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Enabling seamless lifelong learning journeys—the next frontier of digital education

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In emerging markets, the digital transformation of education is gaining traction, and all stakeholders can benefit if they seize new opportunities for collaboration.

Unlike many other sectors, education has come a little late to the digital dance.¹ But after the initial hype and subsequent disillusionment of mostly modest learning outcomes in the early stages of educational technology in recent years, we now see the sector entering a new phase.

With the compound annual growth rate of education and training expenditure projected at 7 to 9 percent globally over the next few years, and with only 2 percent of overall education spend designated as digital, private companies have invested an estimated \$4.5 billion in education-technology companies in 2015.

In response to massive demand for more affordable and modular education—fueled by the projection of one billion more digital-native millennial students worldwide over the next 20 years²—and pressure on funding sources, many disruptions in education have focused on creating lower-cost digital supply systems.

We believe, however, that digital's potential in the education and training sector is more far-reaching, and points to a transition to a digital lifelong learning and training ecosystem.

To understand that opportunity better, we've found it useful to examine the changing nature of both supply and demand in multiple education segments. Exhibit 1 depicts a simple framework identifying six dimensions of change. The upper half is linked to moderate degrees of change.

Microcredentials and badges can undistort demand by allowing learners to assemble their own modular learning pathways rather than requiring them to rely on bundled certificates, diplomas, or degrees curated by educational institutions. Similarly, the unbundling of learning content through open educational resources, crowdsourcing

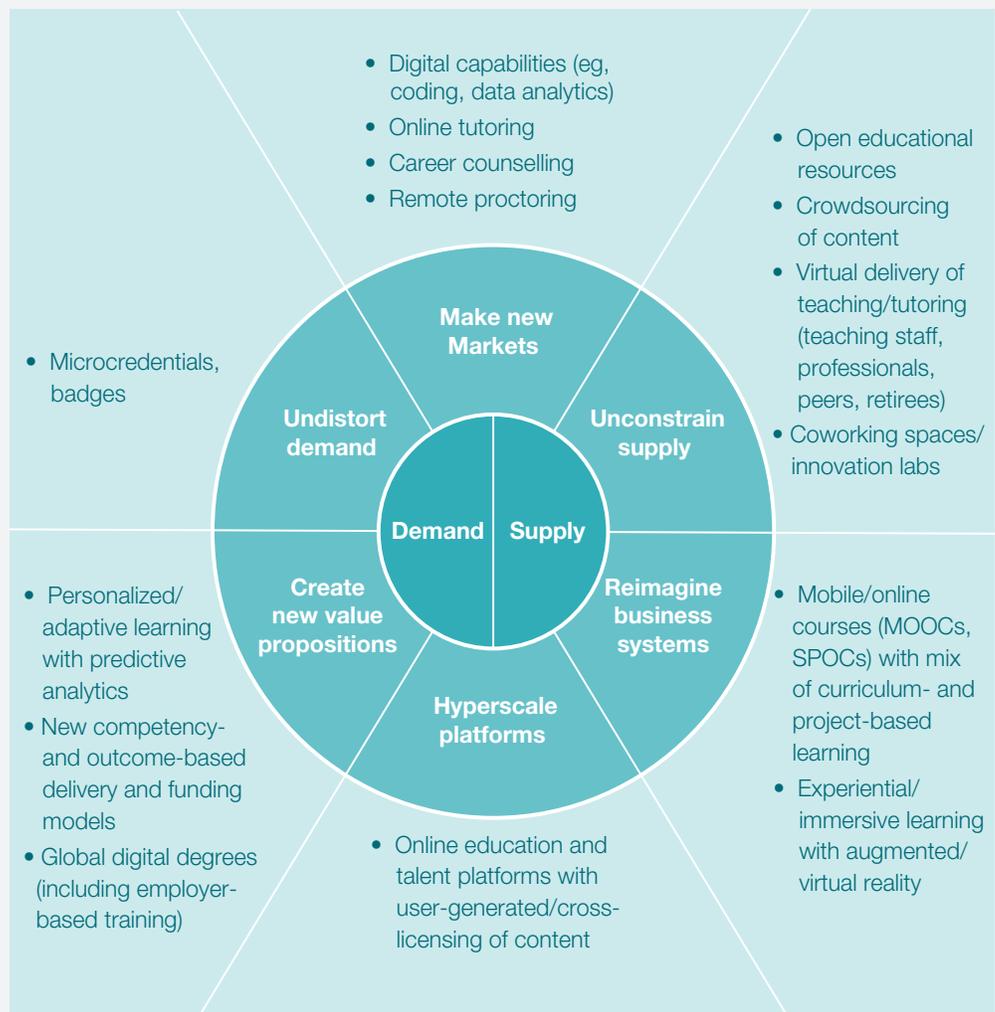
¹ For the sake of clarity, we loosely define digital as the confluence of multiple technologies, including social media and networking, mobile connectivity, order-of-magnitude increases in processing power, megadata and analytics, and deployment of cloud-based solutions.

² IBIS Capital / EdTech Global 2016.

of content, and virtual delivery of teaching and tutoring disintermediate the supply and thus reduce costs. The provision of physical learning spaces is also disrupted, with many inner-city coworking hubs and labs providing flexible access to infrastructure. In addition, areas of previously unmet demand due to supply constraints—for digital capabilities, individual tutoring, career counseling, remote proctoring, and so on—see the emergence of new markets and specialized providers.

Exhibit 1

The digital disruption in education is pervasive.



The lower half of the supply-demand framework highlights opportunities for extreme disruption. The setup of new value chains for the supply and cloud-based delivery of online courses and degrees is dramatically shifting supply-side economics. Digital solutions are starting to offer equal or improved learning outcomes at much reduced cost.³

At the same time, the power of big-data analytics enables the creation of new value propositions, not only for adaptive or personalized programming, but also for competency-based and customized delivery and funding models as well as global digital degree programs. Finally, the strong network effects, both on the demand side of users and the supply side of educational-content providers, boost the opportunity for hyperscale platforms that tie these innovations together.

Toward a lifelong digital education model

The prospect of a digitally transformed global education market potentially dominated by only a few hyperscaling platforms might seem more of a bane than a boon to many. These fears are understandable considering recent experiences with rapid digital disruptions in other sectors. In the music industry, for instance, the unbundling of albums into downloadable MP3 files and personalized music-streaming services has made music consumption more flexible and cost efficient. Yet some would deplore the commoditization of the artistic effort, with the customer relationship now handled by large-digital-platform players.

Still, we see three main reasons to be optimistic about the widespread adoption of digital education. First, we see digital education as the best opportunity to provide access to quality education and training to large, historically excluded populations around the globe. Second, modular digital education is establishing itself as the most suitable format for developing fluid digital skills at scale. Finally, an integration of digital learning across segments, institutions, and employers, combined with big data, predictive learning, and talent analytics, creates an opportunity to overcome existing stubborn drop-off points in lifelong learning and education-to-employment pathways.

The economic opportunity of this integration is large: online talent platforms could raise global GDP by up to \$2.7 trillion and increase employment by 72 million full-time-equivalent positions.⁴ Last year's LinkedIn acquisition of the online-learning company Lynda.com is emblematic of this trend. In addition, major educational platforms like Coursera, edX, and Udacity have recently expanded their networks to address critical education-to-employment gaps, especially related to 21st-century job skills in emerging markets.⁵

³ For an example, see "The \$4000 Bachelor Degree," May 2014, McKinsey.com.

⁴ "A labor market that works: connecting talent with opportunity in the digital age," McKinsey Global Institute, June 2015.

⁵ See also "Coursera takes aim at unemployment," February 2015, McKinsey.com.

Exhibit 2

The current phase of digital unbundling can pave the way to more flexible, lifelong learning journeys.

	Educational institutions at the core	Digital unbundling	New frontiers of lifelong digital learning
Strategy	Digital education as informal complement to traditional delivery, with limited integration	Modular integration of “best of breed” formal and informal digital content, provision, and solutions along learning journey	E2E personalized lifelong learning journeys, with digital learning credentials/ID and talent analytics across systems ¹
Governance & organization	Educational institutions and publishing houses at the core, curating learning experiences and assets	New dedicated platforms shape open ecosystems of traditional players and new entrants	Outcome-based competition based on granular predictive analytics and insights
Leadership talent & culture	Limited dedicated capabilities, focused on internal needs/ deployment	Centers of Excellence building and sharing capabilities across institutions, with emerging dedicated career pathways	Digital education and talent-management capabilities fully embedded in educational institutions and employers’ HR/talent function
Technology & operations	Infrastructure and standards deployed and operated separately by institution, often hosted on premise	Adoption of scalable cloud solutions with Open API and LTI standards to integrate solutions	Seamless and secure integration of platforms and systems based on common standards

¹K-12 – Vocational – Higher Ed – Professional/Continuous; Formal – Informal; Local – Global.

Five factors that will shape the future of digital education

For a variety of reasons, the education sector has been lagging behind other areas in fully embracing digital technologies. We see five key factors that will shape the look of the future and determine the speed of the digital transformation in education:

1. [Common accreditation standards for digital curricula and credentials.](#)
Common standards will increase the efficiency of learning investments for

individuals across formal and informal learning episodes and provide more reliable orientation for innovative digital solution providers.

2. **Transparency around outcomes.** The new generation of education users will expect clearer outcomes before investing in learning. Conversely, public and private funders should require more frequent, evidence-based insights on “what works.”
3. **Data privacy regulations and IP rights.** Regulations will need to balance privacy rights with potential gains from broader adoption of personalized, predictive analytics. In addition, sustainable crowdsourcing of digital content creation will require clearer rules and enforcement of IP rights.
4. **Building and strengthening digital capabilities at all levels.** Managing the digital transformation successfully will require new skills and career pathways, which need to be embedded systematically across education-system entities and institutions.
5. **Efficient setup and deployment of secure IT infrastructure and devices.** Decisions on procurement and setup of IT infrastructure will need to migrate from the local institution level to centrally administered cloud solutions to drive efficiency and speed of adoption for new services and tools.

The digital transformation in education is gaining traction, and new solutions are emerging with enormous potential for economic and social benefits. In particular, the integration between new hyperscaling education and online talent platforms provides an opportunity for digital lifelong learning journeys across segments.

While many developed countries can build on the long tradition and reputation of their educational system and institutions, emerging markets are catching up fast in an era of digital globalization. Capturing this opportunity will require new forms of collaboration on key issues to bootstrap and speed up the benefits to all stakeholders. □

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