5,140	5,663	5,862	6,112	5,069	4,849	5,095	5,311	5,540
% Change	4%	16%	7%	10%	4%	4%	-17%	-4%	5%	4%	4%
- ow % Organic	6.0%	3.4%	1.5%	5.2%	1.6%	-0.7%	0.8%	1.8%	3.8%	4.2%	4.3%
- ow % FX	-4%	-4%	11%	3%	-1%	-2%	1%	-6%	1%	0%	0%
- ow % Perimeter	2%	16%	-6%	2%	3%	7%	-18%	0%	0%	0%	0%
North America							3,080	2,942	3,096	3,222	3,386
Change (%)								-4%	5%	4%	5%
Organic (%)								2%	3%	4%	5%
Core							1,242	1,169	1,188	1,201	1,182
Change (%)								-6%	2%	1%	-2%
Organic (%)								-3%	2%	1%	-2%
Growth							747	737	812	888	972
Change (%)								-1%	10%	9%	9%
Organic (%)								7%	9%	9%	9%
Adj. EBITDA	844	958	987	998	1,060	950	873	882	1,007	1,040	1,073
Depreciation	-299	-289	-361	-247	-229	-112	-241	-189	-198	-209	-215
Adj. EBITA fully cons. assets	545	669	626	751	831	838	632	692	809	831	859
% margin	13.1%	17.1%	15.1%	16.3%	17.3%	20.9%	12.5%	14.3%	15.9%	15.6%	15.5%
North America							457	450	542	574	569
Margin (%)							14.8%	15.3%	17.5%	17.8%	16.8%
Core							119	162	169	160	176
Margin (%)							9.6%	13.9%	14.2%	13.3%	14.9%
Growth							56	80	98	97	113
Margin (%)							7.5%	10.9%	12.1%	10.9%	11.6%
Penguin-RH							78	54	55	60	60
Mergermarket							26	0	0	0	0
Adj. EBITA group	634	762	858	857	942	936	736	746	864	891	918
Net financial result	-106	-91	-95	-73	-71	-81	-76	-76	-71	-64	-57
Adj. PBT	528	671	763	784	871	855	660	670	793	827	861
Income tax	-131	-172	-198	-146	-199	-148	-87	-131	-155	-161	-168
Minority interests	-26	-31	-37	-3	1	-3	-1	-1	-1	-1	-1
Other adjustments	1	-8	-5	-14	19	-27	-5	0	0	0	0
Adj. Net Profit	372	460	523	621	692	677	567	538	638	665	692
Average fully diluted n. shares	798.1	797.5	800.1	803.0	801.9	805.6	808.9	811.8	811.8	811.8	811.8
Adj. EPS (guid.62-67p in 2014)	46.7	57.7	65.4	77.5	86.5	84.2	70.1	66.3	78.6	81.9	85.3
Change (%)		24%	13%	18%	12%	-3%	-17%	-5%	18%	4%	4%
DPS	31.6	33.8	35.5	38.7	42.0	45.0	48.0	49.0	52.4	56.1	60.0
DPS growth (%)	8%	7%	5%	9%	9%	7%	7%	2%	7%	7%	7%

Source: Kepler Cheuvreux

Best positioned in growing areas

Pearson is the best-positioned educational company in the largest emerging markets (China, Brazil, India), representing 15% of group revenues. It has established a leadership position in US college enablers (EAAS) and assessment, totalling 22% of group revenues in our estimates. Our discussions with industry consultants, private equities and listed companies confirmed our view that Pearson's leadership in China and Brazil, the largest emerging educational markets, offers a sustainable hedge. Pearson has also become leader in the structurally growing areas in mature markets, both organically (in assessment and testing) and through acquisitions (Embanet, inside services).

The educational market opportunity

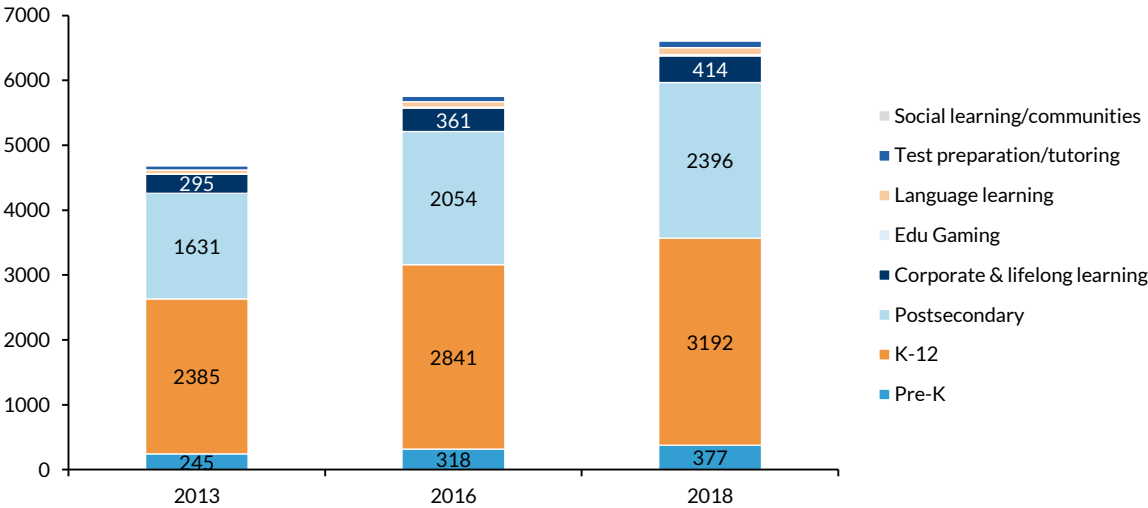
The global educational market benefits from a set of macro-drivers of demand, which have been detailed in-depth by economists and industry participants in recent years:

- **Ever-increasing global government spending in basic education.** The number of children of primary school age who were not attending school fell from 103m in 1999 to 73m in 2006. In that year, primary school enrolment in developing countries reached 88% on average, up from 83% in 2000.
- **Fight against illiteracy.** Over two-thirds of the world's 793m illiterate adults are found in only eight countries (India, China, Bangladesh, Pakistan, Nigeria, Ethiopia, Brazil and Egypt). Of all the illiterate adults in the world, two-thirds are women.
- **Growing global market for higher education.** Global tertiary enrolment more than doubled between 2000 (84m) and 2013 (180m). It is expected by Pearson to reach 300m by 2013 and 500m by 2040, or almost six times the size of 2000 levels.
- **Growth of the global middle class.** In Asia alone, 525m people can already count themselves as middle class — more than the European Union's total population. Over the next two decades, the middle class is expected to expand by another 3bn, coming almost exclusively from the emerging world (E&Y).
- **Advances in technologies disrupting the world of work.** 47% of US jobs are "at risk" of being automated in the next 20 years (Pearson). *"Now comes the second machine age. Computers and other digital advances are doing for mental power – the ability to use our brains to understand and shape our environment – what the steam engine and its descendants did for muscle power"* (E. Brynjolfsson and A. McAfee, *The Second Machine Age* W.W. Norton, 2014)
- **Increasing focus on results and continuing education in mature countries.** *"We know ... that education has to start at the earliest possible age," [...] "We know that while not all of today's good jobs are going to require a four-year college degree, more and more of them are going to require some form of higher education or specialized training."* (US President Barack Obama at the FY 2015 budget presentation at Powell Elementary School in Washington, D.C.)

Based on estimates from GSV, these macro drivers should allow the global educational market (including both public and private spending) to post a CAGR of c. 7% over 2014-18. While emerging educational markets (China, India, and Brazil - the usual suspects) are outgrowing western economies, the US is also expected to post a CAGR of c. 5% due to a

mix of cyclical uplift (higher spending per student after the 2009-13 crunch), increasing adoption of technology, and a continuous focus on results and on lifelong learning.

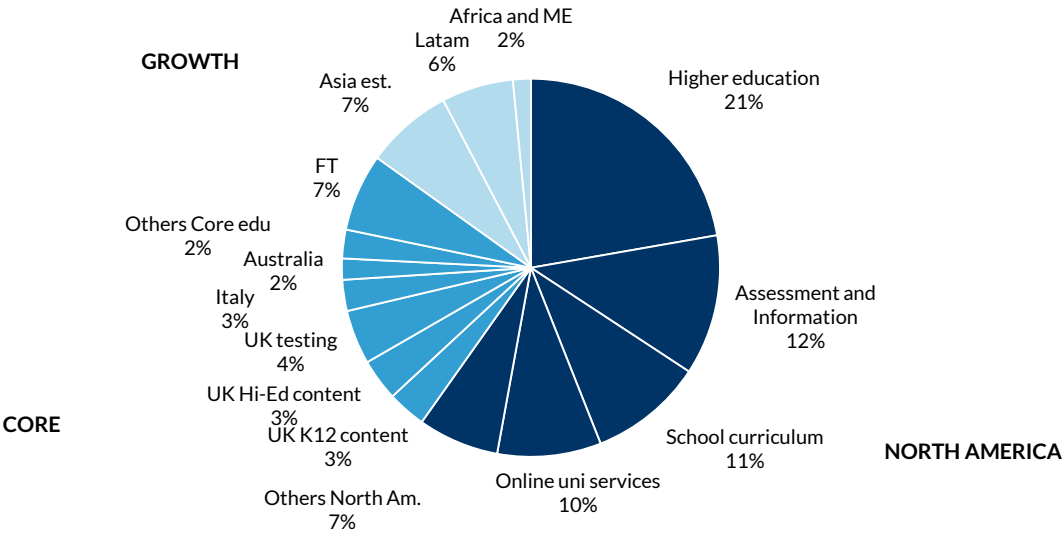
Chart 127: Global educational market forecasts (USDbn)



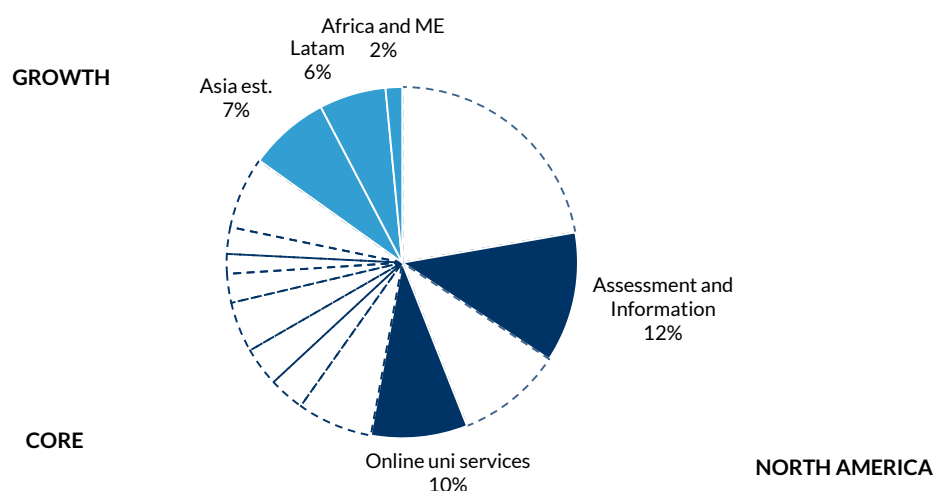
Source: GSV

Pearson's geographical presence, with leading positions in China and Brazil, and technological leadership in the US, is still the best available to investors in educational stocks, as detailed in the sections below.

Chart 128: Pearson - revenue split excluding Penguin 2014E



Source: Kepler Cheuvreux

Chart 129: Pearson revenue split: fast-growing areas (long-term organic growth of 4% or more)


Source: Kepler Cheuvreux

Upselling from private education and technology

N.B. The following section on industrial opportunities in Emerging Markets has been developed in partnership with Abhinav Mital, partner at the Parthenon Group in Mumbai (contact: mumbai@parthenon.com). All views on specific stocks and industrial assets mentioned in this report belong to Kepler Cheuvreux analysts.

According to our estimates, emerging markets could represent 16% of Pearson's revenues in 2015. The strongest demographic and political macro trends in education are unfolding in emerging markets. At a slightly closer level, when looking at the demand factors that can be fulfilled by private companies, emerging markets are catching up with western economies and the US in particular on two aspects: 1) the availability of private "premium" educational options (mostly in K-12); and 2) on the technological side. The penetration of private schools is the main driver behind technological penetration in emerging markets.

Technology is a big enhancer of access in emerging markets, but only where the internet infrastructure is available. Once a technology is available, emerging markets tend to "crash the timetable" and adopt them very quickly, according to Abhinav Mital.

There is a fundamental difference in the utility of technology between developed and developing economies. Technology in developed countries is about giving access to education to people that were not in education previously. This is not because student bodies lack access to educational options, but rather due to financial constraints and other socioeconomic issues, and technology is used to make education more affordable (e.g. MOOCs). Conversely, in emerging markets technology is used to improve the quality of education, and the number of available options, for the existing student population.

The constrained public budgets in some emerging markets and Brazil in particular, have pushed some governments to stimulate the offer of cheaper, more efficient private schools to develop the skills required by the country. In turn, private education has spearheaded the penetration of technology. While public schools in emerging markets tend to prioritise the number of students enrolled over quality, private schools are the first to adopt new tools, and can command a premium in the market, according to industry consultant Abhinav Mital, at The Parthenon Group.

Brazil's public policies paved the way for private not-for-profit schools in the 1990s, and only more recently allowed for private for-profit operators. Private enrolments currently represent 17-18% of K-12 students in Brazil and 30-35% of higher-ed students. While around 30% of schools in Malaysia are private, this segment is growing at twice the rate of public schools. Most developing markets are only at 5-7%, and limited to very elite groups of people.

Brazil: expect 5% underlying market revenue growth in 2014-17E

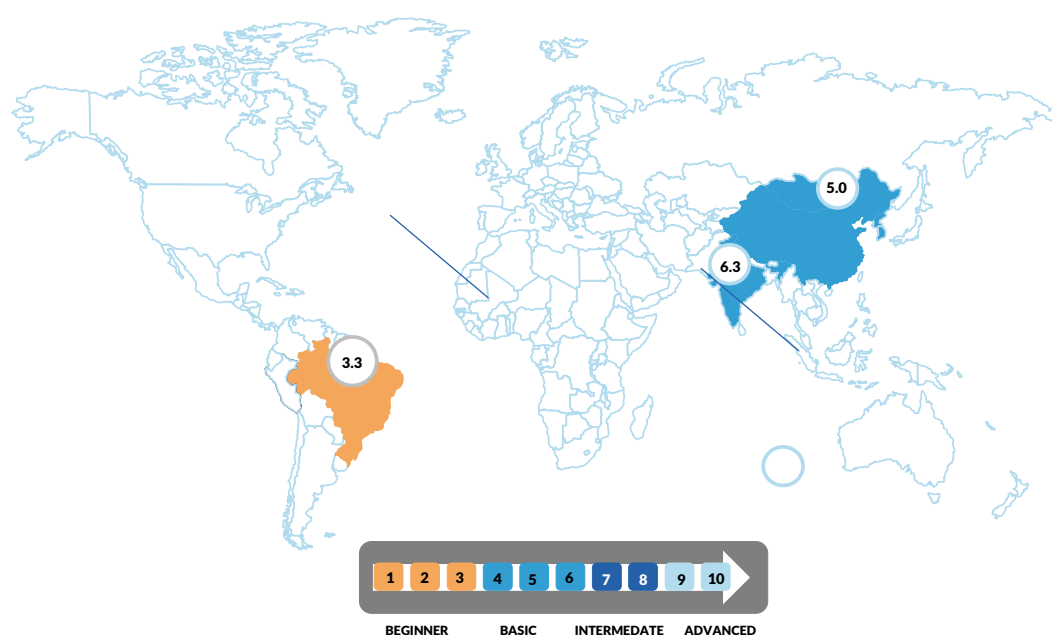
Brazil is Pearson's second largest emerging-market network after China. In Brazil, Pearson operates the "Sistema" schools and digital platforms, as well as the market-leading English language teaching "Grupo Multi", and Wall Street English.

Outlook for "Sistema" remains supportive. "Sistema" schools and digital platforms are well positioned to exploit the surge in private education. While 2013 registrations to Pearson's Sistemas were down by 7% to 497,000 YOY, part of this is likely to be related to local elections, creating swings in contracts, and to salesforce consolidation. The slowdown is likely to continue in 2015 and to normalise starting from 2016, in our view.

The underlying market for private school services in Brazil is likely to continue growing by c. 5% YOY in the coming years, according to Parthenon analyst Abhinav Mital, as private education reaches the more under-penetrated territories in north-eastern Brazil. There is also an element of consolidation in the market, as the largest players benefit from a scale advantage. Pearson could easily identify more acquisition targets in the area (Abril, Colejo Colégio Objetivo, Colégio Positivo, etc.)

Going forward, Pearson could develop its business to address a working student population, a market currently being pioneered by Anhanguera (not owned by Pearson).

English language teaching (ELT) in Brazil a long-term opportunity. In late 2013, Pearson's Grupo Multi, acquired for GBP440m (10.5x EV/EBIT), is the largest ELT provider in Brazil. Brazil is the one of the largest English-language education markets, worth about GBP2bn, according to Pearson. The second-largest operator is Wise Up, purchased by Abril PE funds in early 2013 for 10x EBITDA at USD448m). Only 2-4% of Brazilians can speak English, compared with at least 10% in Mexico and developing economies in Asia, according to Abril at the time of the acquisition.

Chart 130: ELT demand driver: Business English Index competency scale (1-10)

Source: Pearson Business English Index by Global English

Asia: expect strong organic revenue growth in 2014-17E driven by China

The ELT market in China is driven by affluent clients and is a strong growth market. Wall Street is a lifestyle product as well due to its brand. Pearson's Wall Street English enrolments did not grow much across the globe in 2013 (+0.3%), but the company confirmed to us that China is still posting double-digit growth and has not experienced any slowdown recently.

Global Education and Technology Group saw very strong growth in registrations in 2013 (+19% YOY to 1,306,000). Pearson's outlook on the business remains optimistic, and its competitor New Oriental recently reported better trading following a deceleration last year, as the strategy focuses on more tailor-made, richer ("VIP") preparation courses.

India remains a very tough market to crack, due to the very cheap content and widespread photocopying of content. Pearson recently secured a teacher-testing assignment from the Central Board of Secondary Education, as part of an ongoing partnership. Still, the government is very price-sensitive, and contracts in the field are not plentiful. There is some opportunity in India from supplemental materials in K-12, while in higher education piracy is widespread.

Africa and Middle East a small pocket, mobile can become an opportunity

The penetration of mobile education through smartphones is a great longer-term opportunity for enablers in Africa, as well as in modern and highly committed countries such as South Korea, where students would be ready to pay a premium for exclusive access to educational content through mobile devices.

Table 61: Pearson estimated revenue growth in key emerging regions

"Growth" revenue	2013	2014	2015	2016	2017
Revenue	747	737	812	888	972
% growth		-1%	10%	9%	9%
% organic		7%	9%	9%	9%
% of group total	15%	15%	16%	17%	18%
By region					
Asia	2013	2014	2015	2016	2017
Revenue	360	363	412	453	498
% growth		0.9%	13.4%	10.0%	10.0%
% organic		8.0%	10.0%	10.0%	10.0%
Latam (mostly Brazil)	2013	2014	2015	2016	2017
Revenue	310	300	321	353	388
% growth		-3.3%	7.0%	10.0%	10.0%
% organic		8.0%	9.0%	10.0%	10.0%
Africa & ME	2013	2014	2015	2016	2017
Revenue	77	75	79	82	85
% growth		-3.1%	5.8%	4.0%	4.0%
% organic		4.0%	4.0%	4.0%	4.0%
"Growth" adj. op. profit	2013	2014	2015	2016	2017
Adj. Operating Profit	56	80	98	97	113
% Margin	7.5%	10.9%	12.1%	10.9%	11.6%

Source: Kepler Cheuvreux

Structural market share winner in assessment and training

Mature markets also encompass niches of growth, where Pearson has built up scale in recent years. Despite the ongoing wave of innovation in the educational field, being a publisher by heritage is not a handicap. Indeed, our analysis of the earnings and listed market cap of educational leaders in recent history shows that sustainable profitability in publishing has clustered around content and retail, instead of technology pure-plays.

We identify two "mature-market growth niches" for Pearson, both of which are US-centric:

- **Mature markets opportunity 1: assessment and training.** Thanks to its scale and skills, Pearson is also a long-term market share winner in the mature western assessment markets, particularly in the US and the UK. We consider the US testing and assessment market to be a "growth" area for Pearson, where the company can achieve an average 5% organic growth rate in the medium term.
- **Mature markets opportunity 2: online enablers.** Online university services (enablers, or EAAS), including Pearson's market-leading Embanet. We expect a 10% CAGR in US university services over 2014-18E. Pearson claims to be able to create a per-student revenue opportunity from inside services 14x larger than from college textbooks, on margins that are 15% higher (albeit on a 5% lower cash conversion ratio).

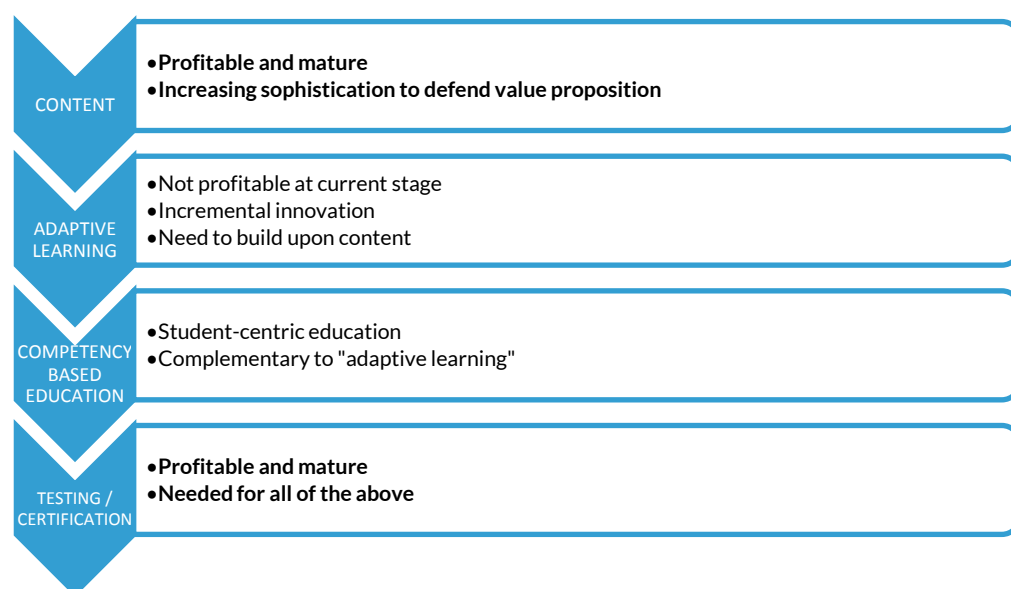
Mature markets opportunity 1: assessment and training

Pearson runs most of the outsourced high-stakes school tests in US and the UK, and owns the most well-established school and professional testing business worldwide.

While testing and assessment is not, in itself, a structurally growing market, Pearson's scale and technical edge makes it a structural market share winner, in our view. This point is exemplified by the recent shift in market share in US K-12 high-stakes testing, the most competitive and well-served testing market in the world.

The increasing interactivity of education on the one hand, and the increasing attention by governments to student achievements instead of simply access to education (e.g., in the US, where the “No Child Left Behind” policies have been complemented by “Race to the Top” funds from President Obama) all point to the need for more frequent and precise testing of students.

Chart 131: Profitability clusters in content and testing



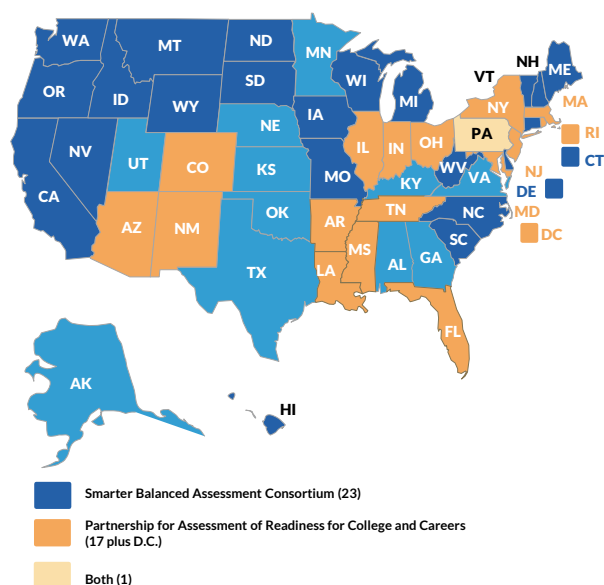
Source: Kepler Cheuvreux

More frequent testing can be embedded in content, which becomes adaptive (adaptive learning), thus allowing students to interact more with the content that is most useful to their progress, saving time to aim at new, higher goals.

In parallel, thanks to testing, vocational schools can be made aware of the existing skills of their applicants, and promote cheaper “competency-based education” (CBE) programmes. All of the above require testing to measure and certify student achievements.

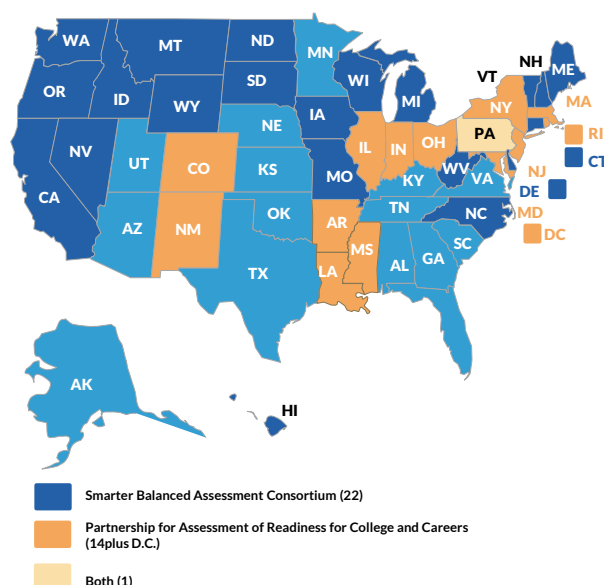
In implementing the Common Core State Standards, 45 states had to reform their testing systems. They did so by teaming up in consortia, with the aim of improving coordination and negotiating better conditions with vendors on the new tests. The bulk contracting system opened up opportunities for the most competitive vendors to gain market share.

Chart 132: Common core assessment consortia 2012



Source: Education Week

Chart 133: Common core assessment consortia 2014



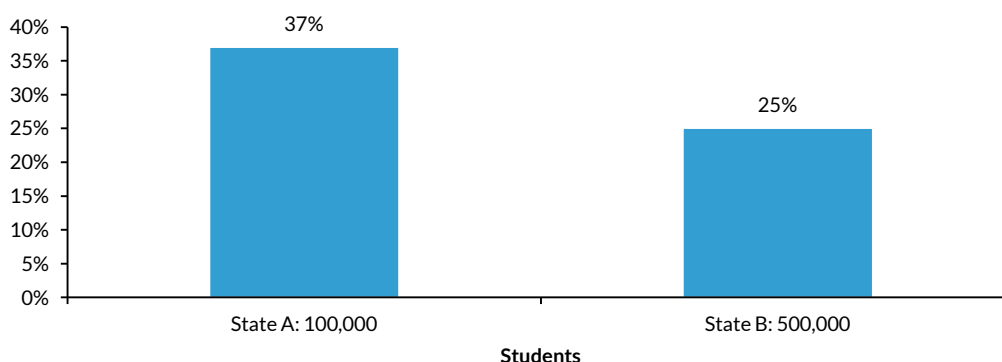
Source: Education Week

Scale the competitive advantage when purchase made by consortia

Our analysis, based on research from the Brookings Institute on state contracting economies from consortia, shows that Pearson's leadership positioning in US testing and assessment is a self-reinforcing mechanism.

Evidence from the Brookings Institute suggests that larger states tend to spend less per student than smaller states, thanks to economies of scale at large vendors translating into more competitive bidding prices. Pearson has been able to exploit its size to swiftly become the strongest player in the US, based on our estimation of the market share by number of students tested.

Chart 134: Savings for a state joining a consortium of 1m students (by size of the state joining)

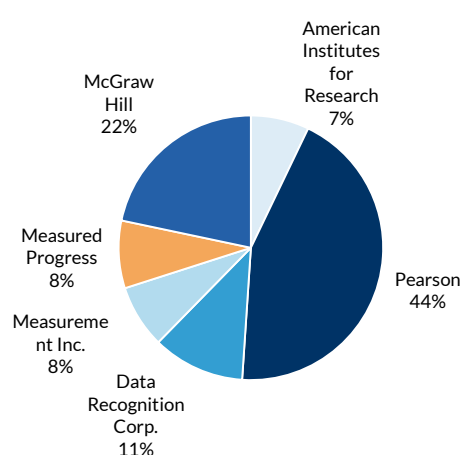


Source: Brookings Institution

The collaboration of states implementing the standards through consortia to eventually negotiate lower prices for the tests could also lead to a “winner takes all” situation favouring Pearson. The Brookings Institute estimates that a state with 100,000 students that joins a consortium of states containing 1m students saves an estimated 37%, or USD1.4m a year, while a state with 500,000 students saves 25%, or USD3.9m, by joining the same consortium.

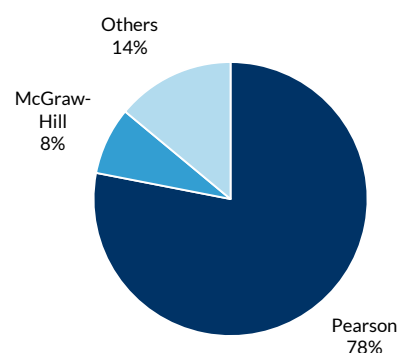
For states to achieve these savings, they have to choose the same testing contractor. Scale becomes a key factor of success for the contractor. An example of such an advantage, is the award of the PARCC contract to Pearson (which is still being questioned by some stakeholders, although the main protest led by the American Institute for Research has been dropped by the New Mexico purchasing officer), which we value at c. GBP100m a year in incremental yearly testing revenues.

Chart 135: US K-12 testing market shares in 2012



By number of students tested. Source: Brown Center on Educational Policy at Brookings

Chart 136: US K-12 testing market shares in 2015E



By number of students tested. Source: Kepler Cheuvreux

Assessment is the door to the c. USD100bn tutoring market opportunity

The primary assessment contract market in K-12 is estimated at c. USD700m by the Brookings Institute, or USD1.7bn (2012) when including other tests and assessment-related activities that are not contracted out. The small size of the market, and its maturity, hide larger opportunities. Being the operator of high-stakes tests in K-12 and the most well-known English testing company provides the basis to leadership in other related areas, such as test preparation, tutoring, and placement.

- **Test preparation and tutoring (Tutorvista/GET).** In 2011, Pearson acquired a majority stake in Tutorvista, an online tutoring company based in India providing global tutoring in diverse fields such as English, mathematics, and sciences. Around 2,000 teachers provide on-demand tutoring for prices ranging from USD40 for a two-hour clarification in K-12 to USD375 for a three-month unlimited subscription for a college student. In 2011, Pearson also acquired the **Global Education and Technology Group (GET)**, a leading provider of English test preparation in China. Registrations grew by 19% in 2013 to 1.3m.

- **Placement (Accuplacer).** Pearson is the official provider of content and tools for the Accuplacer test, a computer-based placement test of college-readiness. Accuplacer is used by 1,000 US high schools and colleges in the US. The number of registrations grew by 4.4% in 2013 YOY to 7m, the equivalent of one-third of US autumn enrolments in degree-granting colleges.

The global leader in testing is also set to become the natural global leader in tutoring and placement, a global growth market estimated at USD60m by GSV, and expected to post at a CAGR of 12%, reaching USD106bn by 2018 (or USD103bn according to GIA).

Mature markets opportunity 2: “enablers”

Online university services (also called “inside services”, EAAS, etc.), including Pearson’s market-leading Embanet, represent the most promising area for profitable revenue growth in mature economies. Enablers allow colleges to set up fully-fledged online degrees with their own faculty, assessment, and content, although part of the books are provided by external publishers (including Pearson) and bundled in the tuition fees. They are usually short courses such as one-year MBAs. Their tuition fees can be as high as the traditional courses, but the total cost to students is much lower than the cost of an in-class MBA once room and board and a reduction in current earnings are taken into account.

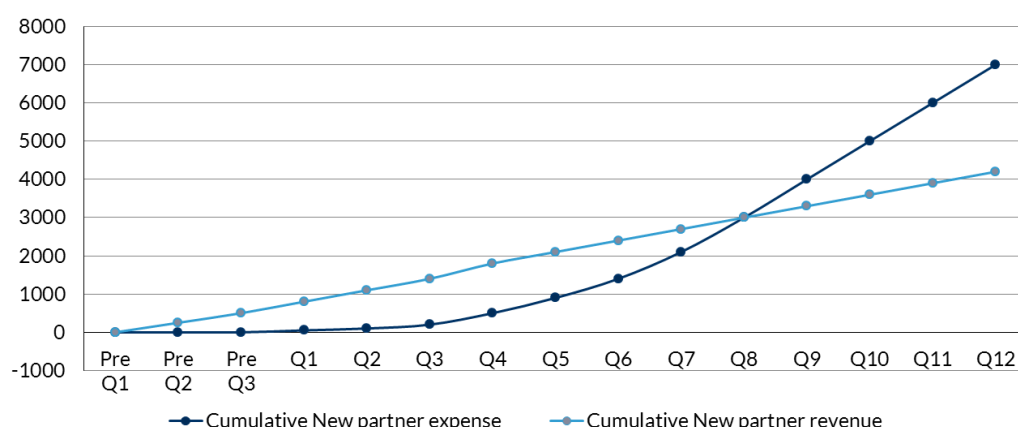
Pearson claims to be able to create a per-student revenue opportunity from inside services 14x larger than from college textbooks, on margins that are 15% higher (albeit on a 5% lower cash conversion ration). We expect a 15% CAGR in US university services over 2015-17E. Pearson’s main competitors are Deltak, owned by the listed John Wiley & Sons, and the recently listed 2U.

Hints on the economics of enablers

The US market is still at its beginnings, but has already developed a clear structure, with 2U (recently IPOed) at the very premium end of the market. Embanet is older, and still works for many colleges as a supplier more than a partner.

Upfront investments and relatively long timing to profitability is another important feature of enablers. Contracts usually need 18 to 36 months of unprofitable running before starting to generate profits, which is why the contract duration is usually long at around ten years (Pearson claims an average breakeven for its partners in two years). Profitability timing for the provider depends on the number of programmes: otherwise said, many new programmes mean slower breakeven. The NPV of each single programme is evaluated separately by the operator.

Enablers therefore require significant upfront investments. At John Wiley & Sons for instance, following the acquisition of Deltak in FY 2013, technology investments increased by 24%. (*“Technology expense increased 13% over the prior year as we continue to invest in new technology-enabled services and systems. For fiscal year 2015, we expect technology expense growth to be approximately 10%.”*, from the FY 2013 Bloomberg transcript).

Chart 137: Investment profile of Pearson's "new services business"

Source: Pearson

Economically compelling for colleges, as they do bring more revenues

The advantage of enablers as compared to other forms of educational technology, such as DLPs, is that enablers bring new revenue to institutions.

Enablers' reputation and brand is the most important variable, and in particular the best brands have the opportunity to federate the best universities in a virtuous circle. Providers can raise sustainable barriers to entry in the form of: 1) cash investments needed upfront; 2) expertise and knowledge of the needs of each individual institution; 3) track record and expertise: colleges are outsourcing some of their key functions, and have their reputation engaged.

The risk associated with the enablers' hype is that they prove unable to become standalone, sustainable profit generators, or that their prospects fade due to overcompetition, as is the case for digital learning platforms (the last-decade tech hype).

Once the expensive and time-consuming initial setup of the new online programmes is completed, the challenge for operators will come from contract renewals and for providers to avoid becoming commodity infrastructure plays (revenue sharing terms are currently favourable to the operators versus the outsourcer, in some cases as high as 80%-20% in favour of the former, as in the case of UCal).

Improving momentum in mature businesses

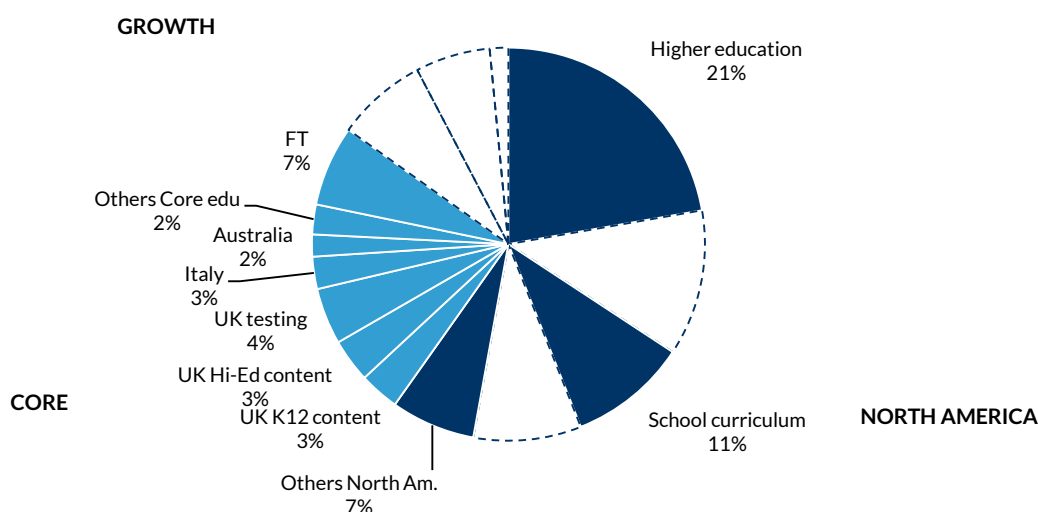
While mature businesses generate little structural growth, initial indications from industry peers point to a normal back-to-school period, and no evidence of book rental or open content hitting trends further. We see cyclical headwinds from US college enrolments gradually abating, US K-12 adoptions normalising after the 2012-13 delays, and adoptions in Italy and the UK rebounding in 2014 and 2015 respectively.

Pearson's mature revenues are mostly in US education (39%) and in particular higher-education content and services. Mature "core" revenues from the UK, Italy, Australia and other non-North American countries account for 19% of Pearson's 2014 revenues in our estimates, while the FT (mostly accounted for by Pearson in the "core" segment) accounts for c. 7%.

The market for traditional educational content (K-12 and college) flattened in 2012-13. Budgetary pressure in the US led to an unprecedented drop in spending per student, with particularly strong pressure on print content, and compounding weak calendar years for textbook adoption in Europe. However, the situation is likely to improve starting from H2 2014.

We believe Pearson's organic revenue growth can be restored at a level of c.4% based on the cyclical indicators we analyse in this section, and on the increasing contribution from growing businesses analysed above. However, for top-line growth to sustainably exceed 4%, we believe Pearson will need a return to growth in US college enrolments, which still appears out of sight for now.

Chart 138: Pearson revenue split 2014E: mature businesses (long-term organic growth <4%)

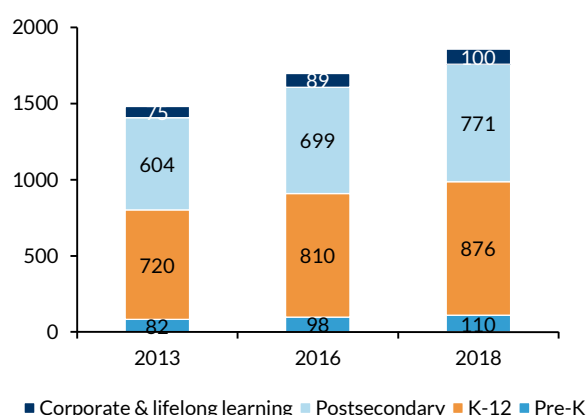


Source: Kepler Cheuvreux

US school curriculum (K-12) market picking up in H2

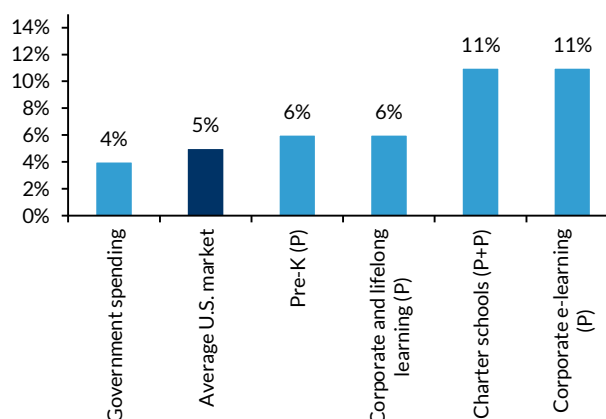
The US educational market is the world's largest, accounting for one-third of global market spending. It is expected by CSV to post a CAGR of c. 5% due to a mix of cyclical uplift (higher spending per student after the 2009-13 crunch), increasing adoption of technology, as well as a continuous focus on results and on lifelong learning. Pearson, the market leader, is the best positioned to benefit from the US government's focus on technology and accountability in education.

Chart 139: US educational market forecasts (USDm)



Source: GSV

Chart 140: Expected CAGR 2014-18 by item



P= private. P+P = public + private. Source: CSV

K-12: better new adoption calendar in 2014-16

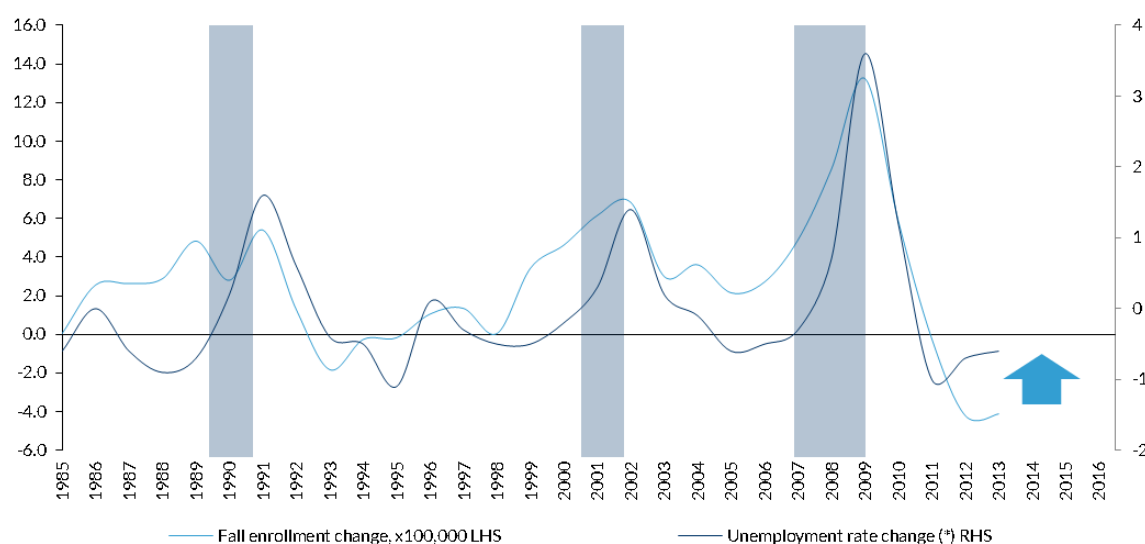
Legacy revenues from print represent 40% of the total (or c.50% when accounting for Penguin Random House). A large part of those come from K-12, where print is proving to be stickier. However, K-12 is set to benefit from stronger adoptions in the US, the UK and Italy, Pearson's largest K-12 markets, and whose cumulated K-12 revenues represent c. 15% of Pearson's total revenues.

In the US, uncertainties surrounding the adoption of common core curriculum standards pushed schools, districts and states to delay new adoptions. Things are set to improve from now on: 2014, 2015 and possibly 2016 are likely to be better years for new adoptions in adoption states, according to Seth Reynolds, partner at The Parthenon Group. Still, a return to the "golden years" of an adoption market is unlikely, as some of the budget previously used for content has been persistently reallocated to other purchases, such as supplemental materials (Scholastic's *Read 180* is an illustrative success story in this sense). The new adoptions market, in particular, is set to grow from USD400m in 2013 to USD850m in 2014E, according to Pearson, although part of the P&L growth will be absorbed by an increase in deferred revenues, in a market where Pearson is losing share.

US college enrolment indicator slowly improving

Pearson's higher education revenues are a function of the number of educational products sold to students and, in turn, of the number of students enrolled in American colleges. History shows a strong positive correlation between unemployment and enrolments, with 2009 the most dramatic peak in recent history. Indeed, enrolment in degree-granting American institutions grew by c. 10% in 2009, at the peak of the recession.

Chart 141: Percentage change in autumn college enrolment vs. unemployment, US, 1985-2013 (recessions shaded)



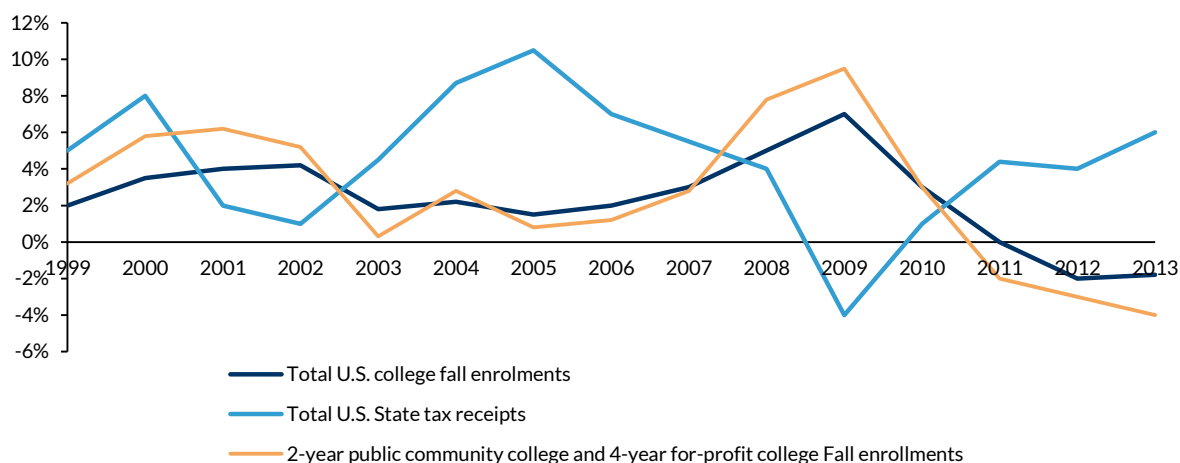
Source: BLS, Kepler Cheuvreux

Expect flattening, growth unlikely for next 3-4 years

While the worst part of the enrolment drop seems to be over, it is too early to forecast a return to growth. In particular, the flattening of introductory and short courses continues to hurt volumes of college textbooks, and to weigh negatively on trends. Short courses are particularly content-hungry.

The mechanical impact on sales is to make the market smaller, and over-supplied with second-hand copies, as highlighted by the Parthenon Group. For instance, if in year 0 publishers sold on average 35 new textbooks for 100 freshmen, and enrolment is down by 2% (from 100 to 98), freshmen still get c. 65 used textbooks in the market for the previous year's students. Ultimately, publishers only sell 33 new books (98 students, of which 65 buying used). Coupled with a growing rental market which puts even more used text books back into the system, this is why the number of copies sold to colleges has decreased (as reported by Pearson in 2013) by more than 20% in four years.

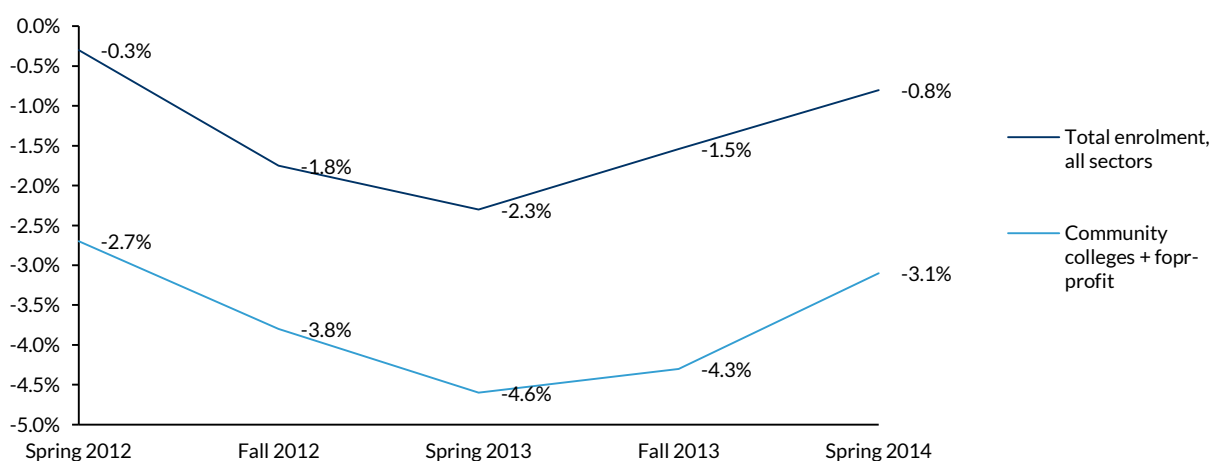
The silver lining in college is homework solutions. Publishers are realising that homework solutions, and digital platforms in particular, have a higher sell-through rate than textbooks.

Chart 142: 2009 enrolment base effect softening, state budgets improving

Source: Pearson FY13 presentation

The cyclical headwind of 2010-13, which is continuing into 2014, is a product of lower state tax receipts (paying for K-12 textbooks) and smaller federal budgets for colleges (capping growth in available college places) compounding the base effect of the students that entered school in the 2009 “boom” leaving the classes.

Still, even if growth is not yet in sight, the more detailed picture provided by Pearson at the interims shows more clearly that the bottom of the enrolment cycle is now over.

Chart 143: Enrolment trends have started to pick up

Source: Pearson from National Student Clearinghouse

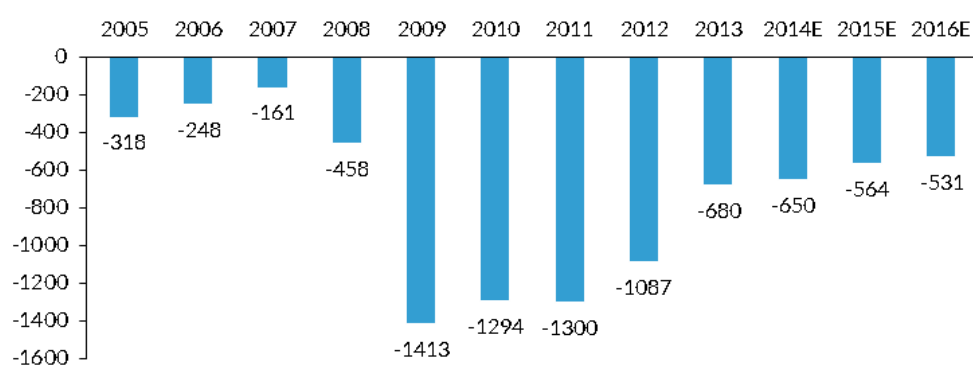
US public funding for education clearly improving

Better tax collection from the US government since 2012 should favour enrolment availability and affordability, fund educational programmes, content and software purchases. We see the budgetary headwinds turning into tailwinds starting from FY 2014.

Federal budgetary shortfall narrowing

Most of Pearson's college products are sold directly to students. Still, colleges' enrolment capacity and availability of funding for software largely depend on the US federal budget, whose shortfall has been steadily improving since 2011, and more decidedly so since 2013. Federal money also funds grants under the *No Child Left Behind* and the *Race to the Top* programmes, respectively benefitting supplemental materials and common core content/testing purchases.

Chart 144: US Federal Government budget and forecasts, 2005-16E

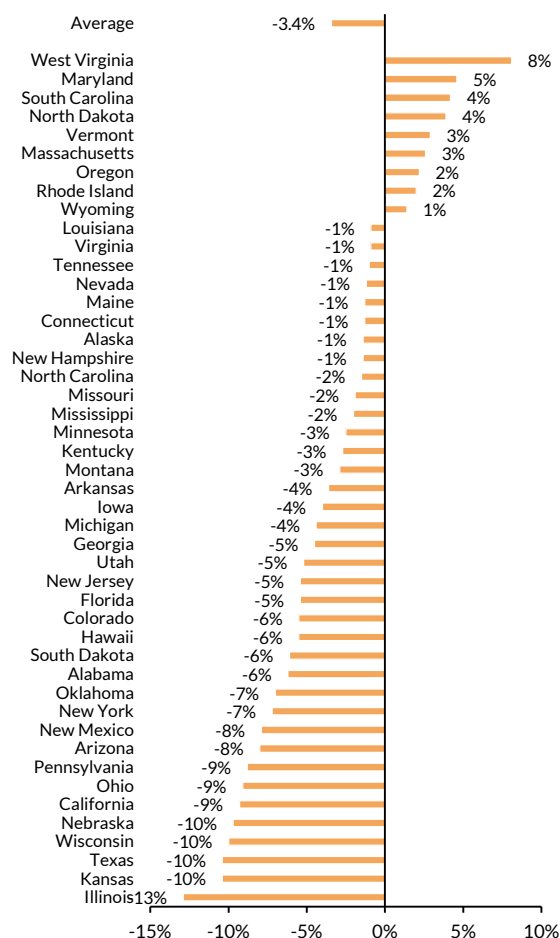


Sources: White House, usgovernmentspending.com forecasts

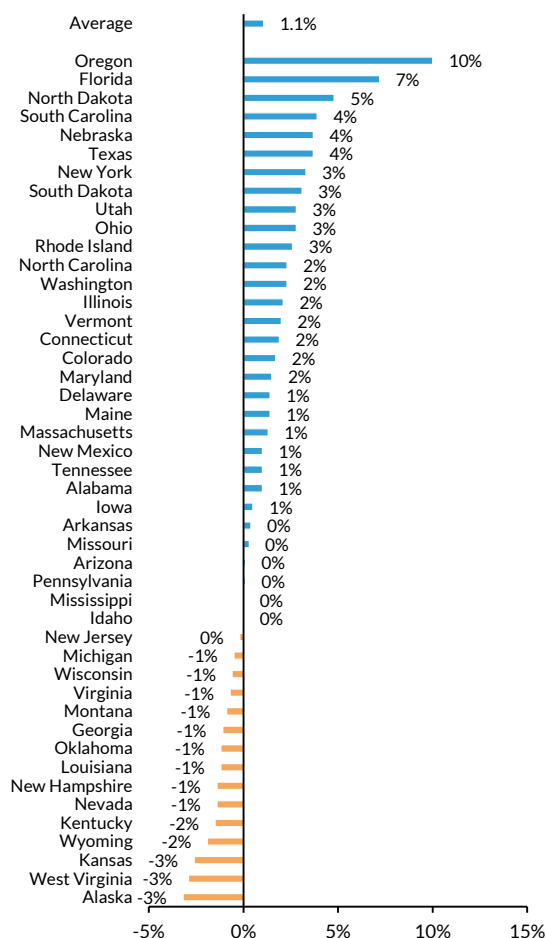
State funding support for K-12 is back

State funding support for schools has clearly improved since fiscal year 2012, as shown in the following charts. In 2012 US states cut their spending per student by 3% on average across the states for which the Center for Budget and Policy Priorities (CBPP) has data. However, in fiscal year 2014, spending per student increased by 1% on average. States are the main source of funding for K-12 schools and districts, which are in turn the biggest direct purchasers of K-12 content.

The return to spending per pupil observed in 2014 also involves the largest states, and in particular the top three: California (whose number is not reported by the CBPP due to a change in accounting methodology), Texas (+4%) and Florida (+7%).

Chart 145: % change in school spending per student, FY12


Inflation adjusted. Source: CBPP, Kepler Cheuvreux

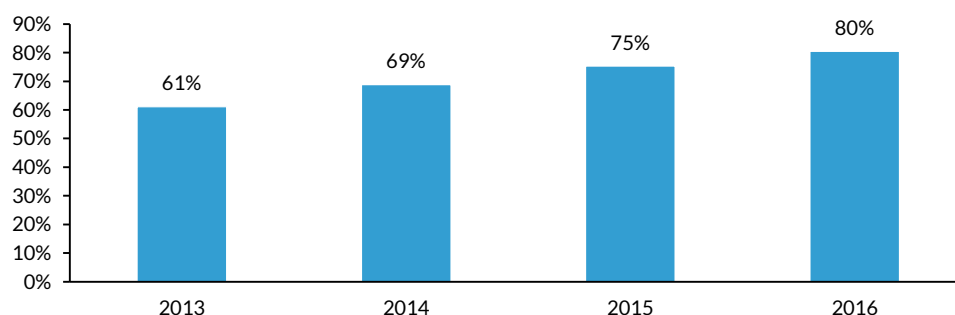
Chart 146: % change in school spending per student, FY14


Inflation adjusted. Source: CBPP, Kepler Cheuvreux

Textbooks: transition to digital progressing well

Around 70% of digital revenue in North American college content

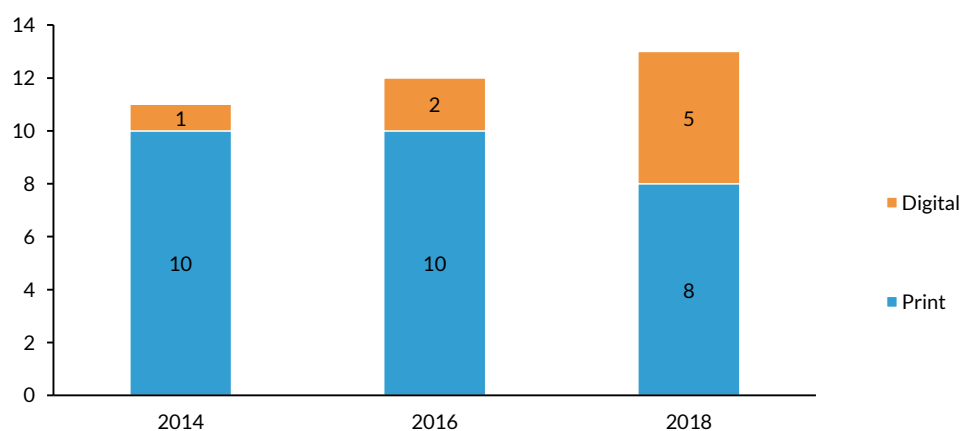
The transition of Pearson's North American higher education revenues is progressing well, and will be pushed further ahead by Pearson's reorganisation. Pearson's sales force is increasingly incentivised to sell comprehensive digital solutions instead of books, transforming transactional revenue streams into subscriptions. We estimate that the share of Pearson's North American higher-education revenues could reach 80% by 2017, up from c. 60% now.

Chart 147: Estimated share of digital in Pearson's North American higher-education revenues

Source: Kepler Cheuvreux

The US school textbook market is expected by CSV to post a 3% CAGR over 2014-18, despite the ongoing digitisation. Pearson reported in 2013 that US higher education textbook volumes have declined by “more than 20% in four years”.

While we have long argued that book rental and open content are long-term negatives for Pearson's legacy content revenue, we are starting to observe in publishers' reported hard revenue figures the effect of revenue migration to digital, outweighing the demise of print.

Chart 148: US textbook market size and forecasts (USDbn)

Source: CSV

Pent-up demand from CCSS adoption unfolding

The main economic consequence of the implementation of English language arts and mathematics common core curriculum standards in 45 states plus DC is the need for states to purchase new content and testing services. It is in the clear interest of states that those costs do not run too high, and states have aggregated in purchasing consortia to negotiate more effectively with suppliers.

The Fordham Institute modelled in 2012 the financial costs of the switch, expected to take place over 1 to 3 years, compared to “business as usual” textbook adoptions and paper-and-pencil testing. The modelling allowed for three alternatives: 1) a “business as usual” implementation with states purchasing commercial books, services and testing; 2) a “bare bones” implementation with widespread use of open content, and 3) a “balanced implementation” implying the use of smarter technology (i.e. some upselling for publishers and other contractors), but also of open source materials.

The modelling shows that for the 45 states involved, the switch made under a “business as usual” approach would quadruple spending on materials, testing and training in the 45 states involved (usually around USD3.9bn, according to the Fordham Institute) to USD12.1bn. This is the boon that the bulls on Pearson have been waiting for since 2010. Conversely, bears claim that widespread adoption of free content and pricing pressure from consortia in testing will lead to a “bare bones” scenario of the market contracting by 24% compared to the usual expenditure. Recent delays have reinforced their conviction.

In the light of the better funding situation of many states and increasing evidence that more sophisticated learning tools and technologies indeed improve educational outcomes, we believe the truth lies somewhere in the middle. A balanced implementation could lead to a market at least 30% larger than normal in the period of implementation starting in 2014, and potentially even larger due to pent-up demand.

Table 62: Total transitional costs of CCSS for 45 states + DC (1-3 years according to implementation speed)

USDm Scenario	Gross cost				On the top of current expenditure		
	Business as usual (1)	Bare bones (2)	Balanced implement. (3)	Normal current expenditure	Business as usual (1)	Bare bones (2)	Balanced implement. (3)
Cost (USDbn)	12,131	2951	5065	3879	8253	-927	1186
% of normal current expenditure	313%	76%	131%	100%	213%	-24%	31%

Source: Thomas B. Fordham Institute, Kepler Cheuvreux

Book rental and open content are compatible with revenue growth

The most recent revenue growth numbers reported by educational publishers do not show the typical pattern of structurally challenged businesses. Indeed, all large educational publishers in the US market reported flat or growing revenues, despite North America being the most crowded market in terms of textbook rental platforms and available open content.

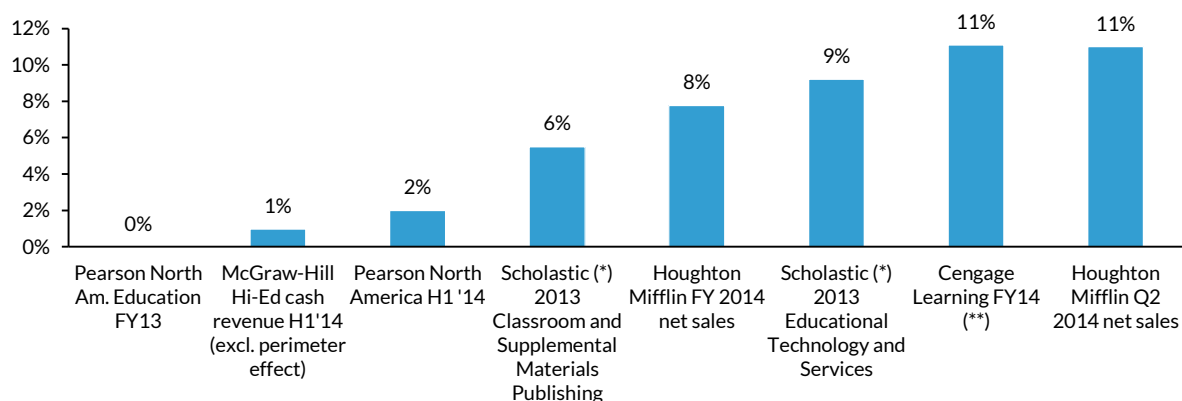
Open content, while widespread, seems to be used by students as a complement to, and not a replacement for, more sophisticated learning platforms (while it continues to represent a replacement for some books). This indicates that structural threats are overstated by consensus.

Scholastic case shows resiliency of supplemental materials. Interestingly, even Scholastic supplemental materials, whose adoption is not compulsory, and which in many cases target underperforming pupils, which are growing nicely. Supplemental revenues are set to be the most exposed to replacement from open content. Still, Scholastic grew nicely in FY 2013 (fiscal year ending 31 May) thanks to reading aid software in particular (*Read 180*). Supplemental represents around 20% of the US K-12 market.

Textbook rental is only marginally affecting new sales. Both Pearson and McGraw-Hill confirmed that textbook rental is mostly eating into sales of second-hand books, while new editions are more resilient.

While Pearson has admittedly been losing some market share to competitors since 2013, due to its overexposure to private for-profit and community colleges and to competitors reinvesting in their products, we do not detect any signs of significant structural weakness.

Chart 149: Underlying revenue growth at key educational publishers



(*) = FY ends 31 May. (**) = FY ends 28 February. Source: Companies, Kepler Cheuvreux

Reported trading and outlook from competitors

The trading and outlook provided by Pearson's competitors and by retailer Barnes & Noble indicate reasonably solid trading in a context of structural shift. While Pearson is clearly growing less than its competitors, the overall state of the market appears healthy. The following quotations are from press releases and Bloomberg transcripts.

- John Wiley & Sons, college publisher (17 June 2014):** in FY 2014 (ending 30 April 2014): "strong growth in Education, which offset a decline in Professional Development". In Q4: "Education revenue was up 10% in the quarter to USD67m, or 12% for the year. Strong growth from online program management, WileyPLUS and digital books drove results." On the recently acquired Deltak (enabler): "Online program management showed significant momentum again this year, with the number of university partners growing from 31 to 37, and the number of programs growing from 146 to 174".
- McGraw-Hill Education, college publisher (14 August 2014):** Year-to-June: "Digital cash revenue exceeds traditional print for the first time, with digital cash revenue growing at a CAGR of 17.2% since 2012". "Very significant growth of mature products". "Not only do digital solutions cost less, but they positively influence learning outcomes". Outlook: "peak selling season progressing well to early August" while international business presents more mixed trends.
- Houghton Mifflin, K-12 publisher (14 August 2014):** "Net sales and adjusted EBITDA for the second quarter of 2014 were up 11% and 12% respectively, compared to the second quarter of 2013. Year-to-date orders as of June 30 were 40% higher compared to the first half of 2013". "In the first quarter of this year, HMH captured approximately 50% market share among adoption school districts that had selected content providers. I

am pleased to say that we have maintained that share through the second quarter, and now that 90% of adoption districts have selected providers, our 50% share is off a much larger base.

Our addressable market size is on pace to exceed the USD3bn we initially estimated with the new adoption market being greater than USD900m, further adding to our optimism". "Overall state funding for education is on the rise. The National Association of State Budget Officers or NASBO stated that as of 1 July, 39 states had called for increases in K-12 funding. This is expected to yield a net funding increase of approximately USD11bn. NASBO also reports that fewer states implemented mid-year budget cuts in fiscal year 2014 compared to 2013.

This increase in funding is having a positive impact for HMH in the form of strong results in key states such as Texas, California, and Florida, including wins in almost all of the large school districts in these states. In particular, we had strong performance in K-12 math and science in Texas, secondary math and literature in Florida, and K-12 math in California. Moving forward, we are seeing additional solid demand and opportunity in Texas where our social studies, math and science programs are all well positioned to capture the market this year and next. We have also been pleased with our progress in open territories for the growth in states including Illinois, Washington, and Connecticut."

- **Scholastic, K-12 and supplemental publisher (27 July 2014):** "We began the year with the successful introduction of our new innovative educational technology products, including the ground-breaking math intervention program, MATH 180". "In its education businesses, the company expects sales of its educational technology products, in reading and math, along with their comprehensive professional development and services solutions, to continue their positive trajectory". "In its classroom books unit, the company expects revenue growth to be driven by acceptance of its new guided reading non-fiction books and instructional resources".

"Classroom and Supplemental Materials Publishing segment revenue in the fourth quarter was USD88.2m, an increase of 5% [...], due to increased sales of classroom magazines and summer reading programs. Segment operating income for the quarter was USD27.1m, compared to USD25.0m in the fourth quarter of fiscal 2013.

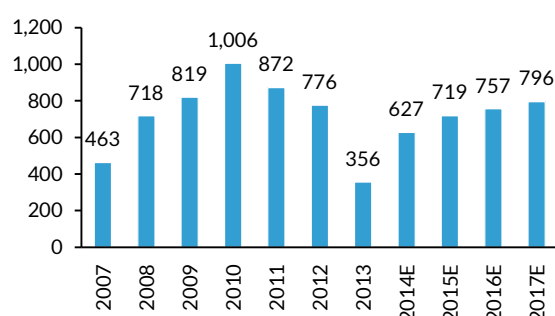
For the fiscal year, segment revenue was USD229.6 m [...] a 5% improvement, due to strong sales of classroom magazines, especially the Common Core-aligned print and digital editions of Scholastic News/Weekly Reader, and classroom books and summer reading programs. Segment operating income improved by 27% to USD37.5 m in fiscal 2014, up from USD29.6 m in the previous period." "For 2015, we expect revenue growth and enhanced profitability across the majority of our businesses with increased momentum for educational technology products, continuing improvements in club and fair performance and exciting new trade releases. We also expect to increase investments in information technology and sales resources during the year."

- **Barnes & noble, college retailer (25 June 2014):** "College had another solid year in fiscal 2014." "On a full year basis, College sales declined 0.9% to USD1.7bn. Comparable stores sales declined 2.7% in line with company guidance". "College comparable store sales are also expected to decline in the low-single digits [in 2015]". It must be noted however that B&N reported that Comparable College store sales reflect the retail selling price of a new or used textbook when rented, rather than solely the rental fee received and amortised over the rental period, which inflates the revenue number. Interestingly, B&N points at "a higher mix of lower price used textbook rentals" indicating that the shift to rental is increasingly from used textbooks, rather than from new ones.

Upgrade from Reduce to Buy, TP 1540p

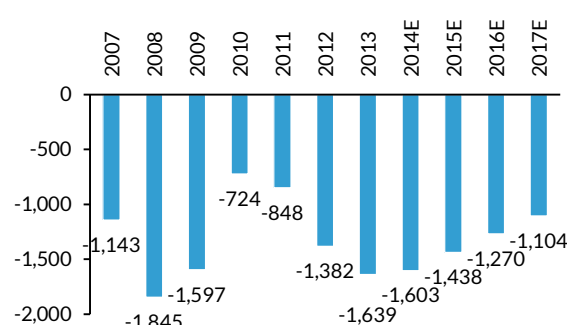
We see earnings and cashflow pressure easing, as restructuring investments are lowered, and the effect of the stronger pound versus the dollar tapers off. We reassess the value of Pearson's growing businesses in our target price, based on the rounded-up average of a SOP and a DCF valuation, consistent with the methodology used for publishers. We raise our TP from 950p to 1540p, implying a 15.4x EV/EBITA 2016E. We increase our EPS estimates by 4% and 7% respectively for 2014E and 2015E (3% and 5% above consensus) amid easing cyclical and forex headwinds.

Chart 150: Cash from operating activities



Source: Kepler Cheuvreux

Chart 151: Net debt and pension provisions



Source: Kepler Cheuvreux

TP up from 950p to 1540p, average of DCF and comparables

We raise our target price for Pearson from 950p to 1540p, based on the rounded-up average of a DCF-based valuation and a comparables-based valuation. The average of DCF and cashflow is consistent with the valuation technique applied to the professional publishers that we cover: Reed Elsevier, Wolters Kluwer, Informa and UBM. We previously valued Pearson using a comparables-based SOP method only.

As far as the SOP is concerned, the increase in fair value is due to a more detailed modelling of the enterprise value of Pearson's "enablers", assessment and emerging educational market assets (the "Growth" division), to which we associate more consistent comparables.

Pearson's DCF benefits from low beta. At a two-year trailing historical average of c. 0.9 on Bloomberg, Pearson's beta is at the low end of the professional publishing range (0.9-1.2), reflecting its counter-cyclical earnings characteristics.

DCF fair value of 1536p

Our DCF modelling includes detailed forecasts for 1) growth businesses (US enablers, student tutoring and test preparation, ELT), requiring stronger investments (short-term cash absorption) but generating stronger short-term and long-term growth; and 2) mature businesses, ex-growth in our current forecasting (which, as stated, does not account for a comeback to growth in US college enrolments in the short or medium term) but requiring only maintenance investments, as most of the required investments in the digitalisation of the products have already been achieved. It accounts for an explicitly modelled part

reflecting a faster transition of the revenue mix from legacy to growing revenue sources (2014-17), for a steady-state section (2018-23) and for a terminal value.

More in detail, our DCF is based on a risk-free rate of 2.5%, a market risk premium of 7.0%, a beta of 0.9, a cost of debt of 5.5%, a normalised tax rate on earnings of 24%, and a debt/EV ratio of 0.12. The resulting WACC is 8.2%. The infinite earnings growth rate adopted is 3.5%, applied from 2024.

We assume working capital absorption to continue at GBP50m a year until 2021 (for a cumulated GBP400m) as long as print products are replaced by digital content and tools, with a less favourable working capital profile due to capitalised product investments.

Table 63: Pearson DCF modelling

GBPm	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
DCF of high-growth businesses										
Sales	1756	1943	2126	2327	2559	2815	3097	3407	3747	4122
% Growth	NM	10.7%	9.4%	9.5%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Cash EBIT (*)	263	292	319	349	384	422	465	511	562	618
Margin (%)	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
D&A	44	49	53	58	115	127	139	153	169	165
As a % of sales	2.5%	2.5%	2.5%	2.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.0%
Cash tax	-66	-73	-80	-87	-96	-106	-116	-128	-141	-155
Capex	-88	-155	-170	-186	-128	-141	-155	-170	-187	-206
As a % of sales	5.0%	8.0%	8.0%	8.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Change in WCR	0	0	0	0	0	0	0	0	0	0
Free cash flow	154	112	122	134	275	303	333	366	403	423
DCF of mature areas										
Sales	3093	3152	3185	3213	3241	3281	3335	3393	3454	3519
% Growth	-6.8%	1.9%	1.1%	0.9%	0.9%	1.2%	1.6%	1.7%	1.8%	1.9%
Cash EBIT (*)	412	496	493	483	486	492	500	509	518	528
Margin (%)	13.3%	15.7%	15.5%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
D&A	92	94	96	97	94	99	105	112	119	148
As a % of sales	3.0%	3.0%	3.0%	3.0%	2.9%	3.0%	3.2%	3.3%	3.5%	4.2%
Cash tax	-36	-52	-50	-48	-44	-41	-39	-36	-33	-29
Capex	-116	-99	-96	-91	-92	-97	-102	-108	-115	-122
As a % of sales	3.7%	3.2%	3.0%	2.8%	2.9%	3.0%	3.1%	3.2%	3.3%	3.5%
Change in WCR	-50	-50	-50	-50	-50	-50	-50	-50	0	0
Free cash flow	301	389	393	391	394	403	414	426	489	524
DCF Group										
Sales	4849	5095	5311	5540	5800	6097	6432	6799	7201	7641
% Growth	-4.3%	5.1%	4.2%	4.3%	4.7%	5.1%	5.5%	5.7%	5.9%	6.1%
Cash EBIT (*)	675	788	812	833	870	914	965	1020	1080	1146
Margin (%)	13.9%	15.5%	15.3%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
D&A	136	143	149	155	209	226	244	265	288	313
As a % of sales	2.8%	2.8%	2.8%	2.8%	3.6%	3.7%	3.8%	3.9%	4.0%	4.1%
Cash tax	-102	-125	-130	-136	-140	-147	-155	-164	-173	-184
Capex	-204	-255	-266	-277	-220	-238	-257	-279	-302	-329
As a % of sales	4.2%	5.0%	5.0%	5.0%	3.8%	3.9%	4.0%	4.1%	4.2%	4.3%
Change in WCR	-50	-50	-50	-50	-50	-50	-50	-50	0	0
Free cash flow	455	501	515	525	669	705	747	793	892	947

(*) = adj. EBITA + dividend from associates - amortisation of acquired intangibles - financial leases expense. Source: Kepler Cheuvreux

Table 64: DCF fair value per share

DCF valuation	GBPm
Central scenario enterprise value	14,215
Adjusted net debt end-2013 + 2014 M&A	-1,588
Pension provisions end-2013	-142
Minorities share	-14
Equity affiliates valuation at 14x PE	0
Pearson DCF equity value	12,471
<i>Diluted number of shares (m)</i>	<i>811.8</i>
DCF fair value per share (p)	1,536

Source: Kepler Cheuvreux

Different assumptions for the DCF-based fair value per share appear in the table below, as a function of WACC, and terminal growth rate assumptions show a valuation range of 1,239p to 2,011p.

Table 65: DCF-based fair value: sensitivity analysis (core scenario in the grey cell)

WACC	Infinite growth rate				
	3.00%	3.25%	3.50%	3.75%	4.00%
7.6%	1,644	1,720	1,806	1,902	2,011
7.9%	1,524	1,589	1,662	1,743	1,834
8.2%	1,418	1,474	1,536	1,605	1,682
8.5%	1,324	1,372	1,426	1,485	1,551
8.8%	1,239	1,282	1,329	1,380	1,436

Source: Kepler Cheuvreux

Comparables-based fair value of 1,539p

Our SOP is not based on divisional reporting but on a reconstruction of the contribution of each relevant type of business according to our categorisation, by type (content, service and professional) and by region (emerging markets vs. mature markets). For the net present value of GBP24m, it also includes additional savings on top of the level declared, implying a 1.33x restructuring costs/savings ratio.

We include in our SOP the discounted value of Pearson's hedge in fast-growing areas, calculated as such and assuming that Pearson can appropriate a share of 1.14% of such growth, exactly in line with the current share of the revenue pool. Such a forecast appears achievable, given the starting point of market leader in those areas, and the strong organic and external investments in growth made over the last 15 years.

In keeping with the hypothesis used in the DCF, the SOP takes into account GBP400m of FCF absorption from the increasing working capital requirement, discounted at WACC at a rate of GBP50m a year.

Table 66: Available long-term opportunity in fast-growing business areas (USDbn)

	Market size 2013	Market Size 2018	Incremental market size '13-18	Pearson's share of growth	USDbn growth for Pearson (2018)
1) Tutoring and test preparation					
US	11	13	2	4.0%	0.1
Non-US	49	93	44	2.0%	0.9
Total	60	106	46	2.4%	1.1
2) Higher-ed e-learning					
US	25	57	32	6.0%	1.9
Non-US	10	30	20	3.0%	0.6
Total	35	87	52	5.1%	2.7
3) English Language Teaching					
	60	106	46	4.0%	1.84
Total in USDbn	250	492	242		5.6
FX (1 GBP = x USD)	1.63	1.63	1.63		1.63
Revenue opportunity in GBPbn	153	302	148		3.4

Source: GSV data for market size and forecasts, Kepler Cheuvreux

We apply to the steady-state market share obtained in 2018 margins comparable to those of Pearson. We discount the revenue opportunity for Pearson at the group WACC of 8.3%.

Pearson's total revenues from growing educational areas under this modelling are larger than in the DCF modelling, as our SOP is benchmarked to GSV's growth expectations, while our DCF is based on our more conservative assumptions.

Table 67: From opportunity to SOP contribution

SOP impact (GBPm)	Pearson in 2014E	Pearson in 2018E	Incremental by 2018
Pearson related revenues	1,752	3,437	1,686
% of total revenues in those areas	1.14%	1.14%	1.14%
% EBITA margin est.	15%	15%	15%
EBITA	263	516	253
@13x EV/EBITA 2018E			3,287.3
Pearson's WACC			8.3%
Years (end-2015 to end-2018)			3.0
Discounted NPV of the opportunity			2,595

Source: Kepler Cheuvreux

The divisional peers used are:

North American Publishing peers include educational and academic publishers such as John Wiley & Sons, Scholastic, and Newscorp. They also include the largest listed for-profit school chain, Apollo Group, to account for Pearson's overexposure to this category of schools (representing c. 15% of US higher education enrolments, which is seeing a double-digit decline every year) and to community colleges (30% of total enrolments). We also include Google, a technology partner of Pearson, to reflect Pearson's technological edge over publishing peers. All peers are equally weighted and their average is the multiple adopted to value the business.

North American Testing and Education-as-a-Service (enablers) have no direct listed peers. They target mostly government and business customers, and are comparable in our view by type of business and geographical exposure to professional publishers such as

Reed Elsevier, Informa, Wolters Kluwer, and John Wiley. We apply a 10% premium to the average EV/EBITA of those to account for the faster growth of Pearson's assets.

Other mature markets peers include the Euro-centric Lagardère, Mondadori and Sanoma. For mature markets ex-US, we apply to our SOP a normative 20% premium to peers' EV/EBITDA multiples, to account for Pearson's technological edge, allowing for market share gains (as has been the case in Italy over the last decade).

The "Growth" division includes Pearson's emerging markets education assets. We use New Oriental, the Chinese leader in test preparation, as a comparable, as well as the Brazilian listed peers Estacio and Kroton.

Professional education is valued on the multiples of the British professional training and information company Wilmington Group PLC and the American Graham Holdings (formerly the Washington Post Company), a leader in professional testing and services (Kaplan brand).

FT. We continue to value the FT at a "trophy asset" price of USD700m, or 25x EV/EBITA 2015E.

Table 68: Pearson SOP valuation

Asset (GBPm)	Revenue '15E	% group total	EBITA '15E	% EBITA margin	EV/EBITA '15E	Value (GBPm)
Total of fully consolidated assets	5,095		809	15.9%	13.1x	10,597
North American publishing (ex-growth)	1,601	31%	256	16.0%	13.4x	3,429
- John Wiley & Sons					13.0x	
- Scholastic					11.6x	
- Houghton Mifflin Harcourt					15.0x	
- News Corp					14.0x	
North American testing and EAAS (high-growth)	1,132	22%	192	17.0%	14.2x	2,730
- Informa					11.3x	
- John Wiley					14.7x	
- Wolters Kluwer					10.9x	
- Reed Elsevier					14.7x	
Other mature markets (mostly K-12, ex-growth)	772	15%	160	20.7%	11.1x	1,768
- Lagardère					8.2x	
- Mondadori					9.1x	
- Sanoma					10.4x	
"Growth" division	812	16%	122	15.0%	12.8x	1,563
- New Oriental (China)					11.2x	
- Kroton (Brazil)					15.1x	
- Estacio (Brazil)					12.2x	
Professional education	451	9%	63	13.9%	10.9x	685
- Wilmington					11.3x	
- Graham Holdings					10.6x	
Financial Times	328	6%	16	5.0%	25.7x	422
Adjustments						
NPV of the residual cost-savings (after 2015)						314
NPV of the opportunity in growing educational areas					13x 2018E	2,595
NPV of WC absorption (GBP400m on 8 years est.)						-310
Total of fully consolidated assets			809		16.3x	13,196
Associates (pro-rata)						
50% of The Economist			31		12.9x	403
47% of Penguin Random House			55		9.2x	512
Total EV incl. associates			896		15.8x	14,111
Net debt						-1461
Pension provisions						-142
PV of minorities						-15
Total SOTP						12,494
Adj. number of shares, m						811.8
Per share (p)						1,539

Source: Kepler Cheuvreux

Slow-burning drivers: the risk of being too early

There is a risk of being too early in investing in the cyclical pick-up. Our analysis of the correlation between US autumn college enrolments and Pearson's share price performance over 2000-12 shows that share prices traditionally do not anticipate college enrolment trends, but rather lag the pick-up in college enrolments by around 18 months.

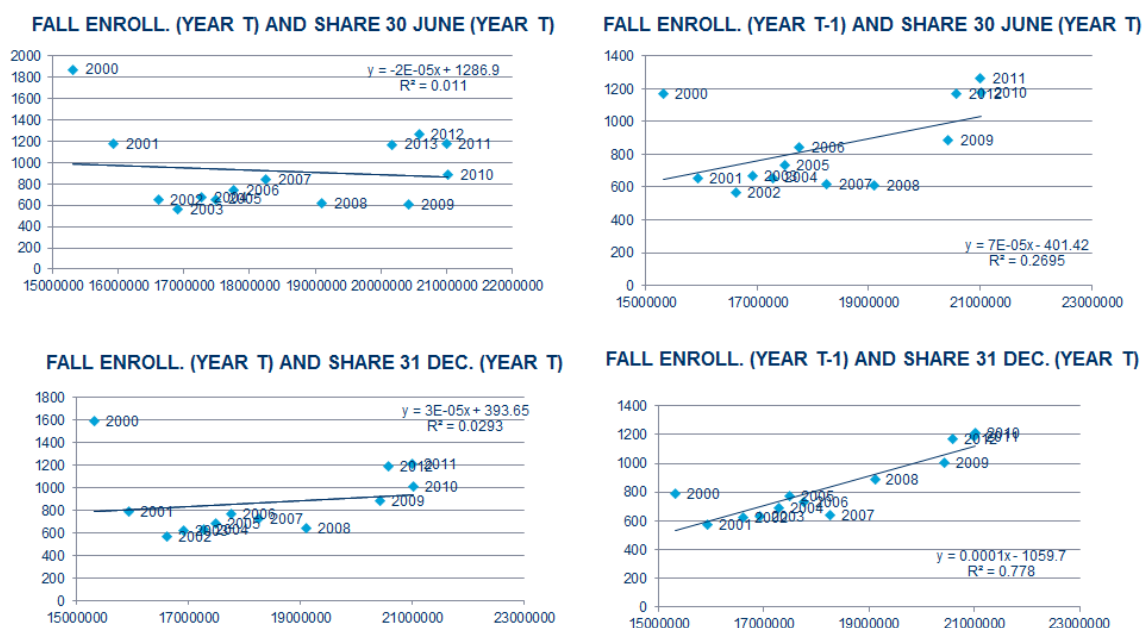
Still, we believe market sentiment on Pearson has turned more bearish than even in recent history. Even in-line numbers at the Q3 trading statement and FY results would contribute to restore confidence, and have the potential to trigger a positive share price reaction. However, we do not see a material risk of disappointment, in light of: 1) resilient top-line trends recently reported by Pearson and its peers; 2) increasing public funding support to education; 3) improving earnings momentum, initially driven (but only partly) by the disappearance of restructuring costs, followed by more genuine momentum heading into 2015.

Share reacts to enrolment trends after 18-month delay

The first of the following charts shows the poor correlation between the share price in June ahead of enrolment time (August-September), which drives Pearson's college earnings to be reported in the autumn IMS. The lower-left chart refers to the share price after the IMS in that same year: again, correlation is not significant.

The share seems to be more correlated to the enrolment trends of the previous year, as shown in the following two charts. In particular, the highest correlation is between the enrolment trends of the previous year (T-1) and the share price at the end of the current year (T), suggesting that historically the share lags enrolment trends by more than one year, instead of anticipating them.

Chart 152: Correlation between US autumn enrolments and share price for four periods suggests share follows trend



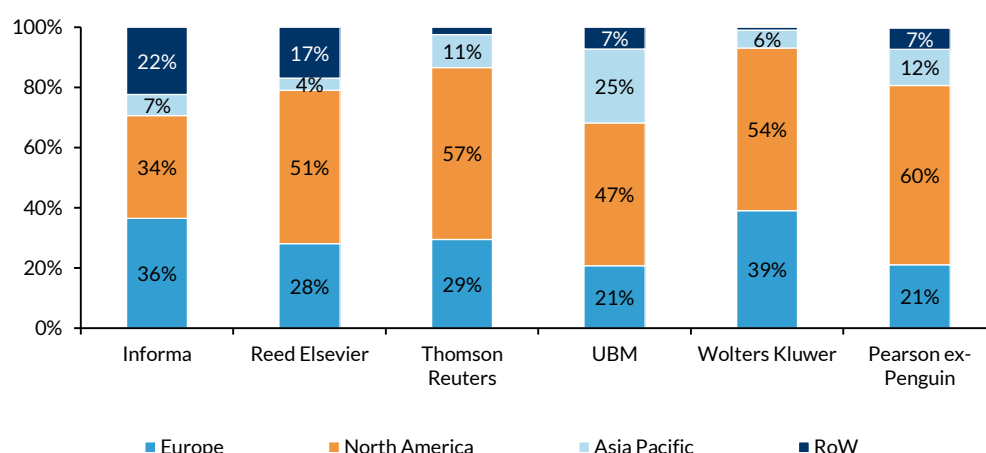
Source: Kepler Cheuvreux

Appendix 1: Pearson vs. professional publishers

The most American publisher, developing into China and LatAm

Pearson is the European professional publisher with the most exposure to North America, which represents 60% of its revenues. It has also the second-highest exposure to emerging markets within professional publishing. The most exposed is UBM, with 30% of its revenues coming from BRICs and MISSAT (but mostly from China). It is followed by Pearson, with 16% of revenues (China, Brazil, South Africa, etc.), Informa, with 20% (Brazil, Middle East) and Wolters, with 8% (o/w 4% from eastern Europe).

Chart 153: Estimated revenues by region 2013

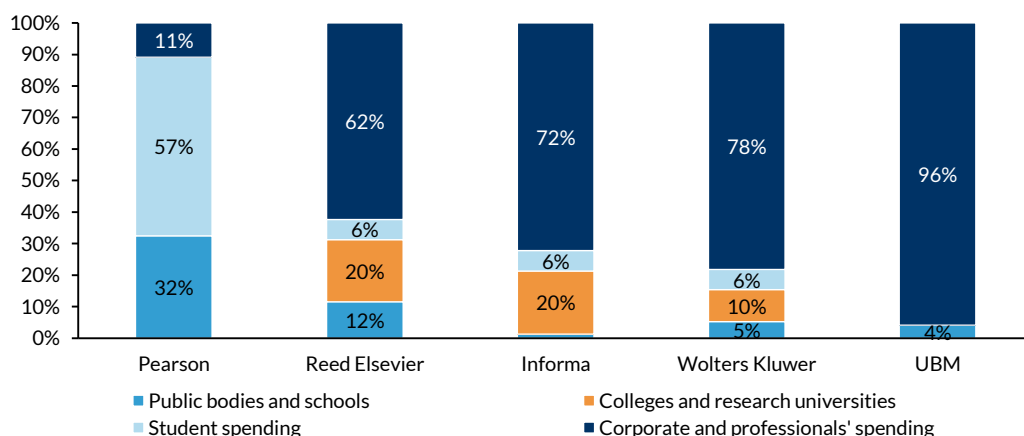


Source: Kepler Cheuvreux

The highest share of public procurement and consumer spending

We estimate that one-third of Pearson's revenues come directly from public purchases of books, online platforms, and testing services. It is the highest direct exposure to public spending in the sector (US, UK), the second largest being Reed Elsevier with 12%. Pearson benefits to a large extent from a government focus on technology and accountability in education.

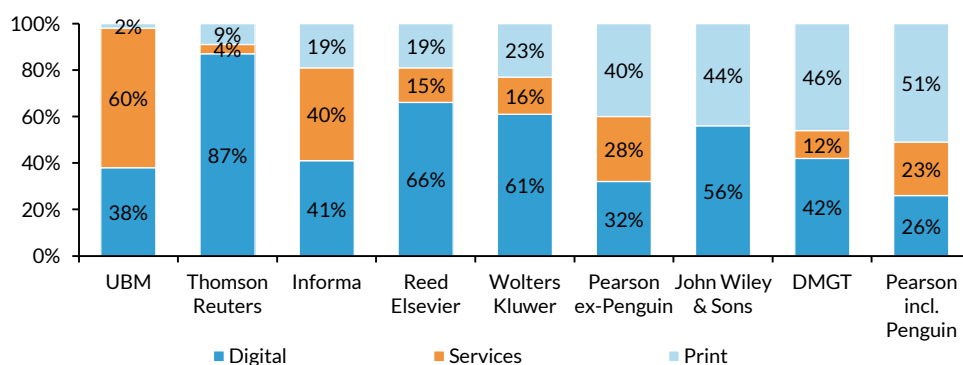
Around 57% of revenues are generated by families and students (including college students' purchases, courses, etc.), less recurring in nature than corporate purchases and subscriptions, and a more price-sensitive population. Corporate purchases represent over 60% of revenues for Pearson's professional publishing peers. Pearson is closer to a consumer publisher, according to this metric.

Chart 154: Revenues by category (direct + indirect public spending)

Pearson excludes Penguin Random House. Source: Kepler Cheuvreux

The highest share of print in the mix

Pearson's share of print revenue (40%) is among the highest in professional publishing and comparable to hybrid consumer/professional companies such as DMGT. Including the pro-rata share of Penguin Random House revenues, consolidated at earnings level, print would represent 51% of its revenues.

Chart 155: Estimated revenues by type 2013

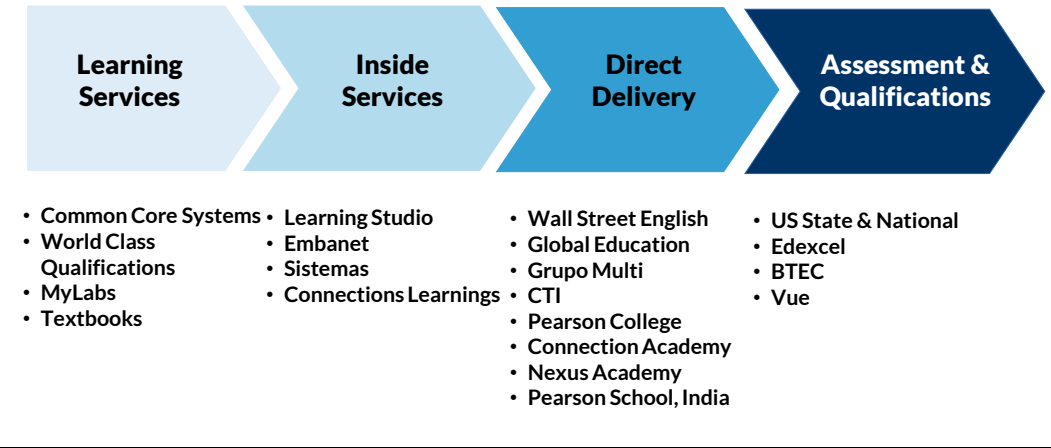
Source: Kepler Cheuvreux

Due to its print legacy and a consumer-orientated client base, Pearson is more exposed than its peers to a risk of price deflation, especially in books. From a total revenue point of view, products shifting from print to online have fewer chances of growing. Most of the editorial and IT development effort goes into the migration, to ensure that the transition is smooth and keeps users happy. The sales force responsible for transitioning products is also less effective, as even for good products, renewals require longer explanations, more effort, and are generally more expensive.

Appendix 2: Pearson’s key growth products

We now summarise in detail each of the products mentioned by Pearson on its *Key Performance Indicators* slide (Chart 28). Pearson’s offer is comprehensive and includes four main types of tools: direct delivery, assessment, inside services and learner services/resources. The list provided selectively excludes print content items, and refers to the forward-looking KPIs at the end of the migration from print to digital and services.

Chart 156: Pearson product suite by type



Source: Pearson



<http://www.connectionseducation.com/connections-education/home.aspx>

Name: Connections Education

Type of business: Inside services & Direct Delivery - for K-12 in the US.

Acquired in: 2011 for c. USD400m in cash from Apollo Management.

2013 registrations growth: +22% to 50,900 (from 41,600 in 2012 and “more than 40,000” in 2011). The business posted revenue growth of over 30% in 2008-10, according to a Pearson press release.

Description 1: “Connection Learning” digital learning platform for schools. Connection Learning provides solutions for schools to connect teachers with students online, to deliver lessons and to share textbook material. Schools use Connections Learning’s inside services for online summer schools, credit recovery lessons, and general out-of-school interaction with the teacher. The platform includes a student planner and assessment, an online gradebook and teacher comments. It supplements Pearson’s curriculum content. Complementary software includes Lab Investigator (to view rock and mineral samples as well as chemical reactions), a maths tool (to drag and drop components into complex equations), and educational games.

Description 2: “Connections Academy” virtual schooling. K-12 virtual schooling represents “an attractive choice for a growing group of American parents and in the next decade it will take off in other countries”, according to Marjorie Scardino.

Description 3: “Nexus Academy” blended learning. Nexus are charter high schools paid by blending online and face-to-face instruction. Charter schools are supported financially by each state and do not charge tuition fees to students. They have more freedom in teaching than traditional state schools but also receive fewer subsidies, hence the economic rationale behind blended learning. Pupils at chartered schools must take the state-mandated exams of state high schools. Nexus currently runs seven schools in the US.

Business models: Licence fees for DLPs (*Connections Learning*), subscription fees for virtual schooling (*Connections Academy*) of c. USD358 per semester eventually covered by grants, and a fixed state contribution per pupil for blended learning (*Nexus*). The cash collection cycle entails a negative working capital requirement.



<http://www.cti.co.za/>

Name: CTI/MGI

Type of business: Direct delivery - Private School, South Africa.

Acquired: 75% in 2011 for GPB31m, the remainder in 2013.

2013 registrations growth: +15% to 11,700 (from 10,200 in 2012).

CTI Education Group is a registered private higher education institution in South Africa founded in 1979. In 2006, CTI formed a partnership with Midrand Graduate Institute (MGI), and today the group has CTI and MGI campuses across South Africa catering for both full-time and part-time students in information technology, commerce, creative arts & communication, psychology & counselling and law. The rest of the Pearson group provides to CTI teaching and learning materials, assessment services and a range of educational solutions and tools.

Business models: tuition fees from both South African and international students. CTI also gives the opportunity to pass some tests independently and only charges students for the test. The group also proposes student loans for students willing to enroll. The cash collection cycle entails mostly negative WC requirement, as tuition fees are paid upfront, although students can chose a “part upfront” option and pay part of the fees ten months after the beginning of the courses.

 Global Education & Technology Group

<http://www.gedu.org/english/OverseasStudyConsultingService.html>

Name: Global Education & Technology Group.

Type of business: Direct delivery – English test tutoring in China.

Acquired in: 2011 for USD155m in cash, revenue of c. USD65m (2.4x EV/sales).

2013 registrations growth: +19% to 1,306,000 (from 1,100,000 in 2012).

Global Education is a leading provider of test preparation services in China for students who are working towards internationally-recognised English language assessments such as IELTS and TOEFL. These tests are important to students who want to study outside China, as well as professionals who want to demonstrate their English skills to academic institutions, corporations and governments as they evaluate admissions, employment and immigration applications. Pearson estimated at the date of acquisition that around 500,000 Chinese students take these tests each year (a four-fold increase over the past five years), which has led to rapid growth in spending on related teaching and preparation services.

Business model: Global Education is one of the leading organisations in the field of franchise education in China. Global Education is synergetic to Pearson's English teaching resources and technologies and its existing networks of English language centres for professionals (Wall Street English) and children (Longman Schools). It expanded Pearson's reach in China from 8 cities to 60. The price range is c. CNY3,000 (c. USD500) for three weeks of half-day courses to CNY33,700 (c. USD5,500) for six months of full-time courses (9am to 4pm).



<http://www.globalenglish.com/>

Name: Pearson GlobalEnglish.

Type of business: Direct delivery – Cloud-based corporate English training.

Acquired in: 2012 for USD90m in cash.

2013 registrations growth: +0.4% to 428,400 (from 426,600 in 2012).

Only 7% of non-native English speakers in global companies think they can communicate well at work. Pearson Global English offers on-demand business solutions designed to improve corporate communication and collaboration, specifically designed to produce immediate productivity and performance gains. About three-quarters of its subscribers are in Latin America and Asia.

GlobalEnglish has more than 450 corporate customers, including General Electric, Unilever, CSCS, Thomson Reuters, Deloitte. Solutions are based on research into how adults effectively acquire language. Courses include formal and informal business English learning, instant on-the-job support for business tasks in English, enterprise collaboration, mobile productivity, adaptive business English assessments and the ability to measure usage and proficiency improvements across the company. GlobalEnglish is accredited by the Learning & Performance Institute.

Business model: Fees are collected before the course, and the working capital requirement is negative. GlobalEnglish offers two kinds of services: one totally digital (a “digital system package”) and one which includes printed materials (a “print and digital system package”). The cost for individual subscriptions is USD70 a month.



http://pearsonschools.in/pearson_overview.html

Name: Pearson India Schools.

Type of business: Direct delivery - Indian K-12 schools.

Acquired in: - Organic investment.

2013 enrollment growth: +23% to 27,000 (from 22,000 in 2012).

The first Pearson School was established in 2008-09 with a view to provide world-class education at an affordable price. Pearson Schools is a growing chain of private schools in India with 32 schools and over 26,500 students across India and Nepal.

Pearson partners with entrepreneurs who own the land, buildings, and licence to run a school. Pearson runs and manages the school end-to-end, from positioning, to branding/marketing, staff recruitment, teacher training, school launch, admissions, day-to-day operations, day-to-day repairs, maintenance and renewals of licenses. Services to schools also include repositioning, implementing academic quality management systems, and infrastructure upgrades.

All investments in movable items are carried out by PES including furniture, labs, library equipment, sports equipment, play equipment, ICT (DigiClass), computers, office setup, etc.

Business model: The school gets a “revenue share”, a percentage of the total revenue collection. If the school makes a loss, it is absorbed by Pearson.



<http://www.tutorvista.com/>

Name: Tutor Vista.

Type of business: Direct delivery - Online Tutoring.

Acquired in: 4% in 2009, up to 80% in 2011 (valuing the company at USD167m), 100% in 2013.

2013 enrolment growth: -24% to 21,900 (from 28,800 in 2012).

TutorVista is an online tutoring company, in diverse field such as English, mathematics, and sciences. It relies on a combination of voice over Internet Protocol (VoIP) telephony, instant messaging, a toll-free fax number (allowing the review of printed materials), and an electronic blackboard.

While Tutor Vista's operations are entirely located in India, most of its market is abroad. The company primarily provides academic help by paid subscription to students in English, mathematics, and the sciences. Tutor Vista has a diverse and highly educated tutor base of over 2,000 teachers spanning India, the US, the UK, Australia, China and Southeast Asia to provide world-class quality services.

Besides online tutoring, Tutor Vista also provides test preparation help, homework help, supplemental tutoring and expert assistance before tests and exams. The company has grown rapidly, with over 5m online sessions served to students worldwide.

Business model: based on suscriptions, the company does not offer any face-to-face tutoring. Payment is received upfront, entailing a negative working capital requirement. Costs of Grade K-12 tutoring: one month unlimited USD125, three months unlimited USD300. On-demand: 2 hours tutoring USD40, 5 hours tutoring USD60. Cost of college tutoring: one month unlimited USD150, three months unlimited USD375, 2 hours tutoring USD45, 5 hours tutoring USD70. K-12 tutoring with voice: USD130 an hour.



<http://www.utel.edu.mx/>

Name: UTEL University (Mexico).

Type of business: Direct delivery - Online Higher Education.

Acquired in: - Organic partnership with INITE started in 2012.

2013 enrolment growth: 250% to 6,000 (from 2,400 in 2013).

Pearson, the world's leading learning company, Mexican curriculum and technology experts INITE launched in 2012 UTEL, a new online university for Mexicans to enrol in higher education programmes, and to enable traditional universities to enter the online world.

UTEL is the first university of this kind in Latin America, offering Mexicans BA, MA and PhD degree courses in management, IT, marketing, industrial and computer engineering, accountancy and other professions critical to Mexico's economic development.

UNESCO estimates Mexico's gross college enrolment rate at just 28%, compared to the Latin America average of 37%. This is significantly behind countries like Argentina (73%) and Panama (60%), according to Pearson.

The company provides services to students and institutions in three ways:

- **Own brand:** UTEL is an innovative 100% online degree granting institution for those needing to combine study with work. This option may appeal to those with unfinished college study or who are looking for a second career.
- **Co-branded programmes:** Combined online and campus-based classes offer part-time higher education to students who want a stronger connection to an institution or a traditional brand.
- **"Turn-key" solutions** for existing colleges with third parties' online programmes.

Business model: Tuition fees of c. USD8,000 for a three-year programme. For instance, an online degree in business administration costs MXN3,640 a month (c. USD280) for three years and four months. The price is based on the programme and fixed, but programmes are adaptive and can be completed ahead of schedule by hard-working learners and students with pre-acquired skills.



<http://www.changingfutures.com/>

Name: Wall Street English.

Type of business: Direct Delivery - English language instruction.

Acquired in: 2010 from Carlyle and Citi for USD92m (c. 1.3x EV/sales).

2013 enrolment growth: +0.3% to 191,800 (from 191,300 in 2012).

Wall Street English (including the re-branded Wall Street Institute in Europe) is among the largest providers of English language instruction for adults and corporate clients worldwide. The company has over 2m alumni. Using a franchise model, WSE operates over 450 centres in 28 countries in North Africa, East Asia, Southeast Asia, Europe, Latin America, and the Middle East.

The Wall Street English Blended Learning Method combines different education methods including self-study, small teacher-led classes, and practice time.

Wall Street English was acquired by Pearson PLC. Pearson has 37,000 employees based in more than 60 countries worldwide.

Business model: Tuition fees paid by individuals and corporates for courses and tests.

ACCUPLACER®

<http://accuplacer.collegeboard.org/students>

Name: Accuplacer.

Type of business: Assessment – TEST.

Partner since: Pearson is the official provider of preparation tools since 2011.

2013 enrolment growth: +4.4% to 7,000,000 (from 6,700,000 in 2012).

Roughly one-third of freshmen entering American colleges are not academically prepared to take college classes. ACCUPLACER is a test owned by the College Board, a not-for-profit organization founded in 1900 to expand access to higher education.

College Board develops and administers standardised tests and curricula used by K-12 and post-secondary education institutions to promote college-readiness and as part of the college admissions process.

College Board's ACCUPLACER test is a computer-based placement test that assesses reading, writing and math skills. The ACCUPLACER test includes reading comprehension, sentence skills, arithmetic, elementary algebra, college-level mathematics and the writing test, Writeplacer. It is used primarily by more than 1,000 high schools and colleges to determine a student's placement. The biggest benefit of the ACCUPLACER and Accuplacer Companion tests are their ability to be marked immediately through an online scoring system and the fact that the tests can be taken in remote locations.

ACCUPLACER connects over 2.5m students annually to more than 1,300 institutions nationwide, including community colleges, four-year colleges, technical schools and high schools. While there are normally no fees for taking the test, some institutions may charge a fee to retake it. If a testing institution is not local, an examinee may be required to arrange a proctor for the test. If so, a local library may be willing to serve as proctor, as there are not many other options for individuals in this case.

Business model: Since 2011, Pearson has been the official provider of content and tools to prepare students for ACCUPLACER. MyFoundationsLab is a solution to enhance college preparedness and student success that offers targeted assessment and remediation.



<http://www.edexcel.com/Pages/Home.aspx>

Name: Edexcel (rebranded in 2013 "Pearson").

Type of business: Assessment – U.K. Certification and assessment.

Acquired in: 2003. It also includes the awarding organisation EDI plc since 2010.

2013 growth: BTEC: -4.5% to 1,642,500 (from 1,720,100 in 2012)

- *BTEC onscreen; +608% to 142,500* (from 20,100 in 2012)
- *BTEC paper: -11.8% to 1,500,000* (from 1,700,000 in 2012)

2013 growth: A-level GCSE: +0.0% to 6,331,000 (from 6,333,000 in 2012)

- *A-level GCSE, online: +3.5% to 5,900,000* (from 5,700,000 in 2012)
- *A-level GCSE, paper: -32% to 431,000* (from 633,000 in 2012)

Pearson Education Limited (Pearson) is the UK's largest awarding body, offering academic and vocational qualifications and training to schools, colleges, employers and other places of learning in the UK and internationally.

Their academic qualifications include Edexcel GCSE, Edexcel GCE (A level) and Edexcel International GCSE (The Edexcel Certificate for UK state schools). Their vocational qualifications include Edexcel NVQ and BTEC from entry level to Higher National Diplomas. BTECs are recognised in more than 80 countries worldwide.

In the 2011-12 academic year, over 2m learners registered for BTECs and other vocational qualifications, including 650,000 school students taking BTEC Firsts and Nationals. In the same year, they marked over 3.8m test scripts for over half a million pupils in six weeks for the National Curriculum Tests at Key Stage 2 and marked more than 5.7m academic scripts (Edexcel GCSE, Edexcel GCE A level and Edexcel Diploma), with 90% marked onscreen.

They also offer the widest range of learning programmes, from academic qualifications – such as the 'gold standard' GCEs (A levels) and GCSEs – vocational and business learning and adult literacy and numeracy qualifications.

Business model: Contracting with governments, associations, private and public bodies.



http://en.wikipedia.org/wiki/Central_Board_of_Secondary_Education

Name: Central board of Secondary Education.

Type of business: Assessment – Official partner for teachers' assessment.

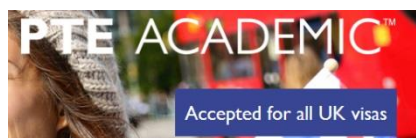
Partnership in: 2012.

2013 growth: 2,500,000 tests in the first year of partnership.

The Central Board of Secondary Education (CBSE) is a government body with the task of conducting public examinations at the end of class X and XII and to promote best examination practices. CBSE affiliates 13,000 schools in India.

Pearson and CBSE set up in 2012 a Centre for Assessment, Evaluation and Research. The centre drew on international best practices to put forward its recommendations for improved teaching practice and approaches to assessment before rolling out an extensive programme of professional development for teachers.

Business model: Government contracting.



<https://www.versanttest.com/aboutUs.jsp>

Business: Pearson Test of English Academic + Versant.

Type of business: Assessments- English language testing.

Acquired in: PTE developed organically, Versant was acquired in January 2008 (formerly Ordinate Corporation, 25 employees).

2013 growth: +39.5% to 32,500,000 from 23,300,000.

PTE Academic is the English test trusted by universities, colleges and governments around the world. There are PTE Academic test centres in over 50 countries worldwide. Pearson produces a range of materials to help students succeed with PTE Academic. These include test-taking strategies, tutorial videos, practice tests and more.

Business model: 1) **tests.** A voucher for over ten tests in France costs c. USD242 per test, The price falls to USD230 per test for more than 50 tests purchased; 2) **content.** A practice test costs USD35. An official guide to the test costs GBP28. There are private language schools worldwide that run PTE Academic preparation courses.

The Versant tests are the first to use a completely automated method for testing spoken language. The Versant tests are the result of years of research in speech recognition, statistical modelling, linguistics, and testing theory. Since 1996, over 150m telephone and computer-delivered test questions have been delivered to, responded to, and automatically scored for individuals from over 100 countries worldwide. The patented speech testing technologies are applied to its Versant language tests and customised tests. Sample projects include:

- The assessment of spoken Spanish for the US Department of Homeland Security.
- A test of aviation English, co-developed with the Federal Aviation Administration, to certify that pilots and air traffic controllers meet the language requirements set by the International Civil Aeronautics Organisation (ICAO).
- A test of Dutch language and culture for the Justice Ministry's Immigration and Naturalisation Service in the Netherlands.
- The assessment grading technology for children's oral reading fluency to support the US *No Child Left Behind* and *Reading First* initiatives.

Business model: Ad-hoc contracting with corporates and governments. Negative working capital requirement. Individual tests are also available: Versant English full test USD40, practice test USD30, quick practice test USD20, placement test USD40. Pricing for other languages is similar. Vouchers for 20+ tests work out at a cost of USD20 per test.

 PEARSON

PEARSON VUE

<http://www.pearsonvue.com/about/>

Name: Pearson VUE.

Type of business: Assessment

Acquired in: 2000 from NCS. Developed organically and through acquisitions.

2013 growth: +25% to 11,600,000 (vs. 9,300,000 in 2012).

Pearson VUE provides a full suite of services from test development to data management. It is the world's leading test centre network, with over 5,100 test centres in 175 countries, 400 of which are fully-owned and operated by Pearson. Pearson VUE delivers millions of high-stakes tests a year for clients in the licensure, certification, academic admissions, regulatory, and government testing service markets. Pearson Professional Centres use a patent-winning design, created specifically for high-stakes testing and offering a carefully controlled, consistent testing environment.

The primary Pearson VUE operations facilities are located in the US, the UK and India, with satellite operations in China and Japan.

Business model:

Pearson VUE has three main ranges of products: test-taker services, test programme solutions, and test centres. Its business model is a mix of transactional and licensing.

Embanet™

<http://embanet.com/>

Name: Embanet.

Type of business: Inside services – Learning services and technological solutions.

Acquired in: 2012 for USD650m or 5x revenues. The company was created in 1993.

2013 growth: 8% to 27,000 (from 25,000 in 2012).

Embanet is the industry pioneer and leader in online learning services and technological solutions (so-called “enablers” or “EAAS”) for top-tier academic institutions. Embanet has partnerships with many universities to help them to build efficient online courses. Its teams assess, finance, develop, recruit for, market and support online learning solutions. In 2012 Pearson acquires EmbanetCompass for USD650m. Embanet’s sales in 2012 amounted to c. USD130m.

Thanks to the acquisition of Embanet, Pearson has become the unchallenged leader in the field of enablers. The student population targeted is vocational, and students with professional experience, for short programmes (1-2 years). It is similar to the population traditionally targeted by private for-profit colleges.

Business model: Paid by academic partners. Each solution is tailor-made for the client and requires significant upfront costs. Contracts have generally long durations (8-10 years) and are lossmaking for the initial 2-3 years. The online course is provided by the university faculty, while content is supplied by the publishers, and its cost is bundled in the tuition fee.

Embanet works with the school during the development of the programme to determine the level of investment required for the school to pay faculty and staff, develop courses, and upgrade the infrastructure to prepare to serve online students. Typically, the maximum investment for an institution that partners with Embanet is less than USD100,000, with breakeven in year two or before. Embanet works with partners to develop a proforma programme to model the expected revenues and expenses, and project future net cash flow.



Name: Pearson Sistemas.

Type of business: Inside services – educational products and services.

Acquired in: 2010 for USD497m.

2013 trend: -6.7% to 497,000 (from 533,000 in 2012).

SEB is the leading provider of “sistemas” (or ‘learning systems’) to Brazilian pre-school, primary and secondary schools. A “Sistema” is an integrated learning system incorporating curriculum design, teacher support and training, print and digital content, technology platforms, assessment and other complementary services.

SEB’s four ‘sistemas’ (COC, Dom Bosco, Pueri Domus and NAME) serve more than 450,000 students across private and public schools. SEB offers undergraduate and graduate programmes to around 9,000 college students and distance learning courses for undergraduate, graduate, test preparation and further education programmes. It directly operates 31 schools, providing full-time pre-school, primary, secondary and test preparation courses.

In 2010, Brazil was one of the world’s largest education markets with 56m students and an educational materials market valued at c. USD2bn. SEB’s learning systems division generated revenues of around BRL160m in 2010.

Business model: licensing and transactional.



<http://portal.pearson.com.br/>

Name: Grupo Multi.

Type of business: Direct delivery – English Language Teaching in Brazil.

Acquired in: February 2014 for GBP440m (10.5x EV/EBIT).

2013 registrations trend: N.A.

Grupo Multi has 2,600 franchised schools, and is the biggest English language teaching chain in Brazil.

Its main brands are: 1) the **Wizard** franchise network, created in 1987 (based on the name of founder Carlos Wizard Martins); 2) **Alps** (created in 2001) interventional English courses, addressing managers and students that need to travel abroad and need urgent English training; 3) **Worktek** (created in 2004) English tutoring for K-12.

Wizard also has schools in the US, Japan, and Portugal. Since the acquisition, the former brands have been scrapped, and the entire chain has been renamed Pearson ELT Brazil.



<http://www.tq.com/>

Name: TQ.

Type of business: Inside services – Education and training solutions (mostly in the UK).

Acquired in: 2011 (gross assets of GBP23m at end-September 2010).

2013 registrations trend: +48% to 28,600 (from 19,300 in 2012).

TQ Education & Training is a leading education and training provider that designs, develops and delivers training solutions for public and private sector clients in the UK and overseas. The company provide technical and vocational training for many sectors such as: rail, power, domestic trades & forces resettlement, health and safety, renewable energies, plant, oil and gas, driving and transport.

TQ's contracts include the Saudi Petroleum Services Polytechnic in Saudi Arabia, the Welbeck Defence Sixth Form College in Leicestershire, and the Royal School of Military Engineering. TQ's clients include Siemens, Thales, and Network Rail.

Business model: Ad-hoc contracting with corporate clients, or annual subscriptions.

aimsweb

<http://www.aimsweb.com/about>

Name: AIMSWEB.

Type of business: Learner Services/resources- Progress Monitoring (K-12).

Acquired in: Pearson acquired Schoolnet (Aimsweb's parent) for USD 230 m in 2011.

2013 registrations trend: +2.4% to 4,3m (from 4.2m in 2012).

Aimsweb is an assessment and RTI (response-to-intervention) solution used by administrators and teachers to allow early identification of at-risk students in reading and maths, and to monitor and report student progress. It has been adopted by thousands of schools across the US and Canada.

At the core of Aimsweb is "general outcome measurement", a form of curriculum-based measurement (CBM), used for universal screening and progress monitoring. This form of brief assessment measures overall performance of key foundational skills at each grade level and draws upon over thirty years of scientific research that demonstrates both its versatility to provide accurate prediction of reading and math achievement as well as its sensitivity to growth. It helps school administrators to demonstrate tangible improvements, and helps teachers to become more effective and efficient in the classroom.

Aimsweb has twice won the "Best in Tech" award in the Scholastic Administrator magazine and received the highest ratings based on eleven measures from the National Center on Intensive Intervention (decisions and rules for changing instruction and increasing goals).

Business model: subscription, licensing. Positive working capital requirement. The migration of a school SIS to Aimweb ranges from a few days to several weeks.



<http://www.pearson.com.au/educator/primary/english/bug-club/>

Name: Bug Club.

Type of business: Learner Services/resources - Blended literacy programme (K-12).

Acquired in: N/A.

2013 registrations trend: +75.8% to 734,000 (from 420,000 in 2012).

Bug Club is a blended literacy programme containing 550 fiction and non-fiction texts, comics and graphic novels, as well as phonic readings. It is the modern version of a book club for pupils.

Comprehension can be tested through over 1,500 interactive activities including quizzes and self-assessment games. Bug Club is accessible from the classroom and from home, where parents can support their child's interactive reading experience. Pupils receive online rewards for reading achievements. It is mainly used in the UK and Australia.

Business model: Yearly subscriptions for schools, or individual purchases from schools.



<http://com.fronter.info/>

Name: Fronter.

Type of business: Learner Services/resources- Digital learning platform.

Acquired in: 2008. Founded in 1998 in Oslo.

2013 registrations trend: +3.9% to 8.0m (from 7.7m in 2012).

Fronter is a digital learning platform (also called Virtual Learning Environment, LMS, CMS or managed learning environments (MLE). It exists in 25 languages and is used by “thousands of schools around the world”, although its core markets are Norway, Sweden and the UK, serving more than 3,000 clients, including the City of Oslo and the London Grid for Learning. Before the acquisition of Fronter, Pearson was only a minor player in DLPs through Pearson Phoenix.

Teachers create courses and content, tests, assignments, and forums that are open to teachers and students. The platform can contain links to external content, always within a safe environment suitable for pupils. Administrative and practical information is also shared in the system, such as information on student clubs or school trips.

Parents can log in to see messages left by teachers and school communication.

School administrators can use it as Learning Content Management System (LCMS, also known as Management Information Systems) to monitor how creative and committed the staff is to the implementation of new technologies. Fronter includes a digital repository (Equella) for the school to house teaching and learning, research, media and library content.

Business model: Licensing.

Pearson valuation

FY to 31/12 (GBP)	2009	2010	2011	2012	2013	2014E	2015E	2016E
Per share data								
EPS adjusted	65.43	77.51	86.48	84.17	70.19	66.42	78.66	81.99
% Change	13.4%	18.5%	11.6%	-2.7%	-16.6%	-5.4%	18.4%	4.2%
EPS adjusted and fully diluted	65.37	77.33	86.30	84.04	70.10	66.33	78.56	81.87
% Change	13.3%	18.3%	11.6%	-2.6%	-16.6%	-5.4%	18.4%	4.2%
EPS reported	53.17	161.88	119.60	40.53	66.60	48.48	59.81	62.33
% Change	45.1%	204.5%	-26.1%	-66.1%	64.3%	-27.2%	23.4%	4.2%
EPS Consensus						64.0	75.3	81.0
Cash flow per share	102.46	125.56	108.97	81.19	44.07	77.39	88.70	93.33
Book value per share	543.60	691.21	742.69	706.95	705.62	703.70	714.67	724.74
DPS	35.50	38.70	42.00	45.00	48.00	48.96	52.39	56.05
Number of shares, YE (m)	800.1	803.0	801.9	805.6	808.9	811.8	811.8	811.8
Number of shares, fully diluted, YE (m)	800.1	803.0	801.9	805.6	808.9	811.8	811.8	811.8
Share price								
Latest price / year end	891.0	1,008.0	1,210.0	1,188.0	1,341.0	1,218.0	1,218.0	1,218.0
52 week high (Year high)	892.5	1,051.0	1,222.0	1,294.0	1,365.0	1,341.0		
52 week low (Year low)	578.0	855.0	983.0	1,111.0	1,119.0	998.0		
Average price (Year)	715.9	963.7	1,114.1	1,200.8	1,241.6	1,218.0		
Enterprise value (GBPm)								
Market capitalisation	5,728	7,738	8,934	9,674	10,043	9,888	9,888	9,888
Net financial debt	1,195	558	673	1,200	1,478	1,442	1,277	1,109
Pension provisions	339	148	166	172	142	142	142	142
Market value of minorities	0	0	0	0	0	0	0	0
Market value of equity affiliates (net of tax)	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0
Enterprise value	7,262	8,444	9,773	11,046	11,663	11,472	11,307	11,139
Valuation								
P/E adjusted	10.9	12.4	12.9	14.3	17.7	18.3	15.5	14.9
P/E adjusted and fully diluted	11.0	12.5	12.9	14.3	17.7	18.4	15.5	14.9
P/E consensus						19.0	16.2	15.0
P/BV	1.3	1.4	1.5	1.7	1.8	1.7	1.7	1.7
P/CF	7.0	7.7	10.2	14.8	28.2	15.7	13.7	13.1
Dividend yield (%)	5.0%	4.0%	3.8%	3.7%	3.9%	4.0%	4.3%	4.6%
FCF yield (%)	12.2%	11.3%	8.2%	5.1%	2.0%	4.2%	4.6%	4.9%
ROE (%)	10.8%	12.1%	12.0%	11.6%	9.9%	9.4%	11.1%	11.4%
ROIC (%)	9.7%	10.0%	10.4%	9.6%	7.3%	7.4%	8.6%	8.9%
EV/Sales	1.29	1.49	1.67	2.18	2.30	2.37	2.22	2.10
EV/EBITDA	7.4	8.5	9.2	11.6	13.4	13.0	11.2	10.7
EV/EBIT	8.5	9.9	10.4	11.8	15.8	15.4	13.1	12.5

Pearson income statement

FY to 31/12 (GBPm)	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales	5,624	5,663	5,862	5,059	5,069	4,849	5,095	5,311
% Change	16.9%	0.7%	3.5%	-13.7%	0.2%	-4.3%	5.1%	4.2%
EBITDA reported	987	989	1,483	775	791	882	1,007	1,040
% Change	3.0%	0.2%	49.9%	-47.7%	2.1%	11.5%	14.2%	3.2%
Depreciation and amortisation	-232	-246	-257	-260	-333	-281	-296	-308
Goodwill impairment	0	0	0	0	0	0	0	0
Other financial result and associates	0	0	0	0	0	0	0	0
EBIT reported	755	743	1,226	515	458	601	712	732
% Change	11.7%	-1.6%	65.0%	-58.0%	-11.1%	31.2%	18.5%	2.8%
Net financial items	-95	-73	-71	-81	-76	-76	-71	-64
Associates	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0
Earnings before tax	660	670	1,155	434	382	525	641	668
% Change	12.8%	1.5%	72.4%	-62.4%	-12.0%	37.4%	22.1%	4.2%
Tax	-198	-146	-199	-148	-87	-131	-155	-161
Net profit from continuing operations	462	524	956	286	295	394	486	506
% Change	11.9%	13.4%	82.4%	-70.1%	3.1%	33.6%	23.3%	4.2%
Net profit from discontinuing activities	0	776	0	43	244	0	0	0
Net profit before minorities	462	1,300	956	329	539	394	486	506
Minorities	-37	-3	1	-3	-1	-1	-1	-1
Net profit reported	425	1,297	957	326	538	393	485	505
% Change	45.5%	205.2%	-26.2%	-65.9%	65.0%	-26.9%	23.4%	4.2%
Adjustments	98	-676	-265	351	29	145	153	159
Net profit adjusted	523	621	692	677	567	538	638	665
% Change	13.7%	18.7%	11.4%	-2.2%	-16.2%	-5.0%	18.4%	4.2%
Gross profit	3,085	3,075	3,238	2,835	2,757	2,715	2,853	2,974
EBITDA adjusted	987	998	1,060	950	873	882	1,007	1,040
EBIT adjusted	858	857	942	936	736	746	864	891
Gross profit margin (%)	54.9%	54.3%	55.2%	56.0%	54.4%	56.0%	56.0%	56.0%
EBITDA margin (%)	17.5%	17.6%	18.1%	18.8%	17.2%	18.2%	19.8%	19.6%
EBIT margin (%)	15.3%	15.1%	16.1%	18.5%	14.5%	15.4%	17.0%	16.8%
Net profit margin (%)	9.3%	11.0%	11.8%	13.4%	11.2%	11.1%	12.5%	12.5%
Tax rate (%)	30.0%	21.8%	17.2%	24.3%	31.2%	19.5%	19.5%	19.5%
Payout ratio (%)	93.5%	68.7%	24.5%	36.2%	114.1%	72.3%	101.0%	87.6%
EPS reported (p)	53.17	161.88	119.60	40.53	66.60	48.48	59.81	62.33
% change	45.1%	204.5%	-26.1%	-66.1%	64.3%	-27.2%	23.4%	4.2%
EPS adjusted (p)	65.43	77.51	86.48	84.17	70.19	66.42	78.66	81.99
% change	13.4%	18.5%	11.6%	-2.7%	-16.6%	-5.4%	18.4%	4.2%
EPS adj and fully diluted(p)	65.37	77.33	86.30	84.04	70.10	66.33	78.56	81.87
% change	13.3%	18.3%	11.6%	-2.6%	-16.6%	-5.4%	18.4%	4.2%
DPS (p)	35.50	38.70	42.00	45.00	48.00	48.96	52.39	56.05
% change	5.0%	9.0%	8.5%	7.1%	6.7%	2.0%	7.0%	7.0%
Consensus Sales (GBPm)						4,902	5,092	5,277
Consensus EBITDA (GBPm)						820	941	1,023
Consensus EBIT (GBPm)						716	827	875
Consensus EPS (p)						64.0	75.3	81.0
Consensus DPS (p)						50.5	53.0	56.1

Pearson cash flow statement

FY to 31/12 (GBPm)	2009	2010	2011	2012	2013	2014E	2015E	2016E
Net profit before minorities	462	1,300	956	329	539	394	486	506
Depreciation and amortisation	232	246	257	317	309	281	296	308
Goodwill impairment	0	0	0	0	0	0	0	0
Change in working capital	105	149	39	-100	-37	26	17	25
Others	20	-689	-380	107	-455	-74	-79	-83
Cash Flow from operating activities	819	1,006	872	653	356	627	719	757
% Change	14.1%	22.8%	-13.3%	-25.1%	-45.5%	76.2%	14.6%	5.2%
Capex	-121	-135	-140	-155	-160	-210	-261	-272
Free cash flow	698	871	732	498	196	418	458	485
% Change	16.9%	24.8%	-16.0%	-32.0%	-60.6%	113.1%	9.7%	5.8%
Acquisitions	-222	-557	-788	-755	-58	-447	0	0
Divestments	15	734	509	-3	-99	354	0	0
Dividend paid	-273	-292	-318	-346	-372	-389	-397	-425
Share buy back	-33	-77	-60	0	-47	0	0	0
Capital increases	8	12	21	11	14	12	12	12
Others	232	-57	-207	-59	88	88	91	96
Change in net financial debt	425	634	-111	-654	-278	36	165	168
Change in cash and cash equivalents	71	941	-376	-306	-324	36	165	168
Attributable FCF	698	871	732	498	196	418	458	485
Cash flow per share (p)	102.46	125.56	108.97	81.19	44.07	77.39	88.70	93.33
% Change	13.7%	22.5%	-13.2%	-25.5%	-45.7%	75.6%	14.6%	5.2%
FCF per share (p)	0.87	1.09	0.91	0.62	0.24	0.52	0.57	0.60
% Change	16.6%	24.5%	-15.9%	-32.3%	-60.8%	112.4%	9.7%	5.8%
Capex / Sales (%)	2.2%	2.4%	2.4%	3.1%	3.2%	4.3%	5.1%	5.1%
Capex / D&A (%)	52.2%	54.9%	54.5%	59.6%	48.0%	74.5%	88.2%	88.2%
Cash flow / Sales (%)	14.6%	17.8%	14.9%	12.9%	7.0%	12.9%	14.1%	14.2%
FCF / Sales (%)	12.4%	15.4%	12.5%	9.8%	3.9%	8.6%	9.0%	9.1%
FCF Yield (%)	12.2%	11.3%	8.2%	5.1%	2.0%	4.2%	4.6%	4.9%
Unlevered FCF Yield (%)	10.8%	11.3%	8.3%	5.3%	2.3%	4.2%	4.6%	4.8%

Pearson balance sheet

FY to 31/12 (GBPm)	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash and cash equivalents	813	1,754	1,378	1,072	748	784	949	1,117
Inventories	445	429	407	261	224	188	169	147
Accounts receivable	1,284	1,337	1,386	1,104	1,173	1,122	1,109	1,084
Other current assets	650	647	650	1,838	940	914	1,076	1,229
Current assets	3,192	4,167	3,821	4,275	3,085	3,007	3,303	3,577
Tangible assets	388	366	383	327	342	298	237	173
Goodwill	4,346	4,568	4,855	4,855	4,666	4,666	4,666	4,666
Other Intangible assets	783	899	1,487	1,363	1,135	1,111	1,149	1,177
Financial assets	174	192	228	205	291	291	291	291
Other non-current assets	529	476	470	323	1,412	1,412	1,412	1,412
Non-current assets	6,220	6,501	7,423	7,073	7,846	7,778	7,755	7,720
Short term debt	74	404	87	262	533	533	533	533
Accounts payable	1,467	1,605	1,741	1,556	1,505	1,461	1,536	1,601
Other short term liabilities	184	233	262	645	358	288	345	385
Current liabilities	1,725	2,242	2,090	2,463	2,396	2,282	2,414	2,519
Long term debt	1,934	1,908	1,964	2,010	1,693	1,693	1,693	1,693
Pension provisions	339	148	166	172	142	142	142	142
Other long term provisions	50	42	115	110	77	77	77	77
Other long term liabilities	728	723	947	883	917	865	918	969
Non-current liabilities	3,051	2,821	3,192	3,175	2,829	2,777	2,830	2,881
Shareholders' equity	4,345	5,538	5,943	5,686	5,700	5,705	5,794	5,875
Minority interests	291	67	19	24	6	7	7	7
Total equity	4,636	5,605	5,962	5,710	5,706	5,712	5,801	5,882
Balance sheet total	9,412	10,668	11,244	11,348	10,931	10,771	11,044	11,282
% Change	-4.9%	13.3%	5.4%	0.9%	-3.7%	-1.5%	2.5%	2.2%
Book value per share (GBP)	543.60	691.21	742.69	706.95	705.62	703.70	714.67	724.74
% Change	-8.8%	27.2%	7.4%	-4.8%	-0.2%	-0.3%	1.6%	1.4%
Net debt	1,597	724	848	1,382	1,639	1,603	1,438	1,270
Net financial debt	1,195	558	673	1,200	1,478	1,442	1,277	1,109
Trade working capital	262	161	52	-191	-108	-152	-257	-370
Working capital	728	575	440	1,002	474	474	474	474
Inventories/sales	7.9%	7.6%	6.9%	5.2%	4.4%	3.9%	3.3%	2.8%
Invested capital	6,245	6,408	7,165	7,671	7,709	7,641	7,618	7,583
Net debt / EBITDA (x)	1.6	0.7	0.8	1.5	1.9	1.8	1.4	1.2
Net debt / FCF (x)	2.3	0.8	1.2	2.8	8.4	3.8	3.1	2.6
Gearing (%)	25.8%	10.0%	11.3%	21.0%	25.9%	25.2%	22.0%	18.9%
Goodwill / Equity (%)	93.7%	81.5%	81.4%	85.0%	81.8%	81.7%	80.4%	79.3%

Pearson divisions and regions

FY to 31/12 (GBP)	2009	2010	2011	2012	2013	2014E	2015E	2016E
Key assumptions								
GBP USD	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7
GBP EUR	1.1	1.2	1.1	1.2	1.2	1.2	1.3	1.2
Org. Growth N America (%)						2.2	3.3	4.1
Org. Growth Core (%)						-2.5	1.8	0.8
Org. Growth (%)						7.2	8.7	9.4
Org. Growth Group (%)	1.5	5.2	1.6	-0.7	0.8	1.8	3.8	4.2
Sales by division								
North America					3,080.0	2,942.2	3,095.6	3,222.2
Core					1,242.0	1,169.0	1,188.0	1,200.8
Growth					747.0	737.5	811.6	888.0
EBITA cont. ops. by division								
North America					457.0	449.9	541.6	574.4
Core					119.0	162.4	169.0	160.1
Growth					56.0	80.1	98.4	96.6
EBITA cont. ops. margin (%)								
North America					14.8%	15.3%	17.5%	17.8%
Core					9.6%	13.9%	14.2%	13.3%
Growth					7.5%	10.9%	12.1%	10.9%
Geographic breakdown of sales, adjusted (%)								
Currency exposure of sales (%)								

Lagardère

France | Media

Buy (Buy)

Target price
EUR 30.00

Current price
EUR 21.38

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The French and Spanish K-12 leader

Lagardère is the leader in the French K-12 textbook market, where it has a 45% market share, in a market worth c. EUR400m in 2013. It is also the first in Spain with a 20.3% share of a market of approximately the same size, but enhanced by sales in Latin America. Both markets are lagging in digital. The funding cycle will boost 2015 (in Spain) and 2016 (in France).

Opportunity to become the French technological leader

In 2013 Lagardère generated c.EUR190m from French K-12 books (Hachette) and EUR116m from Spanish books (Anaya), for a total of c.5% of the group revenues but a much higher 17% of group EBIT. Both markets are highly concentrated and profitable, with one large competitor, Grupo Planeta (Editis in France), in both countries and several smaller with little investment firepower. We expect technology to favour the players with the most advanced solutions. While for the time being Editis is the only publisher in France selling digital content separately from print, those countries still lack a clear technological leader.

Pickup in adoption cycles in 2015 (ES) and 2016 (FR)

After a weak 2013 and 2014 for K-12 sales, we expect 2015 to benefit from a school reform in Spain, which should unlock growth. We expect the French market to pick up in 2016, when the "réforme des programmes" trigger a cycle of repurchases and stronger investments in technology.

Investment case: strengthening the asset mix

Lagardère is tackling its structural issues by selling Distribution and Integrated Retail (expect c. +2% of group growth enhancement, +80bps on EBITA margin). We see +50% EPS growth by 2015E, including the sale of distribution (we are 10% above consensus) thanks to company-specific items: 1) effects of past acquisitions; 2) lower bonuses paid in 2014; and 3) the restructuring of Lagardère Active and Unlimited.

Cheap, 6% dividend yield backed by solid cash flow

Lagardère is the top performer in consumer publishing over -2Y thanks to conglomerate dismantling, but just in line with Media over a cycle (-5Y) and still trading at a c.30% discount to Media on P/E 2015E. It pays the second highest dividend yield in EU Media at c. 6%, backed by satisfactory cash flow generation.

Reuters LAGA.PA
Bloomberg MMB FP
Index DJ Stoxx 600

Market data

Market cap (EURm)	2,712
Free float	90%
No. of shares outstanding (m)	127
Avg. daily trading volume('000)	346
YTD abs performance	-20.9%
52-week high (EUR)	31.12
52-week low (EUR)	20.40



FY to 31/12 (EUR)	2014E	2015E	2016E
Sales (m)	7,118.3	7,457.9	7,594.1
EBITDA adj (m)	544.6	625.1	635.6
EBIT adj (m)	385.6	431.8	442.2
Net profit adj (m)	224.5	261.3	277.8
Net fin. debt (m)	692.1	722.0	725.8
FCF (m)	28.9	144.5	170.8
EPS adj. and fully dil.	1.73	2.00	2.13
Consensus EPS	1.60	1.90	2.04
Net dividend	7.30	1.30	1.30

FY to 31/12 (EUR)	2014E	2015E	2016E
P/E (x) adj and ful. dil.	12.4	10.7	10.0
EV/EBITDA (x)	6.6	5.8	5.7
EV/EBIT (x)	9.3	8.4	8.2
FCF yield	10.1%	10.7%	11.8%
Dividend yield	34.2%	6.1%	6.1%
Net debt/EBITDA (x)	1.3	1.2	1.1
Gearing	33.3%	34.7%	34.6%
ROIC	33.5%	37.0%	37.4%
EV/IC (x)	4.4	4.4	4.4

Lagardère key financials

FY to 31/12 (EUR)	2009	2010	2011	2012	2013	2014E	2015E	2016E
Per share data								
EPS adjusted	1.69	2.19	-0.04	2.38	0.99	1.77	2.06	2.19
EPS adj and fully diluted	1.69	2.19	-0.04	2.35	0.97	1.73	2.00	2.13
EPS reported	1.04	1.21	-5.38	1.19	9.98	0.74	1.42	1.55
Cash flow per share	4.20	4.04	1.95	3.08	2.64	2.63	3.61	3.89
Book value per share	30.13	29.55	22.42	22.85	22.51	15.50	15.46	15.54
Dividend per share	1.30	1.30	1.30	1.30	10.30	7.30	1.30	1.30
Number of shares, YE (m)	131.5	131.5	131.5	126.9	126.9	126.9	126.9	126.9
Valuation								
P/E adjusted	11.2	9.0	na	6.4	22.1	12.1	10.4	9.8
P/E adjusted and fully diluted	11.2	9.0	na	6.5	22.5	12.4	10.7	10.0
P/BV	0.6	0.7	0.8	0.7	1.0	1.4	1.4	1.4
P/CF	4.5	4.9	9.1	4.9	8.3	8.1	5.9	5.5
Dividend yield (%)	6.9%	6.6%	7.3%	8.5%	47.2%	34.2%	6.1%	6.1%
FCF yield (%)	17.2%	15.9%	5.3%	13.3%	7.5%	10.1%	10.7%	11.8%
EV/Sales	0.6	0.6	0.5	0.5	0.4	0.5	0.5	0.5
EV/EBITDA	6.9	7.9	na	6.9	1.6	6.6	5.8	5.7
EV/EBIT	20.7	47.8	na	na	7.0	9.3	8.4	8.2
Income Statement (EURm)								
Sales	7,891.6	7,966.8	7,649.8	7,370.7	7,216.1	7,118.3	7,457.9	7,594.1
EBITDA adjusted	674.7	617.2	-146.2	557.2	1,672.6	544.6	625.1	635.6
EBIT adjusted	223.4	101.4	-1,564.4	-25.8	371.8	385.6	431.8	442.2
Net financial items & associates	-53.0	-22.9	5.0	23.0	-84.0	-55.0	-44.9	-34.9
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tax	-123.0	-67.0	-105.0	-40.0	-117.0	-86.8	-80.2	-86.0
Net profit from continuing operations	164.7	190.4	-689.3	167.2	1,278.8	103.9	186.7	201.4
Net profit from discontinuing activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit before minorities	164.7	190.4	-689.3	167.2	1,278.8	103.9	186.7	201.4
Net profit reported	137.2	159.2	-707.3	150.7	1,266.6	94.5	180.4	196.9
Net profit adjusted	221.7	288.0	-5.2	301.9	125.2	224.5	261.3	277.8
Cash Flow Statement (EURm)								
Cash flow from operating activities	552.0	531.0	257.0	391.0	335.0	333.8	458.6	494.2
Capex	-240.0	-253.0	-288.0	-253.0	-296.0	-304.9	-314.0	-323.4
Free cash flow	312.0	278.0	-31.0	138.0	39.0	28.9	144.5	170.8
Acquisitions & Divestments	637.0	42.0	797.0	-345.0	3,369.0	-63.0	0.0	0.0
Dividend paid	-202.0	-200.0	-195.0	-192.0	-1,339.0	-969.0	-169.5	-169.5
Others	48.0	-174.0	-45.0	51.0	-53.0	-5.0	-5.0	-5.0
Change in net financial debt	795.0	-54.0	526.0	-348.0	2,016.0	-1,008.1	-30.0	-3.7
Balance Sheet (EURm)								
Intangible assets	7,375.0	6,387.0	5,397.0	5,373.0	2,066.0	2,186.9	2,317.0	2,456.6
Tangible assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Financial & other non-current assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total shareholders' equity	4,082.0	4,018.0	3,024.0	2,991.0	2,960.8	2,079.6	2,080.7	2,096.6
Pension provisions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liabilities and provisions	7,043.0	6,883.0	5,904.0	6,369.0	4,154.0	5,149.1	5,179.0	5,182.8
Net debt	1,824.0	1,878.0	1,352.0	1,700.0	-316.0	692.1	722.0	725.8
Working capital requirement	-570.0	125.0	-467.0	-12.0	-10.2	15.8	40.8	64.8
Invested Capital	254.0	983.0	375.0	814.3	800.7	811.5	821.7	832.1
Ratios								
ROE (%)	5.0%	7.1%	-0.1%	10.0%	4.2%	8.9%	12.6%	13.3%
ROIC (%)	15.6%	10.8%	-265.8%	-1.5%	42.4%	33.5%	37.0%	37.4%
Net debt / EBITDA (x)	2.7	3.0	-9.2	3.1	-0.2	1.3	1.2	1.1
Gearing (%)	44.7%	46.7%	44.7%	56.8%	-10.7%	33.3%	34.7%	34.6%

Prisa

Spain | Media

Buy (Buy)

Target price
EUR 0.55

Current price
EUR 0.27

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A leading publisher in LatAm and Spain

Santillana is the largest educational publisher in LatAm & Spain. The digitalisation process makes sense (EBITDA margin of 35% vs. 25%) but is not risk-free. Santillana is Prisa's main value driver. Buy, TP EUR0.55.

Santillana: number one player in textbooks across LatAm & Spain

Santillana, present in 22 countries, is the largest educational publisher in LatAm & Spain, reaching revenues of EUR740m and EBITDA of EUR173.4m. LatAm sales are EUR600m (80% of total), mainly from Brazil and Mexico. 76% comes from Traditional Education while 24% comes from new businesses (learning systems represent one-third, and trade publishing two-thirds), which are the source of future growth, in our view.

The strategy makes sense to us: digitalisation process

We believe that Santillana's LT strategy makes a lot of sense, and it is supported by three main pillars which are: 1) Traditional business (education & languages); 2) Compartir (Santillana.com); and 3) Learning system (Sistema UNO Internacional). Santillana enjoys a dominant market share and scale in LatAm, with a much larger scale than its global educational peers (2x Pearson Education or McGraw-Hill) as well as local educational players (larger than Anhanguera, Estácio, Abril or Kroton Educacional). The new businesses' EBITDA margin is c. 35% versus 25% of the traditional ones.

Investment case: Santillana, the jewel in the crown

We believe that Santillana is currently Prisa's main value driver. According to our estimates, Santillana represents 75% of EBITDA in 2014E. The 2013 5- to 6-year maturity extension (Euribor +379bps) gave Prisa more time to sell assets (first maturity by December 2015, banks pledged Prisa a 75% stake in Santillana at a rich implicit valuation of EUR2.5-4.0bn for 100%) versus our EUR2.3bn average valuation.

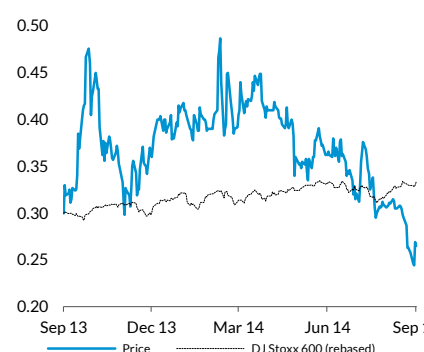
Buy, TP EUR0.55

On our estimates, Prisa trades at 7.0x EV/EBITDA 2015E after the sale of D+, MES and MCapital (partly using the proceeds to buy back debt at a 25% discount), at a discount to LatAm publishers. We estimate the newco would generate EBITDA of EUR275m by 2015E, 75% publishing and 25% press/radio, with 75% coming from LatAm, and an expected net debt of EUR1.3bn. Recent newsflow is good and shows that Prisa is still delivering YTD, which we believe the market is not recognising. Nevertheless, there are still some doubts (execution risk on pending disposals, Portugal a less-than-ideal market for selling assets, recent changes in top management) and structural threats (Santillana "digitalisation" taking longer than expected). The flowback risk persists.

 Reuters PRS.MC
Bloomberg PRS SM
Index DJ Stoxx 600

Market data

Market cap (EURm)	572
Free float	82%
No. of shares outstanding (m)	1,991
Avg. daily trading volume('000)	4,720
YTD abs performance	-33.8%
52-week high (EUR)	0.49
52-week low (EUR)	0.24



FY to 31/12 (EUR)	2014E	2015E	2016E
Sales (m)	2,871.7	2,958.3	3,034.0
EBITDA adj (m)	323.3	385.2	486.8
EBIT adj (m)	61.5	113.3	205.9
Net profit adj (m)	-60.2	-15.1	51.4
Net fin. debt (m)	3,021.9	2,872.1	2,792.3
FCF (m)	255.1	164.8	102.6
EPS adj. and fully dil.	-0.04	-0.01	0.03
Consensus EPS	-0.04	-0.01	0.03
Net dividend	0.00	0.00	0.00

FY to 31/12 (EUR)	2014E	2015E	2016E
P/E (x) adj and ful. dil.	na	na	8.2
EV/EBITDA (x)	11.7	9.7	7.4
EV/EBIT (x)	61.3	32.9	17.5
FCF yield	44.6%	28.8%	24.4%
Dividend yield	0.0%	0.0%	0.0%
Net debt/EBITDA (x)	9.9	8.2	6.5
Gearing	207.4%	205.4%	195.6%
ROIC	1.4%	2.6%	4.9%
EV/IC (x)	1.2	1.3	1.2

Prisa key financials

FY to 31/12 (EUR)	2009	2010	2011	2012	2013	2014E	2015E	2016E
Per share data								
EPS adjusted	0.23	-0.33	-0.62	-0.18	-0.43	-0.04	-0.01	0.03
EPS adj and fully diluted	0.23	-0.33	-0.62	-0.18	-0.43	-0.04	-0.01	0.03
EPS reported	0.23	-0.33	-0.53	-0.15	-0.41	-0.04	-0.01	0.03
Cash flow per share	2.50	2.60	0.06	0.02	-0.55	0.27	0.21	0.17
Book value per share	5.72	9.22	1.92	1.31	1.01	0.96	0.94	0.96
Dividend per share	0.02	0.00	0.03	0.01	0.00	0.00	0.00	0.00
Number of shares, YE (m)	219.1	219.1	846.8	1,669.0	1,589.5	1,588.5	1,587.5	1,587.5
Valuation								
P/E adjusted	13.0	na	na	na	na	na	na	8.2
P/E adjusted and fully diluted	13.0	na	na	na	na	na	na	8.2
P/BV	0.5	0.3	0.7	0.3	0.3	0.3	0.3	0.3
P/CF	1.2	0.9	25.0	27.3	na	1.0	1.3	1.5
Dividend yield (%)	0.8%	0.0%	2.1%	2.5%	0.0%	0.0%	0.0%	0.0%
FCF yield (%)	63.9%	29.9%	-9.1%	-14.7%	-195.4%	44.6%	28.8%	24.4%
EV/Sales	1.8	1.7	2.1	1.6	1.4	1.3	1.3	1.2
EV/EBITDA	9.2	8.0	11.2	8.8	11.7	11.7	9.7	7.4
EV/EBIT	15.5	14.1	na	na	na	61.3	32.9	17.5
Income Statement (EURm)								
Sales	3,208.6	2,822.7	2,724.5	2,664.7	2,725.7	2,871.7	2,958.3	3,034.0
EBITDA adjusted	623.8	596.3	514.1	478.1	323.2	323.3	385.2	486.8
EBIT adjusted	369.0	336.2	-35.7	-175.1	-801.1	61.5	113.3	205.9
Net financial items & associates	-238.7	-263.1	-209.0	-180.4	-184.7	-163.7	-155.7	-150.1
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tax	-63.1	-73.0	-148.0	20.4	-43.5	10.2	4.2	-5.6
Net profit from continuing operations	67.3	0.1	-392.7	-335.0	-1,029.3	-92.0	-38.1	50.2
Net profit from discontinuing activities	-2.4	-35.0	-2.7	-3.5	-0.1	-1.5	-1.5	-1.5
Net profit before minorities	64.8	-34.9	-395.3	-338.5	-1,029.4	-93.5	-39.6	48.7
Net profit reported	50.5	-72.9	-451.2	-255.0	-648.7	-60.2	-15.1	51.4
Net profit adjusted	50.5	-72.9	-528.4	-306.1	-675.7	-60.2	-15.1	51.4
Cash Flow Statement (EURm)								
Cash flow from operating activities	547.7	569.0	48.1	28.0	-872.9	421.2	334.0	273.2
Capex	-128.0	-206.0	-218.0	-175.9	-168.2	-166.1	-169.3	-170.5
Free cash flow	419.7	363.0	-169.9	-147.9	-1,041.1	255.1	164.8	102.6
Acquisitions & Divestments	-1.1	1,233.5	-12.0	-0.9	-5.1	-5.2	-1.2	-5.0
Dividend paid	-5.0	0.0	-62.4	-19.0	0.0	0.0	0.0	0.0
Others	-208.6	91.4	-143.5	600.4	875.0	-208.6	-13.8	-17.8
Change in net financial debt	205.0	1,687.9	-387.7	432.5	-171.2	41.4	149.8	79.8
Balance Sheet (EURm)								
Intangible assets	4,685.3	4,264.0	3,976.3	3,680.0	2,767.7	2,819.0	2,871.3	2,924.0
Tangible assets	345.8	295.6	307.4	296.4	262.1	382.0	400.3	346.8
Financial & other non-current assets	1,318.9	1,049.8	1,169.2	1,349.9	1,249.2	1,250.8	1,251.4	1,250.6
Total shareholders' equity	1,373.0	2,650.2	2,218.0	2,611.6	1,569.3	1,456.8	1,398.1	1,427.9
Pension provisions	433.7	595.3	591.7	306.4	179.1	179.1	284.1	389.1
Liabilities and provisions	6,386.4	4,906.0	5,069.3	4,744.1	4,955.6	5,385.8	5,328.3	5,235.0
Net debt	5,058.6	3,532.4	3,916.4	3,198.5	3,242.4	3,201.0	3,156.2	3,181.3
Working capital requirement	287.1	573.2	681.5	483.8	532.6	206.6	32.6	89.1
Invested Capital	4,952.4	4,772.3	4,634.1	4,140.0	3,277.0	3,070.8	2,915.1	2,918.1
Ratios								
ROE (%)	3.8%	-3.6%	-21.7%	-12.7%	-32.3%	-4.0%	-1.1%	3.6%
ROIC (%)	5.3%	4.8%	-0.5%	-2.8%	-15.1%	1.4%	2.6%	4.9%
Net debt / EBITDA (x)	8.1	5.9	7.6	6.7	10.0	9.9	8.2	6.5
Gearing (%)	336.8%	110.8%	149.9%	110.7%	195.2%	207.4%	205.4%	195.6%

Research ratings and important disclosures

Disclosure checklist - Potential conflict of interests

Stock	ISIN	Disclosure (See Below)	Currency	Price
Abril Educa Unt N2	BRABRECDAM15	nothing to disclose	BRL	40.00
Amazon.Com	US0231351067	nothing to disclose	USD	331.32
Ambow Ed.Hldg.CL.A ADR 1:2	US02322P1012	nothing to disclose	USD	0.07
American Public Ed.	US02913V1035	nothing to disclose	USD	28.66
Anhanguera (OTC)	BRAEDUACNOR9	nothing to disclose	USD	6.75
Apollo Education GP.'A'	US0376041051	nothing to disclose	USD	26.08
Apple	US0378331005	nothing to disclose	USD	100.96
Barnes & Noble	US0677741094	nothing to disclose	USD	21.27
Bellevue Group	CH0028422100	nothing to disclose	CHF	12.80
Bertelsmann Gsh.15.00%	DE0005229942	nothing to disclose	EUR	300.00
Books-A-Million	US0985701046	nothing to disclose	USD	1.88
Bridgepoint Education	US10807M1053	nothing to disclose	USD	11.60
Bright Horizons Family Solutions	US1091941005	nothing to disclose	USD	42.12
Cambium Learning Group	US13201A1079	nothing to disclose	USD	1.45
Capella Education	US1395941057	nothing to disclose	USD	60.73
Capella Microsys.(Tw.)	TW0003582003	nothing to disclose	TWD	136.50
Career Education	US1416651099	nothing to disclose	USD	5.15
Cdw	US12514G1085	nothing to disclose	USD	31.81
Cengage Learning Hdg.li	US15136X1028	nothing to disclose	USD	31.75
Chegg	US1630921096	nothing to disclose	USD	6.48
Cisco Systems	US17275R1023	nothing to disclose	USD	25.20
Corinthian Colleges	US2188681074	nothing to disclose	USD	0.16
Devry Education Group	US2518931033	nothing to disclose	USD	44.46
Education Management	US28140M1036	nothing to disclose	USD	1.14
Educomp Solutions	INE216H01027	nothing to disclose	INR	32.65
Estacio Part On	BRETCACNOR5	nothing to disclose	BRL	24.75
GOOGLE 'A'	US38259P5089	nothing to disclose	USD	605.40
Graham Holdings 'B'	US3846371041	nothing to disclose	USD	729.84
Grand Canyon Education	US38526M1062	nothing to disclose	USD	42.91
Higher One Holdings	US42983D1046	nothing to disclose	USD	3.54
Houghton Mifflin Harct.	US44157R1095	nothing to disclose	USD	20.62
Intel	US4581401001	nothing to disclose	USD	34.82
ITT Educational Svs.	US45068B1098	nothing to disclose	USD	4.95
K12	US48273U1025	nothing to disclose	USD	16.88
Kroton Educacional (Otc)	BRKROTACNOR9	nothing to disclose	USD	6.04
Lagardère	FR0000130213	6	EUR	21.11
Lincoln Educa.Svs.	US5335351004	nothing to disclose	USD	3.05
Megastudy	KR7072870009	nothing to disclose	KRW	69800.00
Microsoft	US5949181045	nothing to disclose	USD	47.52
Mondadori	IT0001469383	nothing to disclose	EUR	0.86
National Amer.Uvty.Hdg.	US63245Q1058	nothing to disclose	USD	3.28
New Oriental Ed.& Tech. Gp.Ads 1:1	US6475811070	nothing to disclose	USD	21.79
Nord Anglia Education	KYG6583A1022	nothing to disclose	USD	17.36
Oracle	US68389X1054	nothing to disclose	USD	39.80
Orange	FR0000133308	nothing to disclose	EUR	11.60
Pc Connection	US69318J1007	nothing to disclose	USD	22.61
Pearson	GB0006776081	nothing to disclose	GBP	1238.00
Prisa	ES0171743117	nothing to disclose	EUR	0.26
Promethean	GB00B08H5G38	nothing to disclose	GBP	10.50
Reed Elsevier	NL0006144495	nothing to disclose	EUR	18.10
Reed Elsevier Plc	GB00B2B0DG97	nothing to disclose	GBP	1011.00
Rosetta Stone	US7777801074	nothing to disclose	USD	8.82
Samsung Electronics	KR7005930003	nothing to disclose	KRW	1210000.00
Sanoma	FI0009007694	nothing to disclose	EUR	5.39
Saraiva Livr Pn	BRSLEDACNPR7	nothing to disclose	BRL	16.30
Scholastic	US8070661058	nothing to disclose	USD	34.13
School Specialty	US8078641037	nothing to disclose	USD	120.50
Ser Educa On Nm	BRSEERACNOR5	nothing to disclose	BRL	25.70
Sony	JP3435000009	nothing to disclose	JPY	1921.00
Strayer Education	US8632361056	nothing to disclose	USD	60.10
Tal Education Group Cl.A Adr 1:2	US8740801043	nothing to disclose	USD	35.59
Telecom Italia	IT0003497168	nothing to disclose	EUR	0.89
UBM	JE00B2R84W06	nothing to disclose	GBP	613.00
Wiley John & Sons 'A'	US9682232064	nothing to disclose	USD	57.47
Wilmington Group	GB0009692319	nothing to disclose	GBP	218.50
Wolters Kluwer	NL0000395903	nothing to disclose	EUR	21.94
Xueda Education Gp.Adr 1:2	US98418W1099	nothing to disclose	USD	3.00

Source: Factset closing prices of 19/09/2014

Stock prices: Prices are taken as of the previous day's close (to the date of this report) on the home market unless otherwise stated.

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KEPLER CHEUVREUX current rating for Lagardère is Buy

KEPLER CHEUVREUX current rating for Pearson is Buy and was issued on 22/09/2014. The preceding rating was Reduce,

KEPLER CHEUVREUX current rating for Prisa is Buy and was issued on 25/02/2014. The preceding rating was Reduce and was issued on 15/11/2013.

We did not disclose the rating to the issuer before publication and dissemination of this document.

Rating ratio Kepler Cheuvreux Q1 2014

Rating breakdown	A	B
Buy	43.0%	0.0%
Hold	32.0%	0.0%
Reduce	21.0%	0.0%
Not Rated/Under Review/Accept Offer	4%	0.0%
Total	100.0%	0.0%

Source: Kepler Cheuvreux

A: % of all research recommendations

B: % of issuers to which Investment Banking Services are supplied

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The functional job title of the person(s) responsible for the recommendations contained in this report is **Equity Research Analyst** unless otherwise stated on the cover.

Name of the Equity Research Analyst(s): Andrea Beneventi, Samuel Mary, Inigo Egusquiza

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Location	Regulator	Abbreviation
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Kepler Capital Markets, Milan branch	Commissione Nazionale per le Società e la Borsa	CONSOB
Kepler Capital Markets, Amsterdam branch	Autoriteit Financiële Markten	AFM
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Kepler Capital Markets, Inc.	Financial Industry Regulatory Authority	FINRA
Kepler Capital Markets, London branch	Financial Conduct Authority	FCA
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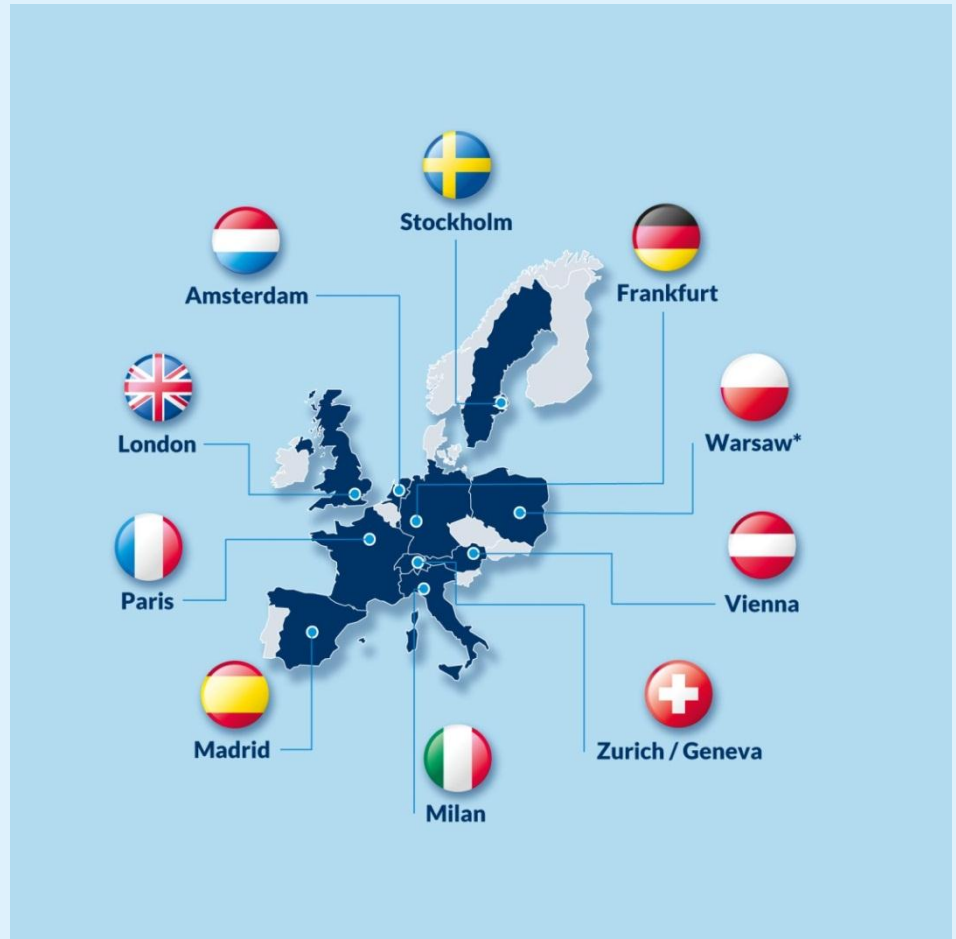
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