

The Future of Work Will Demand Changes to Higher Education

Published: 23 March 2018 **ID:** G00349433

Analyst(s): Glenda Morgan, Terri-Lynn B. Thayer

Change in the workplace will demand many changes in higher education, but two key trends are the shifts toward skill development and lifelong learning. CIOs must build the infrastructure to support these trends to prepare for the future of learning and remain relevant for the future of work.

Key Findings

- The workplace is changing, and these changes are reflected in increasing demands for upskilling, a greater focus on digital dexterity and more emphasis on collaborative work.
- Higher education has been slow to change how it prepares students for the changing workplace.
- A "shadow education" sector is starting to emerge outside of higher education proper to respond to the new workplace.
- Key to the changes higher education must make will be a greater focus on skills development and toward lifelong learning.

Recommendations

Higher education CIOs seeking to innovate learning environments:

- Support workplace learning and student mentoring by partnering with instructors and career centers to identify, pilot and ultimately implement technologies that facilitate and track these experiences.
- Pilot digital credentials that are granular, transparent and portable by taking an iterative approach, despite the immaturity of current solutions. Develop an institutionwide plan for digital credentialing that is informed by these pilots and your participation in credentialing framework and standards organizations.
- Identify gaps in your student information system (SIS) and learning management system (LMS) roadmaps relative to lifelong learning and skills-based curriculum. Close gaps by replacing these systems or supplementing them with point solutions, such as curriculum management.

- Start building the technical infrastructure for the learning platform that will support the range of functions that will be needed for this new model of learning. Do this by including tools that support more-flexible ways to enroll and recruit students, the ability for individual instructors to propose courses, and for engagement with workplace content and mentors.

Table of Contents

| | |
|--|----|
| Analysis..... | 2 |
| The Shift Toward More-Practical and Skills-Based Training..... | 4 |
| Bringing Real-World Experiences Into Higher Education..... | 5 |
| Supporting Student Experience With Workplace-Relevant Tools, Work Methods and Environments..... | 7 |
| Challenges and Recommendations for the CIO in Supporting the Shift Toward More-Practical Skill-Based Training..... | 8 |
| Shift Toward Lifelong Learning..... | 9 |
| Smaller Credentials..... | 10 |
| Agile Curriculum..... | 10 |
| Partnerships With Industry..... | 10 |
| Just-in-Time Education..... | 11 |
| Improved Marketing and Recruiting of Students and Faculty..... | 11 |
| Challenges for CIOs Supporting the Shift Toward Lifelong Learning..... | 11 |
| Gartner Recommended Reading..... | 12 |

List of Figures

| | |
|--|---|
| Figure 1. Higher Education Trends Supporting the Future of Work..... | 4 |
|--|---|

Analysis

There are many debates about how and why the workplace is changing and why the future of work looks very different than the current status quo (see "How We Will Work in 2028"). Analyses about the future of work focus on the impact of automation, the need to work alongside smart machines, the gig economy and the emergence of new types of careers. In general, the themes point to the following trends:

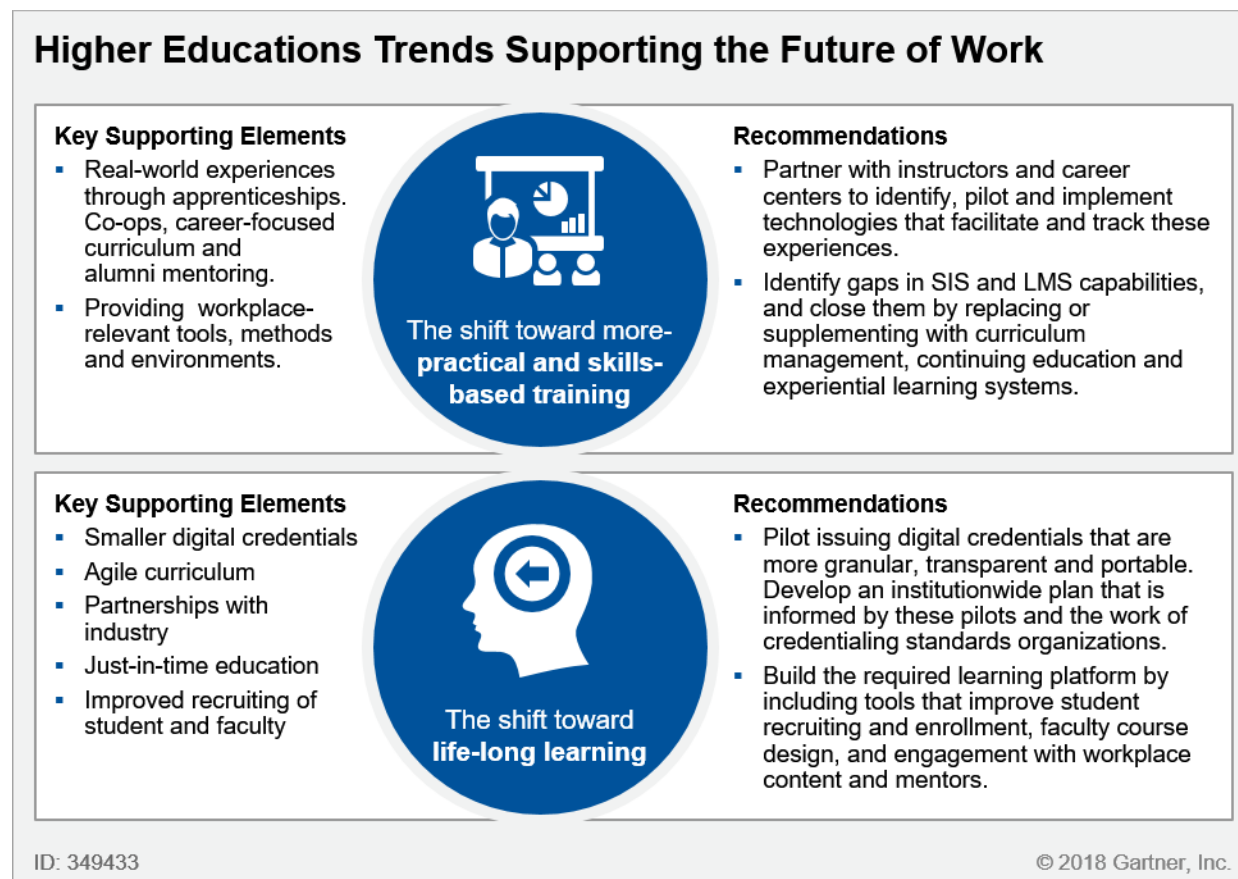
- Students need to be prepared for careers that do not yet exist and where people will change careers and roles much more frequently. This will require people to have what is defined as "learning agility," or the ability to abandon skills, knowledge and attitudes that are no longer

relevant, and acquire those that are.¹ It will also require that people have the ability to combine different types of skills into new combinations of what some are referring to as "hybrid jobs."²

- The growth of the gig economy, a labor market characterized by a predominance of freelancers and short-term employment contracts^{3,4} will drive growth in self-employment, putting more onus on the individual to take responsibility for their professional development.
- Work is being deeply affected by automation,⁵ and not just in highly routine jobs. All kinds of roles in both blue-collar and white-collar professions will be shaped by an increasingly automated and artificial-intelligence-driven workplace.
- Work will require more profound and frequent engagement with technology, data and algorithms (digital dexterity and information as a second language⁶).
- Employment will necessitate more-frequent changing of jobs and careers across the life span of a person, requiring more-frequent upskilling, perhaps even on demand.
- The workplace is increasingly emphasizing collaborative work, and in the future, this will take the form of small and flexible teams as the predominant approach toward fluctuating workloads, shrinking time frames, and intense flurries of information exchange and coordination.

The workplace of the future will require changes to the education system that help prepare individuals for the world of work. We anticipate many changes to how colleges and universities work, even in the slow-moving world of higher education. Two of these changes stand out as being especially important responses to the future of work. A shift toward more skills-based and practical training and a shift toward lifelong learning will be necessary for higher education institutions that want to be competitive and flourish (see Figure 1).

Figure 1. Higher Education Trends Supporting the Future of Work



Source: Gartner (March 2018)

The Shift Toward More-Practical and Skills-Based Training

While many higher education institutions (for example, community colleges) have a long history of and rich tradition of vocational training, practically focused learning is frequently underemphasized or explicitly eschewed by many in higher education. Many higher educational institutions are responding to changes in the workplace by beginning to emphasize more-practical and skills-based training. By skills, we refer to the ability to use theoretical knowledge in an applied manner to exhibit practical competency. CIOs are being called on — and will increasingly be called on — to help support the move.

There are two main aspects to this change:

1. Bringing real-world experience into the higher education experience
2. Giving students access to the tools, environments and work methods they will use in their working lives

Bringing Real-World Experiences Into Higher Education

There is a growing global awareness of the need to bring more real-world experience into the classroom. This is playing out in a number of different ways, but often, it includes putting the student out into the real world.

Apprenticeships

There is growing interest in apprenticeships, including in new and expanded ways. In many places, such as Western Europe, apprenticeships have long been a feature of the workplace and continuing education. But in some countries, apprenticeship as a means of straddling the worlds of learning and work experienced a steady decline.⁷ We are currently seeing an increased interest in and uptake of apprenticeships, including in some new ways and new areas.⁸ Governments are increasingly intervening to incentivize apprenticeships by offering additional funding, proposing changes to student financial aid regulations to accommodate more vocationally focused programs and the development of industry approved credentials, for example.⁹ Apprenticeships are being used beyond technical and vocational types of programs. Companies and higher education institutions are expanding apprenticeship programs into fields such as human resources, GIS¹⁰ and law.¹¹

Cooperative Education

Apprenticeships typically involve learners splitting their time between the workplace and a further education institution. We are also seeing the expansion of this pattern of cycling back and forth between workplace and a higher education institutions beyond apprenticeship programs into more formally professional and academic career paths. This includes engineers, business majors, and the humanities and social sciences. Cooperative education and work-integrated learning are growing in importance, especially in universities, including research-intensive universities.¹² The goal here is to help students anticipate and better prepare for the world of work by gaining practical experience, as well as making their purely academic time richer. Co-ops and work-integrated learning do this by giving students the benefit of hands-on experience coupled with time and opportunity to reflect and engage with more-theoretical approaches.

A number of institutions have, for some considerable time, had co-op (cooperative education) programs where students spent part of the academic year in a work placement¹³ and receive academic credit for doing so. But these programs will expand and become a more common and important feature of higher education in many countries. Co-op programs will increasingly come to replace internships as a more-systematic way to obtain practical experience, in that they provide a closer relationship between the academic program and the workplace experience.

Career-Focused Curriculum Design

Even in the types of colleges and programs not typically associated with practical approaches, we are seeing more of a career focus. Even in U.S. liberal arts colleges, where the approach has generally been on giving students a broad background in academic disciplines, we are seeing a growing tendency toward giving students a better focus on career and the development of skills. We

are seeing a growing, sustained focus on more practical skills. For example, Mount Holyoke College has a program called Lynk¹⁴ that seeks to connect students' academic work with practical applications and help prepare them for the workplace. At Bates College, the Purposeful Work program weaves questions about work and career across the curriculum in initiatives that include engagement with alumni, practitioner taught courses and co-curricular activities.¹⁵ These are just two examples of a growing focus on more-practical engagement with the workplace in places where you might least expect to find them.

Alumni Mentoring

Direct mentoring of students, particularly by alumni, is growing in popularity (see Note 2 for a list of products that support this). The benefits of these programs are often several-fold: engaging the alum in the institution, providing the student the advice from real-world experience, and establishing a network that may lead to employment opportunities. This kind of engagement can happen in classroom experiences, as well as more-informal extracurricular ways. In either case, it helps create a more-seamless experience between higher education and the workplace, and helps students think in an informed and creative way about the workplace.¹⁶

Implications of Bringing Real-World Experiences into Higher Education

In these ways, the boundaries between the world of work on the one hand and higher education on the other are becoming more porous. We are seeing and will increasingly see the movement of students back and forth between the world of work and colleges and universities. But we will also see mentors, coaches and supervisors in the workplace reach over into higher education institutions to provide feedback and direction, and to help shape content in those institutions. This is a fundamental shift, and as it deepens, it will alter the way that learning is supported and structured within higher education institutions of all types. The boundary between work and higher education will also become more porous as institutions seek to provide students with learning environments that reflect those they are likely to encounter in the workplace.

With these changes will come the need to document differently the types of learning that a student has engaged in. This is driving changes to the two fundamental methods used by higher education to document learning achievements and signal readiness for work — the transcript and the degree. Gartner chose the "reinventing of credentials" as our top business trend impacting higher education in 2018 (see "Top 10 Business Trends Impacting Higher Education in 2018"). One exciting development in the quest for a more comprehensive student record, an extended transcript (eT) is being advanced by the Lumina Foundation in cooperation with IMS Global Learning Consortium and a number of institutions.¹⁷ The eT specification is nearing completion and will support documenting competencies and other experiential and co-curricular learning evidence, such as internships, study abroad, volunteer work and research. The eT specification is part of a digital credentials portfolio of compatible components that includes Competencies and Academic Standards Exchange and Open Badges.

Supporting Student Experience With Workplace-Relevant Tools, Work Methods and Environments

Workforce Access to Workplace Tools of the Future

Leading institutions are striving to give students access to the tools they will need to master in the workplace. We see this especially in data science and also increasingly in the humanities. For example, at Data Science at Berkeley,¹⁸ a range of data science and computing courses use Jupyter notebooks to give students practical experience in working on large datasets in the same ways they will do so as working data scientists. This is similar to a program at the University of Chicago as part of an effort to broadly provide access to software commonly used for research across multiple disciplines. As research in many disciplines becomes increasingly computational and data-intensive, the tools need to be available from the point in time when students first start learning research methods as undergraduates through their graduate work and on into postgraduate work. Given the emergence of tools such as R and Python as favorites in data science, and the common use of data visualization libraries, such as Bokeh and D3, there is a growing need to give students hands-on experience. Installing the packages can take a lot of time, so they adopted an approach taken by a peer institution using Docker containers to make an image of RStudio readily and elastically available in the cloud.

These examples are taken from data science, other statistics and data-heavy disciplines. But it is easy to see how this could be expanded to other disciplines to help bring a more practical and applied approach to other fields of study. This trend is likely to grow and will continue to pose interesting challenges to higher education CIOs.

Encouraging and Enabling the New Work Methods of the Future

A second and underappreciated part of how real-life experiences will be brought into the classroom is the way that collaboration and teamwork will need to become more integral to higher and further education experiences. There is an increasing shift in the workplace toward collaboration and teamwork, often in the form of small, flexible and constantly changing teams. Employers are increasingly demanding that graduates have experience in working collaboratively and as part of teams, as that is part of the reality of the contemporary workplace. Some of this will be done via pedagogy, but the collaboration will also need to be supported by technology that supports group work. This will mean more technology that supports teamwork, such as group interactive displays, team collaboration devices¹⁹ and wireless collaborative and content sharing solutions. The need to facilitate collaboration and teamwork will also extend into the classroom, where classroom designs will need to foster and support more-collaborative models of learning by means of flexible and active learning spaces.

Higher education institutions are also changing curricula to develop in students the skills they will require in new kinds of workplaces of the future. Students are not only going to need to know how to learn, how to be more digitally dexterous, and use technology and information in new ways, but they also will need to emphasize creativity more. There will be a growing shift away from curricula that emphasize memorization of content toward those where innovation and imagination are

fostered — away from standardized testing toward more problem-based learning and methodologies for creative thinking. Programs like the University of Texas at Austin's design thinking curriculum, Stanford's d.school and Ball State University's Center for Creative Inquiry²⁰ (among others) are leading the way and will become more pervasive. Ultimately, at the most successful colleges and universities, the kinds of approaches the programs above exemplify will not be housed in separate institutes, but found in every department and required for every credential.

This raises an important point that needs to be emphasized. The shift toward bringing more real-world experiences into the classroom does not mean a retreat from a liberal education or even a shift toward a focus on science, technology, engineering and math to the inclusion of all else. Instead, creativity, communication and critical thinking will become even more important as we prepare students for the workplace of the future.²¹ But they will be emphasized alongside practical training and workplace engagement in a tightly coupled yet bimodal model. This presents an enormous opportunity for the fine and liberal arts to re-establish their place in colleges and universities. Their place has been shrinking over the past few decades in response to decreased demand from students, as well as legislative and funding attacks and changes. But higher education institutions will need to change how the liberal arts are taught, collaborate with other disciplines and reflect on the design, ethics and social challenges that face us in a new world.

Challenges and Recommendations for the CIO in Supporting the Shift Toward More-Practical Skill-Based Training

There are many challenges associated with redesigning higher education institutions for this type of future. These challenges include the following:

- Supporting the growing tendency toward student placements in the workforce
- Supporting the kinds of technologies and learning environments students will encounter in the workforce at scale
- Supporting credentials that capture the richness of the experience that students have had, the kinds of competencies that they have acquired in the course of these curricular and noncurricular activities, and those that are more portable

Recommendations

Higher education CIOs should:

- Support workplace learning and student mentoring by partnering with instructors and career centers to identify, pilot and ultimately implement technologies that facilitate and track these experiences. (See Note 1 for a list of sample vendors and products.)
- Pilot digital credentials that are granular, transparent and portable by taking an iterative approach, despite the immaturity of current solutions. Develop an institutionwide plan for digital credentialing that is informed by these pilots and your participation in credentialing framework and standards organizations, such as IMS Global Learning Consortium, Credential Engine and the Council for Adult and Experiential Learning.

- Identify gaps in your SIS and LMS roadmaps relative to lifelong learning and skills-based curriculum. Close gaps by either replacing these systems or supplementing them with point solutions, such as curriculum management, continuing education and experiential learning systems.
- Create learning environments that prepare students for how they will work once they are in the workforce by partnering with instructors. Schedule units and facilities organizations to implement collaborative learning environments and technologies that more closely resemble what students will encounter in the workplace.

Shift Toward Lifelong Learning

Higher education as an industry is increasingly being challenged by the emerging market demand for lifelong learning. The changing workplace means that the once-dominant educational model of "degree and done" is becoming a thing of the past. People are responding to an increasing need to upgrade their skills or learn new ones. We see this in the striking growth of noncredit, career-focused learning opportunities available outside traditional higher education, in what is becoming known as the "shadow education" sector. For example, we see it in skills-based courses available from providers such as Pluralsight or Grovo, to coding boot camps and massive open online courses (MOOCs).²² This sector has deep historical roots, but in many markets, it has expanded considerably over the past five years.²³ It differs in nature from traditional activities around retaining professional certification (such as continuing medical education or continuing legal education credits). It is not just about maintaining status or being updated in the latest techniques but about moving up the career ladder or changing to a very different role. A more-optimistic view of the growth of the shadow education sector might be that they are players in an expanding education ecosystem capable of not only threatening traditional institutions, but also partnering with them. Certainly, there are signs that some institutions of higher education are trying to replicate some of the features and offerings of these organizations by offering new types of learning experiences, such as coding boot camps.

While there are some substantial challenges associated with replicating the offerings, higher education should not ignore the challenge. First, ignoring it will likely exacerbate the kinds of criticism to which higher education has increasingly been subject to from governments and other external stakeholders with the increasingly onerous demands for accountability and decreased funding that typically follow such criticism. Second, in some parts of the world, many institutions are likely to be seeing substantial enrollment challenges due to demographic changes. This is especially seen in the decline of the number of traditionally aged students over the next decade and the movement of potential college attendees away from many traditional markets, such as the American Northeast and Midwest.²⁴

Colleges and universities are thus going to have to tap into different markets and respond to where the need is, which will be lifelong learning to help people at all career stages learn new skills or improve their skills.

Lifelong learning is likely to assume the following types of characteristics.

Smaller Credentials

Credentials are likely to be smaller, especially those offered after the first degree. There will be greater emphasis on stacking credentials and credentials that can be used to supplement or extend a starting degree or diploma. But there is likely to be a growing demand for shorter programs of study than a two- or four-year degree as people reskill and upskill. Given the fact that people typically spend 30 to 40 years in the workforce after obtaining an initial education, the demand for smaller credentials will be larger than the provision of a basic or starter degree or degrees. The balance for the majority of institutions between the resources devoted to baccalaureate and Master's degrees and shorter certificates is, thus, likely to shift. Institutions will need to implement new technologies to support the issuing of these digital microcredentials (see "Top 10 Strategic Technologies Impacting Higher Education in 2018").

Agile Curriculum

Higher education institutions are also going to have to become more agile and respond more quickly to changing marketplace demands. Traditional structures within institutions around curriculum design and approval will need to change in order to respond more rapidly, while still maintaining traditional commitments to rigor and governance. But support organizations within the institutions, especially IT, are also going to be challenged to be able to help support new models more quickly.

Increasingly, lifelong learning will be multimodal to enable people to take courses and programs in ways that are convenient for them, often without moving to a new location or leaving their current job. Online learning will expand for most universities and will need to get better in terms of quality. This will require that institutions implement solutions to manage these nontraditional course registrations and support the more rapid pace of curricular change. For most, these capabilities do not reside in their on-premises SIS, but will likely require either systems replacements or augmentation with point-based solutions, such as continuing education systems and curriculum management systems.

Partnerships With Industry

Higher education participants seeking to upskill and reskill through lifelong learning will be especially interested in how their learning ties in to employer needs and expectations. This will drive the current growth in partnerships with industry to become even stronger (see "Ecosystem Modeling Will Be an Indispensable Tool in Designing Digital Businesses"). There have long been higher education and industry partnerships around research. However, the new focus will be on partnerships around curriculum and programs. They will include working with industry to identify important courses and programs of study, as well as at a more microscale, working with employers to identify key competencies that need to be achieved within those courses and programs of study. Today, some institutions have industry partners that pay for their employees to get upskilled in courses and programs provided by an institution, often as part of continuing education programs. A recent survey published by Gallup and Northeastern University indicated that 49% of respondents expected to look to their employers to provide future²⁵ training should they lose their job to technology. Another reason why we expect these programs to expand in number, depth, and kind.

Just-in-Time Education

A key feature of new models of lifelong learning will be that it is offered in more of a just-in-time manner. The 2018 Gartner Digital Workplace Survey indicated that people in the workforce seeking to upgrade their skills prefer just-in-time learning over more-formal experiences. This will require changes in how colleges and universities plan for programs. They need to become more agile in responding to societal and workplace demands. It will also require colleges and universities to become more adept at adding smaller credentials. A two-year degree is as far from the definition of just-in-time learning as you can get. There will be a growth in certificates and even badges to signify competence and mastery of specific areas. Respondents to the 2017 Gartner Digital Workplace Survey indicated that they prefer just-in-time learning, such as short videos or text explanations and online self-paced courses, over formal traditional classroom training (see "How We Will Work in 2028").

Improved Marketing and Recruiting of Students and Faculty

A central tenet and capability of the ability to partner with industry and provide just-in-time and lifelong learning will be a massively improved capability on the part of colleges and universities to market to and recruit students and faculty. Traditional pathways and channels for marketing and recruitment will no longer bring the students that colleges and universities seeking to play a role in the lifelong learning segment will be able to fill. These institutions will need to seek more nimble and constantly changing ways of finding and enrolling students. This is likely to take a number of forms, such as advanced search engine optimization, social media analysis and the deep relationships with industry described above. But institutions will also need more nimble and agile methods of finding faculty and instructors to teach these courses. Already, contingent faculty make up a majority of instructors at most higher education institutions in most parts of the world. But there will be increased pressure on ways to identify, recruit and onboard these instructors in ways that maximize the quality of the learning and student experience provided.

Challenges for CIOs Supporting the Shift Toward Lifelong Learning

As they seek to prepare their institutions to better respond to the need for lifelong learning, higher education CIOs will face a number of challenges. These include things like the ability to respond in an agile manner to new demands around the support of classes, especially in online and blended format. This will include the ability to add staff and skills in areas like recruitment and enrollment, instructional design, and retention relatively quickly. If current trends continue, a significant amount of this work will be outsourced to third parties. CIOs will need to understand the markets for these services and be able to negotiate good deals for their institutions.

CIOs will also need to create and support the infrastructure that supports lifelong learning, including:

- Quicker ways of recruiting students and instructors
- Keeping track of student learning across multiple kinds of experiences and multiple institutions, often over extended time periods

Recommendations

CIOs should:

- Identify gaps in your SIS and LMS roadmaps relative to lifelong learning and skills-based curriculum. Close gaps by either replacing these systems or supplementing them with point solutions, such as curriculum management (see "Market Guide for Catalog and Curriculum Management Solutions"), continuing education (see Note 3), and experiential learning (see Note 1).
- Start building a partner ecosystem of third-party service providers with whom you can team to respond to changing demands in a more-agile way.
- Start building the technical infrastructure for the learning platform that will support the range of functions that will be needed for this new model of learning. Do this by including tools that support more-flexible ways to enroll and recruit students, the ability for individual instructors to propose courses, and for engagement with workplace content and mentors.
- Rethink your approach to and ways of dealing with student records to accommodate more noncredit options and durable records across a lifetime of learning. Evaluate blockchain and other innovative methods to cope with a growing number of credentials and other techniques to provide more-granular descriptions of the competencies achieved by students in the course of acquiring credentials.

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"How We Will Work in 2028"

"Top 10 Business Trends Impacting Higher Education in 2018"

"Top 10 Strategic Technologies Impacting Higher Education in 2018"

"Ecosystem Modeling Will Be an Indispensable Tool in Designing Digital Businesses"

Evidence

¹ ["Improve Your Ability to Learn,"](#) Harvard Business Review.

² ["Learning and Earning,"](#) The Economist.

³ ["The Gig Economy Is Coming. You Probably Won't Like It,"](#) The Boston Globe.

⁴ ["Self-Employment and the Gig Economy Inquiry,"](#) www.parliament.uk.

⁵ ["A Future That Works: Automation, Employment, and Productivity,"](#) McKinsey & Co.

⁶ "Deliver Digital Business Results by Boosting Workforce Digital Dexterity" and "Information as a Second Language: Enabling Data Literacy for Digital Society."

⁷ For example, by 1990, the number of apprentices in employment declined to just 53,000 compared with 1966, when 35% of all men did an apprenticeship, and there were 234,700. See ["Apprenticeships Prove a Popular Alternative to the Cost of University,"](#) Raconteur.

⁸ In the U.S., the number of people entering apprenticeships increased by 50% from 2008 through 2015. See ["The Complex Universe of Alternative Postsecondary Credentials and Pathways,"](#) American Academy of Arts & Sciences.

⁹ For example, in the U.S., 49 states and the District of Columbia have enacted policy changes designed to promote career technical education. See ["State Policies Impacting CTE: 2017 Year in Review,"](#) Advance CTE, and ["English Apprenticeships: Our 2020 Vision,"](#) GOV.UK.

¹⁰ ["Learning From England's Apprenticeship Expansion,"](#) FE News.

¹¹ For example, see ["Fletchers Solicitors Launches Apprenticeship Scheme Giving Students Debt Free Route Into Legal Career,"](#) The University of Law.

¹² For example, see ["National Strategy on Work Integrated Learning in University Education,"](#) Australian Collaborative Education Network, and ["University and College Students Should Have Access to Work-Integrated Learning,"](#) Universities Canada.

¹³ For example, see ["About \(Department of Cooperative Education and Career Development\),"](#) Northeastern University, and ["Co-operative Education,"](#) Waterloo.

¹⁴ See ["The Lynk: How Does Mount Holyoke Prepare Students for Lifelong Success?"](#) Mount Holyoke College, and ["Mapping a Path From Curriculum to Career: The Lynk Initiative at Mount Holyoke College,"](#) the Association of American Colleges & Universities.

¹⁵ See ["Purposeful Work at Bates,"](#) Purposeful Work, and ["Purposeful Work: Bates College Prepares Students for Work That Fits Their Skills and Interests,"](#) Mainebiz.

¹⁶ ["Engaging Alumni and Students Using Online Education Technology,"](#) EDUCAUSE Review.

¹⁷ ["Extended Transcript,"](#) IMS Global Learning Consortium.

¹⁸ ["The Course of the Future — And the Technology Behind It,"](#) Data Science at Berkeley.

¹⁹ ["Select the Right Technology for Modern Meeting Rooms."](#)

²⁰ See ["IBM and UT Austin's College of Fine Arts Join Forces to Create a Design Thinking Curriculum to Prepare Students for the Creative Jobs of the Future,"](#) The University of Texas, ["Stanford d.school Home Page,"](#) Stanford d.school, and ["Virginia B. Ball Center for Creative Inquiry,"](#) Ball State University.

²¹ ["Silicon Valley to Liberal Arts Majors: We Want You,"](#) Boston Review.

²² See ["Pluralsight Home Page,"](#) Pluralsight; ["Grovo Home Page,"](#) Grovo; here for a listing of coding boot camps ["Course Report Home Page,"](#) Course Report; and here for a listing of MOOC providers ["Massive List of MOOC Providers Around The World,"](#) Class Central.

²³ ["The Complex Universe of Alternative Postsecondary Credentials and Pathways,"](#) American Academy of Arts & Sciences.

²⁴ ["Demographics and the Demand for Higher Education,"](#) Johns Hopkins University Press.

²⁵ ["Optimism and Anxiety: Views on the Impact of Artificial Intelligence and Higher Education's Response,"](#) Northeastern University and Gallup.

Note 1 Alphabetic Nonexhaustive List of Sample Vendors and Products That Support Experiential Learning

CORE ELMS

EduSourced

InPlace Software

Orbis Communications (Outcome)

Practera

Riipen

Note 2 Alphabetic Nonexhaustive List of Sample Vendors and Products That Support Alumni Mentoring of Students

AlumniIQ

CampusTap

Chronus

EverTrue

Firsthand

GradLeaders

Graduway

MentorCloud

MentorNet

PeopleGrove

Shearwater

Tassl

VineUp

Wisr

Note 3 Alphabetic Nonexhaustive List of Sample Vendors and Products That Support Continuing Education

Active Network

ASAP

ampEducation

Augusoft (Lumens)

Campus Cafe

CampusCE

Destiny Solutions (Destiny One)

ed2go

Ellucian (Quercus, Elevate)

Jenzabar (Higher Reach)

Orbund

Oracle (Oracle Student Cloud)

Populi

More on This Topic

This is part of an in-depth collection of research. See the collection:

- The Future of Work and Talent: Culture, Diversity, Technology

GARTNER HEADQUARTERS**Corporate Headquarters**

56 Top Gallant Road
Stamford, CT 06902-7700
USA
+1 203 964 0096

Regional Headquarters

AUSTRALIA
BRAZIL
JAPAN
UNITED KINGDOM

For a complete list of worldwide locations,
visit <http://www.gartner.com/technology/about.jsp>

© 2018 Gartner, Inc. and/or its affiliates. All rights reserved. Gartner is a registered trademark of Gartner, Inc. or its affiliates. This publication may not be reproduced or distributed in any form without Gartner's prior written permission. If you are authorized to access this publication, your use of it is subject to the [Gartner Usage Policy](#) posted on gartner.com. The information contained in this publication has been obtained from sources believed to be reliable. Gartner disclaims all warranties as to the accuracy, completeness or adequacy of such information and shall have no liability for errors, omissions or inadequacies in such information. This publication consists of the opinions of Gartner's research organization and should not be construed as statements of fact. The opinions expressed herein are subject to change without notice. Although Gartner research may include a discussion of related legal issues, Gartner does not provide legal advice or services and its research should not be construed or used as such. Gartner is a public company, and its shareholders may include firms and funds that have financial interests in entities covered in Gartner research. Gartner's Board of Directors may include senior managers of these firms or funds. Gartner research is produced independently by its research organization without input or influence from these firms, funds or their managers. For further information on the independence and integrity of Gartner research, see "[Guiding Principles on Independence and Objectivity](#)."