Predicts 2024: Education Automation, Adaptability and Acceleration

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Initiatives: Education Digital Transformation and Innovation; Education Technology Optimization and Modernization

> Education CIOs are evaluating generative AI's potential and managing its risks. This challenge, along with the continued need for operational efficiency, student experience and competitiveness, creates a complex landscape that education CIOs must plan to navigate.

Overview

Key Findings

- K-12 and higher education institutions have experienced disruption and distraction due to generative AI, and continue to struggle with wider talent, financial and change-management challenges.
- In higher education, threats of recession, increasing competition and concerns about student enrollment are reinforcing a focus on cost optimization and a need for agile exploration of new market opportunities.
- Organizational digital transformation and new modes of digital instruction are being seen as potential solutions to persistent teacher, staff and IT-talent shortages in the K-12 sector.
- Despite campus reopenings, demands for flexible and hybrid working continue and are becoming a key component in attracting and retaining talent.

Recommendations

Education CIOs responsible for digital transformation and innovation should:

- Evaluate the impact of generative AI on digital strategy by guiding leadership on potential use cases, risks and long-term impacts.

- Assess the current state of your institution by evaluating alignment between institutional strategy, priorities and the current IT/talent ecosystem.
- Deploy agile strategy and implementation practices by ensuring appropriate communication of priorities, targeted exploration of new technologies and focus on metrics aligned to strategic goals.
- Manage risk by ensuring an appropriate balance of AI pilots and governance take place alongside a portfolio of wider IT investments aligned to current needs.

Strategic Planning Assumptions

- By 2028, over 70% of teaching, research and student-submitted content at all levels of education will be developed with support from generative AI.
- By 2028, 65% of higher education CIOs will identify improving operating margins as the critical digital technology investment outcome, up from 32% in 2024.
- By 2027, 60% of higher education institutions will adopt a hybrid operating model that blends physical and virtual capabilities to deliver the institutional mission.

Analysis

What You Need to Know

Within the education sector, enhancements to digital delivery capabilities have started to open up the global competitive environment, increasing the pressure for organizations to evolve at speed. [1] Education CIOs are faced with the additional pressure of balancing ambitions to reinvent, stakeholder expectations to embrace new technology opportunities and constraints to deliver at pace.

The rise of generative AI (GenAI) is creating the seductive promise of acceleration through automation and the opportunity for institutions to adapt in order to exploit new market opportunities. Delivering on this promise, however, demands:

- Prioritization of AI activities
- Strategic management of risks
- Appropriate institutional governance

The evolution of institutional culture toward an agile mindset to support innovation is increasingly valuable. [2] In parallel, the need to mobilize key (and frequently scarce) talent is leading education organizations toward hybrid business and operating models to engage the people needed to deliver change. [3]

Within higher education:

- The sector continues to wrestle with questions about return on investment, student experience, pandemic-induced learning losses and public confidence in education. [4,5]
- The financial viability of many institutions is a concern, particularly in the face of enrollment challenges in some parts of the world. [6] College closures, internal cost cutting and mergers of universities are occurring globally as institutions seek to survive and thrive. [7]
- External pressures are influencing strategy both in terms of governmental push toward a skills-based agenda to stimulate economic recovery and the reduced impact of academic reputation in some global university rankings. [8,9]
- A degree is still perceived as valuable by the majority of students, but increasingly the expectation is that this will coexist with some form of vocational credential in order to support employability. [10,11,12]

Within K-12/primary-secondary education:

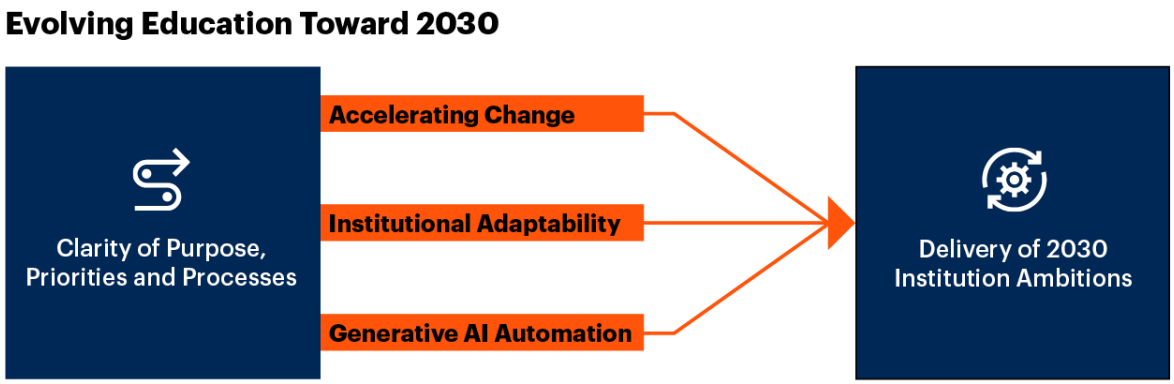
- Organizations continue to struggle with faculty, staff and IT-talent shortages as well as learning and enrollment loss among students. [13]
- Intensified pressure, declining prestige and low pay associated with teaching are constraining retention of and access to the people needed to lead change. [14]
- The continued impact of limited social-skills development during the pandemic, combined with the advent of GenAI usage, is creating questions about how best to develop younger students, their critical thinking and appropriate modes of support. [15]

Overall, the education sector needs to:

- Understand organizational purpose, processes and priorities
- Enhance institutional adaptability of core capabilities
- Automate appropriately and selectively through targeted AI pilots and processes

Accelerated institutional change is needed, but requires these factors to combine (see Figure 1).

Figure 1: Evolving Education Toward 2030



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The education sector will inevitably evolve as a result of current technological, cultural and societal pressures. But the extent, direction and impact of that evolution must be shaped to preserve the integrity of the sector and the quality of organizations within it.

Strategic Planning Assumptions

Strategic Planning Assumption: By 2028, over 70% of teaching, research and student-submitted content at all levels of education will be developed with support from generative AI.

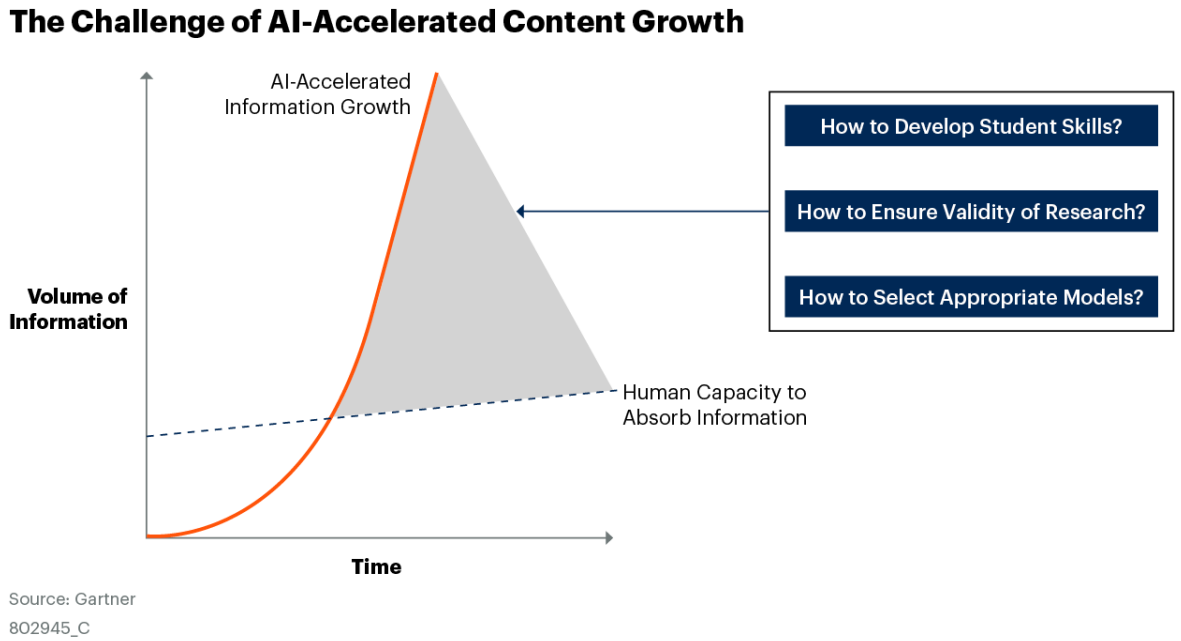
Analysis by: Tony Sheehan and Saher Mahmood

Key Findings:

- GenAI-created content offers potential for both students and faculty to accelerate the production of engaging content, and enable assets to flex to different global contexts and be delivered in multiple languages. [16]
- Vendor and venture capital investments have led to a proliferation of GenAI products, including natively within productivity tools for content authoring, research support and presentation development.
- For student use:
  - Institutions are typically adopting policies that discourage and potentially penalize submission of assessments wholly authored by GenAI. [17] However, they are also recognizing the need to develop risk awareness and AI literacy to prepare students for careers where GenAI tools will be common. [18, 19]
  - Perceptions of academic integrity and assessment are evolving. Educators are starting to evaluate the process of learning as much as the final product. The demonstration of understanding via explanation, discussion and evidence is also becoming increasingly important. [20]
  - Educators are evolving in how they view student use of GenAI. While the initial concern was the ability to detect plagiarism and cheating in student work, educators are now encouraging appropriate student use of GenAI, building awareness of GenAI tools and stimulating reflective practices to build critical-thinking skills.

- For faculty and researchers:
  - The potential for GenAI to accelerate research and ideation is being tempered by concerns about hallucination and the appropriateness of evolving existing practices. [21,22] Evaluation of appropriate GenAI models, citation of use and continued validation of research sources are key to ensure research integrity. [23]
  - Faculty are increasingly exploring the considerable ability of GenAI tools to create images, presentations, videos and curricula (despite copyright issues not yet being fully resolved). These tools are emerging both within existing productivity tools and education systems (such as the learning management system), and from new GenAI product providers.
  - GenAI-based tools for automated assessment, grading, feedback and translation are combining to enable more adaptive learning approaches and enhance the student experience. [24]
  - The ability to autogenerate AI avatars with behaviors guided by GenAI is attracting interest to accelerate development of virtual reality (VR) and augmented reality (AR) based academic simulations. [25 ,26]
- Increasing volumes of AI-generated content, combined with the future use of this content to train other AI systems, risk AI-enabled information growth at a rate that outstrips the capacity of students, faculty or IT to evaluate the quality and risk of content and data (see Figure 2).

Figure 2: The Challenge of AI-Accelerated Content Growth



Market Implications:

- Proliferation of multiple large language models (LLMs), derived GenAI products and the expanding volume of use cases will lead to immense variability in content quality with little consistency or level of trust. [27]
- Trusted GenAI tools will eventually become embedded in the education sector, but, in the near term, GenAI-fueled content growth will raise questions of quality and validity in teaching and research content. The value of critical thinking and insight will become increasingly important to institutional brands.
- Accelerating student use of GenAI, combined with the growth of products that mask AI content detection, will accelerate the short-term evolution of plagiarism detection tools. [28,29,30] In the long term, evolution from information-based assessments to a knowledge-based and interrogative approach to assessment is to be expected. [31]
- Faculty, staff and students will need to develop AI literacy — the ability to understand, use, monitor and critically reflect on AI applications without necessarily being able to develop AI models themselves. [32,33] They will also need to nurture the ability to select appropriate GenAI models, interact effectively with GenAI products (using strong prompts) and evaluate outputs with confidence when used in research or decision making. [34]

- Skillsets associated with GenAI will become a key component in student employability. Universities will increasingly need to embed abilities to review content for accuracy, to cite use of GenAI models, to design prompts and refine GenAI outputs. Employers will expect AI proficiency in new hires. [35]
- GenAI solutions will move from the current peak of hype to rapidly embedded and invisible within the academic institution. It is important to introduce appropriate controls sooner to avoid reputational risks later.

Recommendations:

- Manage demand for GenAI pilots and products by establishing clear GenAI ownership and cost management, as well as an institutionwide task force to establish AI position, policy and priorities aligned to institutional strategy.
- Prevent product proliferation and wasted resources by evaluating use cases against need, proven functionality and ability to demonstrate AI trust, risk and security management, even if this slows the pace of adoption.
- Promote effective plagiarism detection practices by adopting and enforcing GenAI models that digitally watermark their output.
- Partner IT and HR to create widespread AI awareness, literacy and expectation management in order to educate and assist faculty and staff with managing risks, designing prompts and effectively using GenAI outputs.

Related Research:

How to Pilot Generative AI

How to Choose an Approach for Deploying Generative AI

Hype Cycle for Generative AI, 2023

Use-Case Prism: Generative AI for Education

Strategic Planning Assumption: By 2028, 65% of higher education CIOs will identify improving operating margins as the critical digital technology investment outcome, up from 32% in 2024.

Analysis by: Paul Riley

Key Findings:

- Higher education institutions are facing a challenging financial environment. From rising costs to falling enrollment, institutions are considering their long-term sustainability. This has resulted in a range of actions, from discontinuing programs to considering mergers to institution closures. [36, 37]
- In higher education industry responses to the 2024 Gartner CIO and Technology Executive Survey: [38]
  - The top-ranked critical outcome sought by digital technology investments was "excel in customer experience" with 83%.
  - "Improve operating margins" was ranked fifth with 32%.
  - The average expected change in institutional revenue was an increase of 1%.
  - IT budgets are expected to increase 2.1% on average in 2024. This is at a time of inflationary pressures across staffing and nonstaffing costs.
- As institutions look to invest in technology, buildings and amenities to attract students and enhance the student experience, the cost of borrowing has increased — causing institutions to revisit their strategic plans and aspirations. [39]
- Data from Gartner inquiries indicates that higher education digital strategies often focus more on benefits to the experiences of staff and students rather than explicit financial benefits or cost-saving targets.

Market Implications:

- Given the financial pressures facing institutions, there will continue to be a focus on budget allocations. IT is frequently seen as a cost center, and, without clear connections to the institutional mission, it can become a target for cost cutting.
- CIOs who are unable to demonstrate the financial benefits from digital technology investments run a risk of IT budget reductions and a lack of investment in new projects and initiatives.

- In responding to financial challenges, institutions will look to increase revenue through changes to cost models, growing enrollment and attracting more research income. Institutions cutting programs will become more common. [40]
- As the focus on improving operating margins increases, there is a risk that this goal will be achieved at the expense of reducing the outcomes that digital technology investments provide to excel the student experience.
- CIOs can use system consolidation across the institution to simplify the IT landscape and to drive efficiency. This must be part of a strategic digital transformation that generates business value and creates economies of scale rather than purely cutting costs.
- In order to eliminate any unnecessary operating margin costs, there will be a greater need to source, procure and manage effective vendor relationships.
- The potential for AI to accelerate productivity and to increase effectiveness of institutional administration, teaching and research will be built into digital technology investments.

Recommendations:

- Review the scheduled benefits of existing digital technology investments against the potential of realizing financial benefits.
- Collaborate with institutional leaders to embed the business value of IT and connections to outcome metrics into all new digital technology investments with clear reference to nonfinancial and financial benefits.
- Review all major contracts with vendors to identify potential for renegotiation and cost savings.
- Establish clear business goals with benefits for IT and business owners as part of the business case for any consolidation program, supported by a strong governance process.
- Build the digital technology investment requirements into the business cases for new revenue streams.

Related Research:

Infographic: 2024 Top Technology Investments and Objectives for Higher Education

2023 CIO and Technology Executive Agenda: A Higher Education Perspective on Navigating the Triple Squeeze

Digital-Outcome-Driven Metrics for Higher Education

Replay Prediction

The replay prediction is a prediction from a previously published report that is so significant that it is being republished here.

Strategic Planning Assumption: By 2027, 60% of higher education institutions will adopt a hybrid operating model that blends physical and virtual capabilities to deliver the institutional mission.

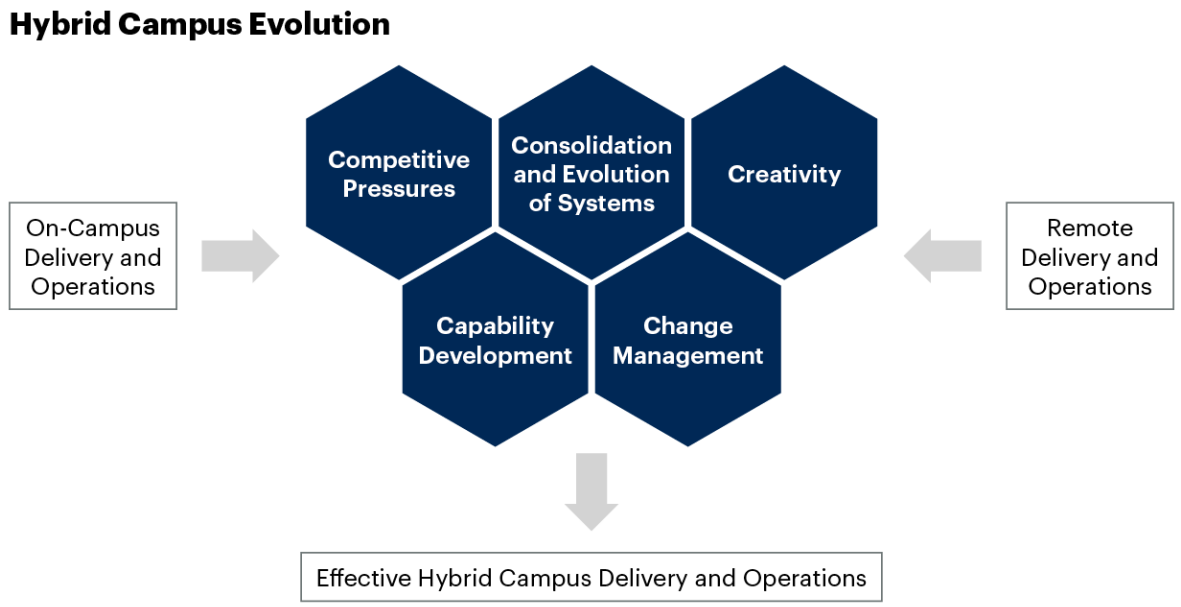
Analysis by: Grace Farrell, Paul Riley

Key Findings:

- Institutions are showing increased interest in "hybrid operating models," which Gartner defines as "models that blend physical and virtual capabilities to create an integrated learning, teaching, research and operating environment that can flexibly adapt to deliver the institutional mission."
- Higher education faces increasing pressure to create, execute and maintain sustainability initiatives on the physical campus. Many of these initiatives track student footprint and utilization of space, reduce carbon footprint by powering off buildings not in use for the day, and educate students on responsible consumption and recycling efforts. [41]
- Higher education leaders are expressing concern regarding low levels of in-class attendance and reluctance of some faculty, staff or students to work on-site, both of which are drivers toward hybrid operations. [42]
- Changing demographic projections and their potential impacts on enrollment are creating institutional uncertainty and challenging legacy delivery models, such as those reliant on international student revenue. [43]
- Institutions are starting to explore expansion beyond their targeted traditional 18 to 24-year-old student and create a more inclusive system to support working adults and corporate and individual learners. New delivery models are evolving in response to this trend, with growth in fully online programs and flexible degree pathways. [44]

- Progression toward hybrid models will take time and will require a sustained institutional effort (see Figure 3).

Figure 3: Hybrid Campus Evolution



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Market Implications:

- Institutions assess both the business model and value-add that the university is creating for students. Hybrid operating models will provide flexible experiences to enable this value to be created by potentially reducing faculty burnout, increasing staff retention and enabling a high-performance culture.
- As the value of a higher education degree continues to be scrutinized, students are demanding a return on their time and financial investment. Global uncertainty and a looming recession would typically drive students toward higher education. [45] However, a widening skills gap and unpredictable labor marketplace put the industry in a difficult position to attract new students. [46]
- Universities that improve processes, and leverage data to enable them to revise curriculum and implement new programs at speed, will have a competitive advantage over universities that refuse to change.

- Demands for flexible spaces will push many universities toward reviewing their enabling strategies in relation to people, estate and technology. This will require coordination across the university that is often problematic. A well-equipped space that nobody knows how to use, or that is not appropriate for the learning and teaching strategy, will be a wasted investment.
- There is evidence that a poor university experience will impact recruitment, retention and institutional success. Universities will increasingly integrate all aspects of the student learning and support journey to deliver a high-quality total experience that meets student expectations. This will be seen as critical in creating a sense of community that unites the university.

Justification:

- This prediction was based on the scaling of a hybrid operating model as institutions emerged from the pandemic. While some institutions have made a strategic choice (such as to be fully campus- or online-based), many others are yet to establish an intentional position for learning, teaching and ways of working.
- Institutions continue to define what they mean by hybrid with various terms, such as "hyflex," "blended learning" and "online learning," all appearing in institutional strategies and plans. [47]
- Institutional views on hybrid work best practices and supporting technologies have continued to evolve in 2023. Ongoing debates about where work is best done and the impact on productivity and mission-critical priorities, such as student experience, indicate more consideration is required in order to embed hybrid working.
- CIOs view the flexibility of working from remote locations as critical to both attracting new employees and motivating existing employees (see How Higher Education CIOs Can Implement a Hybrid Working Approach).
- As environmental, social and governance impacts emerge as institutional priorities, the value of a smart campus is expected to build over time and the role of hybrid in its implementation and success will continue to evolve.

Recommendations:

- Evaluate your current experiences of hybrid working and learning by analyzing the holistic university approach. Build collaboration and coalitions across senior leadership to influence strategic direction and to mature the hybrid operating model.

- Drive total experience investment by collaborating with students, faculty and professional services to proactively identify improvements that can be made to support education pathways.
- Upskill staff and students to use technologies that enable hybrid working and learning, such as collaboration tools, by placing digital capabilities within their learning experience.
- Expand the university's capacity to rapidly create new programs and modes of delivery by creating partnerships with external providers that offer credentials and short courses and with the university's internal registrar and academic affairs teams.

Related Research:

How Higher Education CIOs Can Implement a Hybrid Working Approach

Total Experience for Higher Education

Optimize Higher Education Hybrid Classroom Technologies

Infographic: 2024 Top Technology Investments and Objectives for Higher Education

4 Ways to Engage and Motivate Employees in a Hybrid Environment

A Look Back

In response to your requests, we are taking a look back at some key predictions from previous years. We have intentionally selected predictions from opposite ends of the scale — one where we were wholly or largely on target, as well as one we missed.

On Target: 2020 Prediction — By 2024, 80% of secondary schools will offer curriculum targeting specific digital skills (such as coding and cloud technology) designed for post-high school jobs, or for jump-starting tertiary learning opportunities.

Analysis by: Kelly Calhoun Williams

After COVID-19 lockdowns, a strong jobs market created an increased demand for employees with on-demand, job-specific skills, proliferating digital certificate programs that taught these skills. [48] Originally open for higher education students, members of the public or employees seeking to advance their skills, these programs have rapidly grown in number and demand. The increased skill demand discussed in this strategic planning assumption (written in 2019), paired with the significant growth of offerings to secondary schools since then (including those leading to direct employment post-high school), make this an on-target prediction.

Courses are now offered from a variety of sources and in many formats, including:

- High tech corporate offerings (such as Amazon Web Services, Google, Microsoft, Cisco, etc.) to earn certifications tailored for different types of jobs (cloud, coding, computer science, cybersecurity and more). [49]
- Courses delivered via career and technical education (CTE) programs offered in most secondary school organizations, including computer science, cybersecurity and other digital skill programs that provide certifications.
- Public and private school online course offerings for high schoolers (such as Florida Virtual School, NYC Public Schools, etc.), and commercial offerings from online schools and course developers (such as Coursera, EDx, FutureLearn, etc.).

These certification programs are now ubiquitously offered directly by secondary education systems in the context of existing classes, via specialized magnet or strand programs, or promoted indirectly for students seeking these skills who can sign up on their own.

The explosion of hype and growth for AI and GenAI technologies is likely to fuel demand for even more job-specific skills from potential employees. These skills need to be able to be updated quickly due to the rapid changes in these technologies. [50]

This has created new opportunities for those opting for a path to faster, highly paid employment with the right certifications rather than making the expensive and longer-term commitment to pursue a traditional college degree. Jobs not previously available to a secondary student without a college degree are suddenly within reach with the right skill certificates.

Missed: 2019 Prediction — By the end of 2023, at least three-quarters of traditional higher education institutions will have adopted a new primary business model that accounts for the majority of their revenue.

Analysis by: Terri-Lynn Thayer

While higher education is under tremendous pressure to change the primary business model underpinning their major revenue streams, few have done so. A business model has four major components:

- Value proposition
- Customers
- Capabilities
- Financial model

In 2019 when this prediction was made, nearly half of the 2019 Gartner CIO Survey higher education respondents indicated that they had already adopted or were in process with a business model change (see Predicts 2019: Higher Education — Digital Transformation in Progress). However, the pandemic emerged just months later, and institutions pivoted to a sharp focus on rapid delivery of online and hybrid learning. The goal was on preserving current revenue streams by whatever means possible. This led to some changes to the "capabilities." But, as the demands of the pandemic fade, there has been a gravitational return to the traditional business model. For many institutions, on-campus delivery of instruction to traditional-age students seeking a formal degree still dominates. While some institutions have piloted and established new business models (often targeted at continuing education and workforce development), there are few examples where this has replaced the traditional business model. Hybrid learning has remained, but it is often a complement to in-person instruction rather than a replacement or reinvention of it.

The fact remains that there is significant societal pressure on institutions to reduce costs and improve (or, in some cases, prove) the value of a degree. The growing number of institutional mergers, acquisitions and closures provides evidence of an industry in transition. Gartner believes this continued and mounting pressure will require fundamental business model changes over the next few years.

We see signs that some institutions are trying new approaches. For example, there are a growing number of partnerships — with industry players, with the community and with other institutions. [51] These partnerships bring changes to many and, sometimes, all four aspects of the business model. The U.S. government has provided significant student debt relief. [52] This may foretell a more substantive change to the financial model for U.S. higher education. Those that rank and rate higher education are increasingly moving toward metrics that have more focus on student success, ROI of the degree and employability of graduates — all pushing a change in the value proposition.

These all serve as drivers to change the business model, but this trend is falling short of the prediction of three-quarters of traditional higher education institutions doing so.

Evidence

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