

COLLEGE TRANSFORMED:

Five institutions leading
the charge in innovation

BY ALANA DUNAGAN

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EXECUTIVE SUMMARY

Higher education leaders today confront a bevy of criticisms ranging from worsening affordability and persistent socioeconomic disparities to a lack of relevance in the ever-changing economy. Institutions are beset by internal challenges and external pressures. Business models are cracking under enormous pressure as state appropriations decline and net tuition growth wanes. Business as usual simply can't continue.

The nature of competition in higher education is changing—presenting both challenges and opportunities. For decades—centuries, even—higher education has been on a continuous trajectory of developing more complex and comprehensive institutions to build and disseminate knowledge and educate students. But technology is enabling a new, disruptive path: simpler, more affordable, more accessible educational experiences, built in alignment to the needs of the workforce. Leaders can look to examples of institutions that are successfully innovating in the new environment, some along this new disruptive path, and others by incorporating disruptive technologies to move forward along the traditional trajectory:

- **Arizona State University:** Its open-access Global Freshman Academy creates a new pathway into the institution, and an innovative business model allows students to pay when they successfully complete courses.
- **Northeastern University:** Drawing on its expertise in experiential learning, it established a coding and analytics bootcamp that defines success by student outcomes in the workforce.
- **University of Wisconsin:** In order to address workforce challenges in the state, it deploys a competency-based degree program that draws on the academic resources of the UW System to develop new, accessible programs targeted to adult learners.

- **Simmons College:** In partnership with 2U, the college transformed its business model by developing high-quality, online graduate programs that expand its reach beyond geographical constraints.
- **Southern New Hampshire University:** Its radically affordable College for America creates opportunities for adult learners through a competency-based degree program in which the university partners with employers.

Leaders at these institutions used a variety of strategies to ignite different types of innovation, including building heavyweight teams, developing autonomous units, partnering with external organizations, and creating alliances with employers. But similarities also emerge: successful innovators focus on solving specific challenges for specific types of students and proactively build their institutional capabilities for innovation.

As trailblazers in the evolving higher education ecosystem, these institutions illustrate how innovation, even innovation that goes against the organizational grain, can be successfully deployed. Their experiences offer lessons for any leader hoping to carve an innovative path forward in today's turbulent environment.

INTRODUCTION: AN INNOVATION IMPERATIVE

In an economy marked by globalization and the rapid growth of technology, higher education is more important than ever before.¹ But the traditional business model of higher education is reaching its limits. College has become dramatically more expensive over the past several decades, and weak wage growth has meant that higher education is even less affordable for the typical American family.² Net tuition, however, has fallen in recent years at private nonprofit schools,³ and state support for public colleges and universities has fallen precipitously over the past several decades.⁴ These trends are putting pressure on the higher education business model for institutions of all types. As the affordability crisis has worsened, deep disparities continue to persist in higher education along race and class lines, which is leaving critical training opportunities out of reach for a growing population.⁵

Against this backdrop, institutional leaders cannot merely do more of the same; they must seek to innovate beyond the limitations of the current higher education system.

As leaders look to build institutions of higher learning for the 21st century with robust, sustainable business models that produce high-quality and affordable education, where should they make new investments? And what tools can they use to guide the process of innovation?

In this paper, we examine the theories of sustaining and disruptive innovation and their role in higher education today. We explore the organizational dynamics that enable and limit innovation, the intersection of innovation with industry competition, and the specific advantages that various innovation strategies can offer. Different types of innovation require radically different organizational strategies, but they also stand to solve different challenges facing higher education. To unpack these differences, we look to five cases studies of traditional institutions innovating to solve challenges that are facing the entire higher education sector like affordability, access, and workforce alignment and opportunity. These case studies provide key lessons for institutional leaders to understand and execute innovative programs.

Institutional leaders cannot merely do more of the same; they must seek to innovate beyond the limitations of the current higher education system.

ACADEME: OPPORTUNITIES AND CONSTRAINTS

The first step in understanding any innovation is to understand the context in which it takes place. All organizations—whether for-profit or nonprofit—have a business model. A business model is more than just the revenues and expenses that define how an organization makes money. It also includes three classes of factors that determine what an organization can and cannot do: its resources, its processes, and its priorities.⁶ These factors, depicted in *Figure 1*, define what types of innovation an organization is capable of and suggest a roadmap for how to best support innovation.

Resources

Resources are the assets an organization possesses. For colleges and universities, these include people like faculty, staff, alumni, and students; financial resources like endowments and grants; intellectual property; physical space, including campus buildings but also the surrounding community; reputation; and relationships. Resources are flexible and can be deployed in different ways to solve different problems. Money can be spent in various ways, buildings can be renovated and repurposed—at least to some extent—and staff can be reassigned.

Processes

Processes are the patterns of interaction and decision making that organizations use to solve problems. These include governance practices, decision hierarchies, promotion systems, registration and financial aid procedures, planning cycles, budget protocols, and performance evaluations—all the ways that things get done on campus. Processes, unlike resources, tend to be inflexible. Once things are done a certain way, over time, culture and habit make processes enormously resilient to change. Although effective processes can unlock efficiencies, this inflexibility can prove problematic: the processes that work well to solve one problem often do not work well to solve a different type of problem. For instance, shared governance structures may help maintain the stability and character of an institution—which is why they were designed. But they may make it challenging for institutions to make decisions quickly.

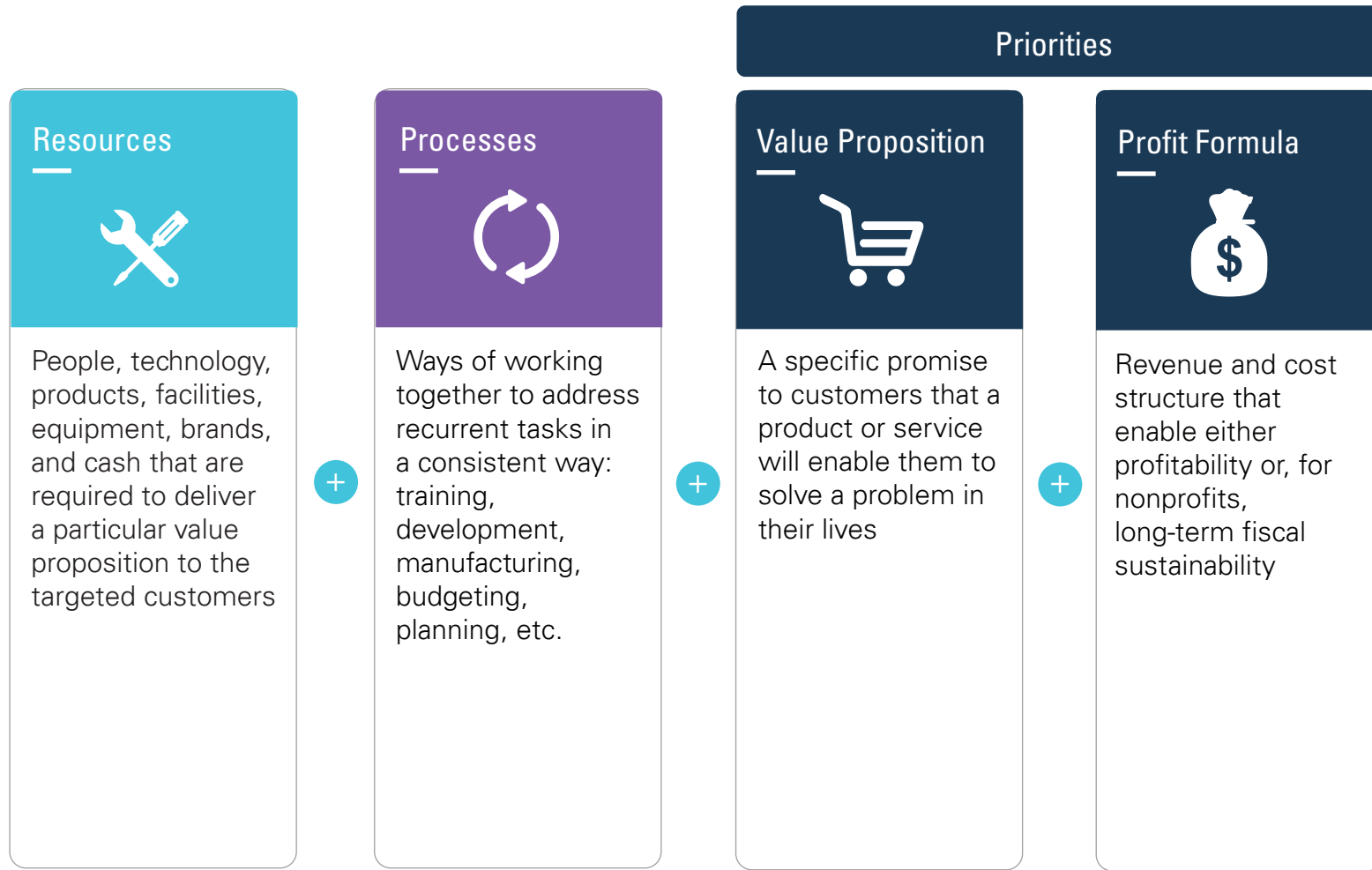
Priorities

Priorities are the criteria by which organizations and employees make decisions. At a successful organization, employees have a clear and consistent sense of the organization's priorities; this allows the employees to make independent decisions in keeping with the overall strategy of the organization. Priorities consist of two drivers: an organization's value proposition to its customers and a profit formula or, for nonprofits, a revenue formula. Both of these factors shape how decisions are made across all levels of the organization.

A value proposition is a specific promise made to customers: that they will be able to solve a problem in their lives. In higher education, institutions' value proposition to their students is manifold: students pursue postsecondary education for a wide variety of reasons. They may be simply looking to increase their overall human capital, skill up for a particular job, explore a range of possible professions, or escape their current circumstances, to name a few. For years, most schools have tried to meet this wide range of value propositions for a wide range of students and be the “best” across all of these parameters.⁷

A revenue formula defines the revenues and costs that describe how an organization makes money. In general, corporations strive to maximize profits. This is not the case in the nonprofit higher education sector, but institutions do require a revenue formula that can drive long-term fiscal sustainability. In the near term, financial imperatives are in tension with other factors, such as an economically diverse student body or spending

Figure 1. Elements of a business model



on faculty research. But higher education is an industry that focuses on the very long term; in sharp contrast to the quarterly earnings cycle that drives publically traded corporations, institutions seek to maximize their financial resources over a theoretically infinite time horizon. Institutions that sought to maximize profits over one quarter or one year—for example, by slashing faculty, selling off buildings, or limiting the diversity of the incoming class—would find that their ability to persuade alumni to donate to the institution or families to pay high-tuition prices was sharply limited in the next year.

The decision-making criterion that maximizes fiscal sustainability for institutions over the long-term is prestige. Factors that increase the prestige of the institution predictably improve its ability to draw financial resources into the organization. As higher education scholar Douglas Toma said, “Prestige is to higher education as profit is to corporations.”⁸ Prestige is crucial for attracting high-quality faculty, maintaining high admissions standards, achieving high national rankings, and signaling the skills and potential of graduates to future employers—and, in turn, those elite faculty and students contribute to the prestige of the organization.⁹

The processes and priorities that have made higher education business models resilient are the same factors that now make it difficult for higher education institutions to change.

To the extent that the organization’s priorities are well defined, the trajectory of the organization is easier to maintain. But the reverse is also true: the clearer the organization’s priorities are, the more difficult it is to change the organization’s trajectory.

Interlocking business model

Over time, and especially as organizations become successful, the elements of the business model become highly interdependent and resistant to change. Leaders struggle to implement innovations that challenge the existing processes of an organization. Managers reject innovations that run counter to the priorities of an organization.

In higher education, institutions have generally developed a robust set of processes and priorities. The basic elements of the modern bachelor’s degree—strict accreditation rules, standardized credit hours, general education, major plans, PhD-led instruction—have been around for over a century. They have formed the foundation of one of the world’s preeminent postsecondary markets. But this strength has the paradoxical effect of constraining innovation: the processes and priorities that have made higher education business models resilient historically are the same factors that now make it difficult for higher education institutions to change.

But by taking stock of their resources, processes, and priorities, institutional leaders can better understand which innovative efforts stand to thrive in which circumstances. To do so, they need to divide their innovation strategies into two broad categories: sustaining and disruptive innovations. *Sustaining innovations* push organizations forward along their current trajectory. Sustaining innovations tend to be well accepted by organizations with healthy business models. They generally involve changes to an organization’s deployment of resources or, occasionally, to the development of new processes that complement or enhance existing ones. *Disruptive innovations*, on the other hand, spark improvement along an entirely new dimension. Disruptive innovations require a shift in the organization’s priorities and thus are at great risk of being rejected by a strong business model.

SUSTAINING INNOVATIONS: TO THE WINNER GO THE SPOILS

Competition drives the for-profit world of corporations. Companies constantly race to produce better products to secure more and more demanding customers willing to pay higher and higher margins. This involves relentless innovation: think of the improvements in recent years in the smartphone market as Apple, Samsung, LG, and now Google race each other to produce phones with faster processing speeds, longer battery life, better cameras, and now even artificial intelligence capabilities. Sustaining innovations drive these competitive battles to produce ever-improved goods and services. Some sustaining innovations are incremental ones, and others are dramatic breakthrough technologies. But the ultimate purpose of these incremental and breakthrough innovations is the same—to help companies or organizations sustain their movement upward along the trajectory of performance improvement. Sustaining innovations make better products that can be sold for higher profits to companies' most demanding customers. Sustaining innovations, by their nature, preserve and enhance the existing business model.

Higher education is no stranger to competition—or, as it turns out, to continuous battles of sustaining innovation. One obvious example is the arms race for improved facilities to attract students.¹⁰ But not all sustaining innovations are merely cosmetic improvements. Colleges and universities also engage in sustaining innovation when they add new majors or concentrations; create additional services, like healthcare or intramural activities; or make major investments into new research areas. Sustaining innovations can also generate marked improvements in the student experience. For example, increasing the percentage of full-time faculty, reducing student-faculty ratios, and implementing mentoring and coaching initiatives to improve retention among typically underserved college students all fall into the category of sustaining innovation.

Just as in the corporate world, sustaining innovations in higher education improve or expand offerings for students. In the corporate world, when companies engage in battles of sustaining innovation, incumbent companies almost always win: strong offerings get better. Even when new players enter

the market with something better, the incumbents, which already have the advantage of branding and customer awareness, are highly motivated to respond quickly to the competition and maintain their position. The same holds true in higher education, where many of the top universities are also the oldest, most established brands in the sector.

When companies engage in battles of sustaining innovation, incumbent companies almost always win.

DISRUPTIVE INNOVATIONS: WHEN THE BATTLE IS NOT WON BY THE STRONG

But there is another type of innovation that historically has proven almost impossible for the incumbent leaders in the industry to catch. Disruptive innovations make products simpler, more affordable, and more accessible. They take root at the low end of the market by capturing customers who are overserved by existing products and services that incumbents offer. These tend to be low-margin consumers who would prefer a cheaper, more basic offering or people who are nonconsumers—those who aren't part of the market at all because they don't have the wealth or expertise to participate. From there, a technological enabler allows disruptors to move upmarket, serving more and more demanding customers at a lower cost than their competitors can.

This dynamic can be visualized in *Figure 2*. The solid blue lines represent the pace at which organizations deploy sustaining innovations to improve their products. The dotted blue lines illustrate the slower pace at which customers actually demand performance improvement. As time passes and the pace of sustaining innovation exceeds the performance demands of a greater and greater share of customers, the market begins to be overserved: more and more customers would prefer something simpler or cheaper. This creates an opportunity for disruptive innovation to enter at the low end of the market. Initially, disruptive innovations address the needs of nonconsumers, but they move upmarket to become a viable alternative for

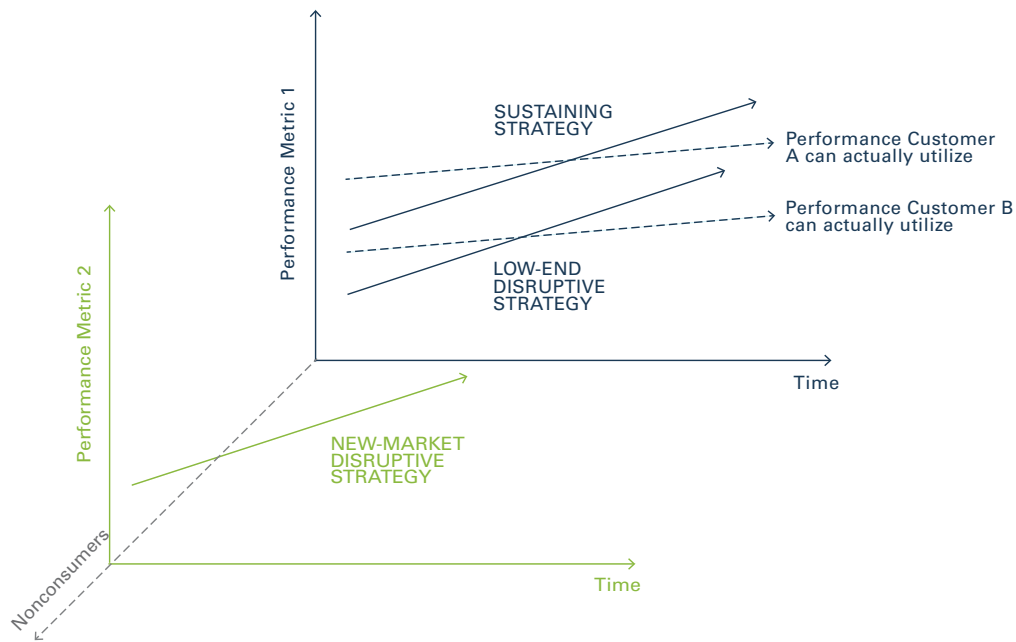
a bigger and bigger set of customers. Often, as depicted in green, disruptive innovations change the dynamic of competition altogether, resulting in new definitions of quality and performance.

As compared to sustaining innovations, disruptive innovations are rare. But they have a record of transforming entire industries and bankrupting some of the world's most successful and established corporations. To illustrate, consider the trajectory of the United States' steel industry in the late 20th century.

Traditionally, most steel came from large, integrated steel mills that react iron ore, coke, and limestone in massive blast furnaces. These integrated mills were tremendously expensive and cost billions of dollars to build. In the 1960s, a new technology for producing steel became commercially viable: minimills. Instead of using more expensive iron ore, minimills melted scrap steel in electric arc furnaces that required far less power than the blast furnaces used by integrated mills. Less dependent on proximity to shipping lanes for iron ore and hydropower for cheap electricity, minimills were geographically dispersed, which allowed them to take advantage of cheaper labor. Their design was also less labor-intensive; they could produce a ton of steel with a quarter of the man-hours required to produce the same ton of steel in an integrated mill. Minimills were dramatically cheaper to build and could easily be idled if demand slackened. All of this added up to a huge cost advantage for minimills.

Disruptive innovations have a record of transforming entire industries and bankrupting some of the world's most successful and established cooperations.

Figure 2. Disruptive innovation visualized



But when minimills first showed up on the scene, they had one big problem: because they melted scraps of uncertain and variable chemistry, the steel they produced was poor quality. Initially, the only market that would buy minimill steel was the rebar market. Rebar is used to reinforce concrete and stonework, and the product specifications for rebar are low and loose. The margins in the rebar market were also low, and the rebar market represented a small percentage of the total market for steel products. As a result, when minimills came along, the dominant integrated mills were not upset to lose rebar customers. In serving their lowest margin customers, minimills posed little threat to integrated steel mills. It was almost a different market altogether.

Over time, however, minimill technology improved. In the late 1970s, minimills were able to expand into producing angle iron. This was not just a bigger market, it was a better market—it garnered nearly twice the margins of the rebar market. But for integrated mills, angle iron had become the least desirable tier of their products. As a result, integrated mill managers were not disappointed to lose angle iron customers. In fact, leaving their lowest margin products behind again drove huge increases in profitability at the integrated mills. Leaders of integrated steel companies turned around and spent those savings investing in capacity and

technological improvements to serve their highest margin specialty steel customers—sustaining innovations.

Still, some integrated mills saw the potential of minimill technology.

For instance, Armco, a major integrated steel company, invested in two minimills in the 1970s—one in Marion, Ohio, and another in Sand Springs, Okla. It struggled to run the plants, but was able to bring them to profitability. But in 1981, Armco divested of them. The managers said that the minimill facilities didn't fit into Armco's new strategic focus: higher margin specialty steel products.¹¹ This pattern held true across the industry. As integrated mill managers strove to cut costs and improve profitability, they reduced capacity from 150 million tons to 110 million tons—largely by shuttering any investments in minimills and, in turn, losing their capacity to compete in the lower end of the steel market.¹²

Yet, even as integrated mills were stripping their experiments with minimills from their balance sheets, minimill technology continued to improve, as depicted in *Figure 3*. In the late 1980s, they moved into the more specialized structural steel market. Prices fell, as the minimill companies outcompeted the integrated mill players. Finally, in the mid-1990s, minimill companies entered the highest segment of the steel market: sheet steel. These minimill companies continue to dominate the steel market to this day, and many of the integrated players have been driven to bankruptcy.

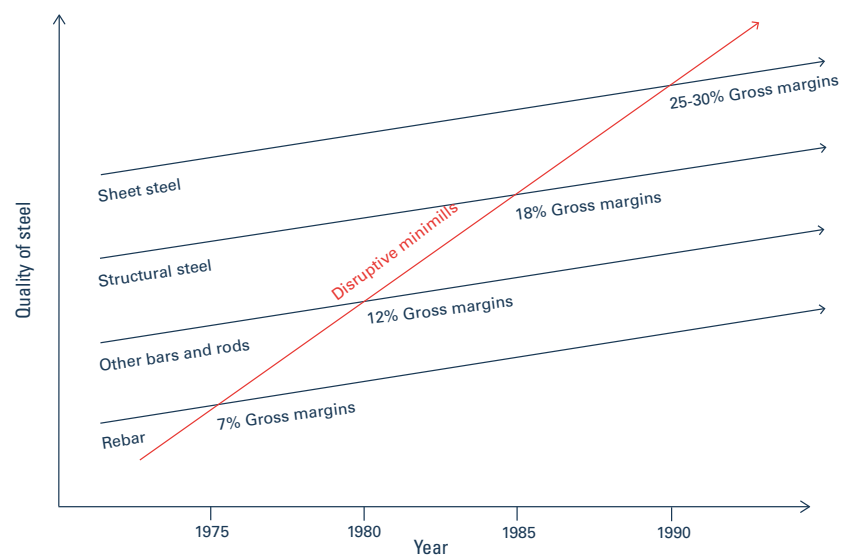
This history of the steel industry demonstrates how powerful incumbents can fall victim to the limitations of their own business models—even if those business models appear indestructible in the short term and midterm. Integrated steel mills were competently managed, and each of their decisions to abandon less profitable markets and focus on more valuable customers was rational and defensible at the time. Their conventional approach, however, failed in the context of disruptive innovation.

In battles of disruptive innovation, incumbents almost always *lose*. Initially, incumbents often view disruptive technologies as being part of an entirely different market or, at best, so far at the low end of the market that they do not merit any response. Yet, over time, the disruptive innovations continue to improve in quality and, soon enough, can take over a larger segment of the market by providing solutions capable of handling more complex problems that are simpler, more affordable, or more convenient than the dominant solutions that the incumbent providers offer. As a result, customers begin

to migrate from incumbent providers to the disruptive innovator. At this point, even if the incumbent wants to respond by emulating the disruptive innovation, it's too late. The disruptors have already built big advantages in technology, supplier and customer relationships, sales and marketing, and talent acquisition. For all of their advantages in the mainstream market, incumbents are at a deep disadvantage when threatened by disruptive innovations that create new markets guided by new rules.

The same pattern has emerged in industry after industry. For example, computing became affordable, convenient, and widespread because a disruptive innovation—the personal computer—burst on the scene by initially targeting nonconsumers. PC makers initially marketed their rudimentary product as a toy for children and hobbyists. Toyota didn't overtake the Detroit Big Three by taking dead aim with the high-end Lexus. It first entered the market in the 1960s with the crummy Corona, which was affordable and consumed less gas and was therefore a blessing for consumers with smaller pocketbooks who couldn't afford cars. As a result, Toyota, like early minimills, did not appear threatening to incumbents' businesses—like GM's and Ford's.

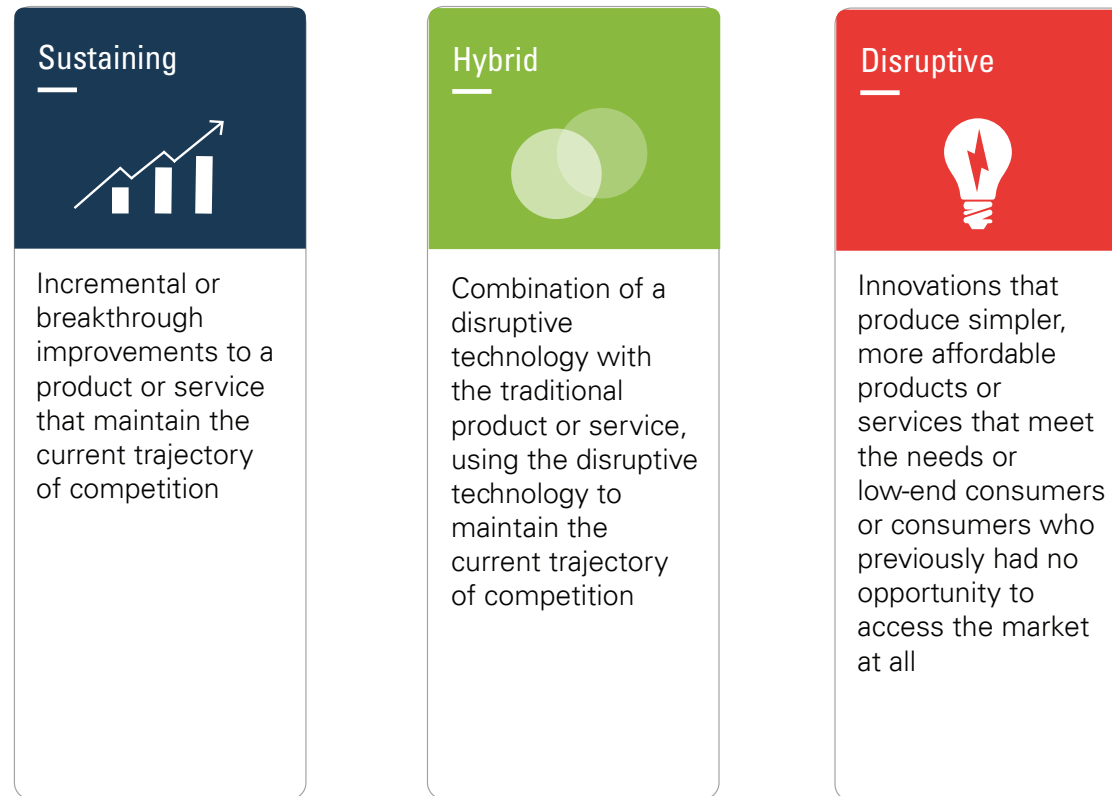
Figure 3. Minimills move upmarket



It is worth noting that sometimes innovations may moonlight as disruptive innovations, but in fact function as sustaining innovations. A *hybrid innovation* is a combination of the new, disruptive technology with the old technology and represents a sustaining innovation relative to the old technology.¹³ For example, the automobile industry has developed several hybrid cars along its way to transitioning from gasoline-fueled engines to engines with alternative power sources. Leading companies, like Toyota, want the virtues of both, so they have developed a sustaining innovation—hybrid cars that use both gasoline and electricity but that price similarly to, or even just above, their gasoline powered counterparts and are aimed at existing car owners.

Other industries—including earth excavators, steamships, photography, retail, and banking—have likewise experienced a hybrid stage on their way to realizing the pure disruption. Leaders in incumbent organizations create hybrids for predictable reasons, including because the business case for the purely disruptive technology is not compelling at first to industry leaders, whereas implementing a hybrid as a sustaining innovation allows incumbents to satisfy their best customers.

Figure 4. Comparing sustaining, hybrid, and disruptive innovations



DESIGNING THE TEAM FOR THE TASK

Because disruptive innovations don't fit the existing priorities of incumbent organizations, managers almost always reject disruptive strategies. But leaders hoping to adapt their organizations in the face of disruptive innovation can learn from the case of IBM—one of the few companies in history to ride the wave of disruptive innovation successfully. In the 1980s, IBM and its competitors faced a disruptive threat from the development of the personal computing market. IBM was the industry leader in mainframe computers—elaborate, expensive machines sold to wealthy corporations. When personal computers first emerged, they had less computing power and didn't appeal to IBM's customers, nor did they produce the same profit margins as mainframe computers.

For IBM, entering the personal computer market would require new resources—new sales people, new marketing channels, different manufacturing facilities. It would also require new processes—new incentive plans for salespeople, new R&D processes, and new supply chains. But most importantly, it would require new priorities. IBM couldn't adapt its existing profit formula to become successful in the personal computing market. But it could—and did—build a new, autonomous organization to take on the task. IBM located its new autonomous unit in Florida, far away from the main headquarters in Armonk, N.Y., and gave it the latitude to develop its own processes around purchasing, sales channels, and metrics.¹⁴ As a result, unlike its fellow minicomputer and mainframe computer companies, IBM successfully transitioned to competing alongside disruptive players, like Apple, in the new personal computer market.

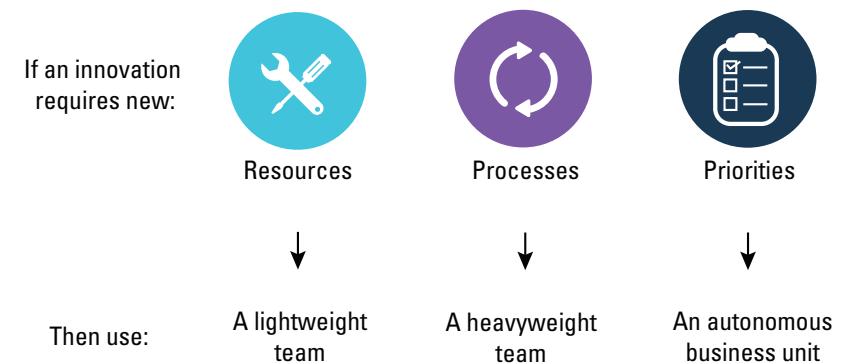
Not every innovation strategy merits a fully autonomous entity to create something new. Leaders making choices about how to structure their organizations to support innovation should first consider the requirements of the innovation in terms of resources, processes, and priorities. When innovations require only new resources—such as different skillsets or new technologies—then teams working in the existing organizational structure can typically implement them. These teams are called lightweight teams.

If an innovation aligns with an organization's resources and priorities but will require wholly new processes—rather than merely improvements or tweaks on existing processes—then teams will need greater latitude. Organizations must create heavyweight teams to implement innovations that require new processes. A heavyweight team pulls employees out of their existing departmental silos and gives them the authority to develop new ways of

working together to support the new venture. Crucially, heavyweight teams are a stepping stone to new processes. Once they establish that new process, team members can disperse back to their departments to execute on it.

Disruptive innovations, by their very nature, don't fit into the existing priorities or processes of the traditional institution. This means that the organization will reject disruptive innovations, even when they are successful—just as Armco sold off its profitable minimills to refocus on the higher end of the market. Incumbents that have been successful at disruptive innovation have built completely autonomous units to protect and support that new innovation.

Figure 5. Deciding which team to use for the task



DISRUPTIVE INNOVATION IN HIGHER EDUCATION: FACING A NEW REALITY

For a very long time, higher education has been virtually untouched by disruption. Sustaining innovation has driven competition among institutions, and few new entrants have achieved comparable levels of prestige to the oldest institutions. With the rise of online technology, however, the nature of competition is shifting: disruptive innovations now pose a viable threat to traditional institutions. To understand why, and to gather insight on what is driving disruption in higher education today, it is helpful to look at the hotel industry.

For many years, the hotel industry did not experience disruptive innovation coming from the low end of the market. This wasn't because the hotel industry didn't *have* a low end—many a happy road trip has involved overnights at Motel 6 and Super 8. But those low-end competitors lacked a technological enabler to allow them to go upmarket. The business model of running a low-end hotel chain, like Motel 6, is very different from the business model of running a high-end chain, like the Four Seasons. For Motel 6 to be more like the Four Seasons, it would need to remodel the rooms, which is easy enough. But it would also need a bigger lobby and a restaurant, which would be tougher. It would need to add more staff and more systems. By the time Motel 6 added all of those things, it wouldn't be a low-end competitor offering something simpler and cheaper—it would be just another Four Seasons.

Institutional leaders will need to take a balanced approach to considering both disruptive and sustaining innovation strategies if they hope to compete down the line.

Today, however, the hotel industry faces a unique competitor: AirBnB. AirBnB entered the market on the low end by offering users the chance to sleep on a stranger's couch. But over time, the service has evolved to include higher end listings: penthouse suites, beachside mansions, and mountain lodges. Now, AirBnB is beginning to offer curated “experiences” on top of just places to stay.¹⁵ AirBnB's platform is a technological enabler that has allowed it to go upmarket and compete disruptively against major hotel chains.

Similarly, until recently, higher education has lacked a technological enabler that would allow for disruptive innovation. But online education has created a path for disruptors to introduce programs to serve nonconsumers and then gradually iterate and move further and further upmarket. This technology has unleashed a variety of disruptive experiments, including bootcamps, competency-based programs, and microcredentials. It's too early to say whether any particular program or organization will disrupt higher education, but some clearly have the potential to do so. The technological enabler is in place; higher education is ripe for disruption. This doesn't mean that the sustaining innovations that have dominated higher education will go away entirely. But it does mean that institutional leaders will need to take a balanced approach to considering both disruptive and sustaining innovation strategies if they hope to compete down the line. And with this, leaders have a unique opportunity to tackle looming challenges like affordability, equity, and workforce preparation that higher education faces in the 21st century.

INNOVATING TO ADDRESS TODAY'S HIGHER EDUCATION CHALLENGES

Any leader of an organization should consider all types of innovation as tools in her toolkit. A common misreading of the theory of disruptive innovation is that disruptive innovations are good and sustaining innovations are bad. This is a false dichotomy. Each is important and necessary, but to different ends. This principle is truer than ever given the myriad of challenges spanning the current higher education landscape.

Sustaining innovations represent improvements to existing programs targeted at existing students—and institutions can employ them to address critical challenges facing higher education. For instance, developing a coaching support program to help retain at-risk students is a huge opportunity to engage sustaining innovation to benefit students. Institutions can also use sustaining innovations to drive efficiencies and control cost increases to help address affordability issues.

For institutional leaders, sustaining innovations also have the advantage of fitting in well with traditional higher education's existing priorities and often with the existing processes of colleges and universities. This can make it more likely that the institution will accept sustaining innovations, and it simplifies the strategy and tactics involved in implementing them. Alumni are often happy to contribute resources for innovations that are likely to make the institution more well known, more selective, and higher ranking.

But investing exclusively in sustaining innovations does come with risks. In battles of sustaining innovations, as organizations compete for customers, they end up adding more bells and whistles to their products than the average consumer could ever use. As the pace of sustaining innovations starts to outpace the needs of the average customer, firms begin *overserving* the average consumer—that is, products are more complex and more capable than most people require and more expensive than most people prefer.

This is truer than ever in higher education: chronic affordability and access challenges are a byproduct of efforts to make colleges better and more competitive in terms of prestige. And to the extent that colleges compete on their academic reputations, which, in turn, are driven by research,

institutions may also be adding bells and whistles in their research arms that don't necessarily benefit students directly—or at all.

Sustaining innovations leave customers in their wake who are overserved by complex, expensive products. These customers include some students within the existing higher education system, as well as many people who currently aren't accessing higher education at all.

Disruptive innovation holds the key for institutions to serve this customer base better while also breaking free from the limitations of prestige that drive up costs. Disruptive innovations improve, just as minimills did, often on entirely new dimensions than the ones important to incumbents. In higher education, performance and quality have traditionally been defined by prestige. Schools at the higher end of the market have a far easier time collecting alumni donations and are able to charge more in tuition. But

In higher education, performance and quality have traditionally been defined by prestige.

unencumbered by research activities and laser-focused on meeting the needs of specific types of students and employers, disruptive entrants are likely to be less concerned with prestige. Their performance will be defined by other metrics, like students' return on investment after graduating, including skills acquired and workforce outcomes.

Despite this promise, engaging in disruptive strategies is tricky for incumbent organizations, and in higher education it is particularly fraught. By definition, disruption occurs at the low end of the market. In higher education, a disruptive strategy introduces the risk that—even if the innovation is successful at attracting and retaining students—the reputation and prestige of the university may suffer. Focusing on the low end of the market contradicts long-held priorities of the higher education industry.

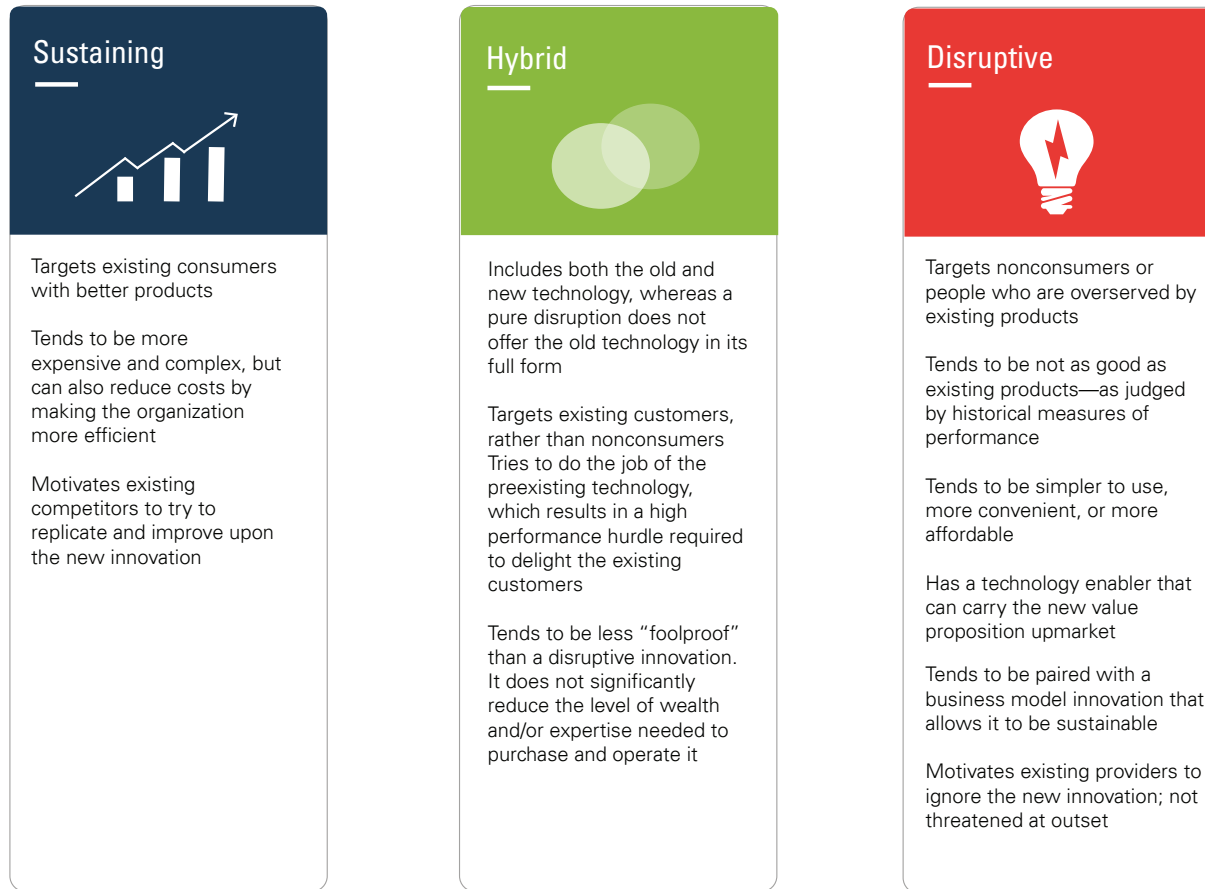
The traditional metric of prestige also has implications for students who participate in disruptive approaches to higher education. For better or worse, the prestige of a graduate's alma mater is a signal to employers of the student's capabilities. Disruptive innovations may ultimately make the world a better place by refocusing the labor market on the skills and capabilities of job applicants, rather than on the name of the institution that issued the diploma—but in a world where institutional prestige matters, students who earn their credentials or learn their skills through nontraditional programs run the risk that their education may not be well valued by employers. Indeed, there is some evidence that this is still the case for students who earn online degrees.¹⁶

In part because of the risks—but also the attraction—of disruptive innovation, many institutions engage in hybrid innovations. Hybrid innovations allow institutions to incorporate disruptive technologies into their business models without abandoning prestige as a priority. As a result, institutions may mitigate the reputational risks of disruptive innovation in the short term, while at the same time improving their capabilities to engage in disruptive innovations over the longer term. Hybrid innovation can be a powerful signal to students, alumni, and trustees that the institution is paying attention to innovation and investing in the future. It, however, will not tackle affordability challenges at scale. Hybrid innovations are ultimately sustaining—they do not fundamentally upend the behemoth cost structure undergirding traditional higher education institutions.

Many institutional leaders are carving a way forward using both sustaining and disruptive innovations, and their endeavors are providing lessons in how to innovate successfully against today's higher education challenges. The case studies that follow provide distinct examples of these efforts: the institutions are each addressing specific challenges in a variety of ways. We classify the innovation strategies that each is pursuing as sustaining, hybrid, or disruptive and illustrate the ways that leaders have employed the tools of innovation to drive success.

Focusing on the low end of the market contradicts long-held priorities of the higher education industry.

Figure 6. Spotting innovation



ARIZONA STATE UNIVERSITY'S GLOBAL FRESHMAN ACADEMY

In 2002, Michael Crow left his position as an executive vice provost at Columbia University to become the 16th president of Arizona State University (ASU). Since his inaugural call to create a “new American university,”¹⁷ *U.S. News & World Report* has consistently named ASU the most innovative university in the country.¹⁸

Crow defines the new American university as “an institutional model predicated on the pursuit of discovery and knowledge production, inclusiveness to a broad demographic representative of the socioeconomic diversity of the region and nation, and, through its breadth of functionality, maximization of societal impact.”¹⁹ Through his nearly 15-year tenure at ASU, Crow has sought to focus the metrics of higher education on outcomes rather than inputs by envisioning an institution that:

...measures its academic quality by the education that its graduates have received rather than the academic credentials of its incoming freshman class; one at which researchers, while pursuing their scholarly interests, also consider the public good; one that does not just engage in community service, but rather takes on major responsibility for the economic, social, and cultural vitality of its community.²⁰

ASU has undergone major transformation under Crow’s tenure, including the consolidation of departments, the development of online programs, and dramatic increases in enrollment, degree production, and research spending.²¹ ASU has engaged in various efforts to reach populations who are not served well by the traditional model, including a partnership with Starbucks that allows employees of the chain to complete their degrees online.²²

One of ASU’s newest endeavors is the Global Freshman Academy (GFA), a project to create an online onramp to college. GFA is aimed at populations shut out of traditional colleges, specifically students who don’t have a high school transcript that demonstrates college readiness. These students may have struggled academically or even dropped out of high school. They are the types of students who traditional admissions processes are designed



Location	Tempe, Ariz.
Institutional type	Public research university
Founded	1885
Student enrollment	72,000

Global Freshman Academy



What	>	An on-ramp into ASU, allowing students to take their first year online and pay for credits if/when they complete them
Why	>	Maximize access rather than prestige
How	>	Created an autonomous, completion-oriented business model
Innovation type	>	Disruptive

to weed out. GFA is designed to give these students a second chance by allowing them to demonstrate their readiness by completing GFA's eight college-level courses online. GFA also provides college access for international students who face obstacles demonstrating their competency to U.S. schools, as well as for high school students who are looking to earn college credits.

GFA is designed to maximize access, rather than maximize the traditional metrics of prestige. The courses are online and open to everyone, but they are also free—at least initially. Traditionally, students must pay upfront to enroll in courses; whether a student passes or fails that course or passes enough courses to complete a degree is immaterial to the revenue of the institution. Through GFA, however, students can choose to pay after the fact in order to convert successfully completed courses into ASU credit. There is no upfront cost for course enrollment.

This revenue model differs significantly from the traditional model, as well as from other ASU programs, but is in keeping with Crow's vision of transforming ASU's institutional priorities. As Crow wrote:

While leading universities, both public and private, have become increasingly exclusive, the approach adopted during the implementation of the new model has been to expand the capacity of the institution to meet enrollment demand. The objective is to provide unmatched educational opportunities to the many gifted and creative students who do not conform to a standard academic profile, as well as to offer access to students who demonstrate every potential to succeed but lack the financial means to pursue a four-year baccalaureate education.²³

Innovation lessons

ASU's Global Freshman Academy meets many of the requirements of a disruptive innovation: it explicitly targets nonconsumers; it bucks the traditional performance metric of prestige; it is more convenient and more accessible than traditional programs; and ASU has already proven its ability to improve the GFA offering and carry it upmarket by expanding the array of courses available and building in more advanced adaptive learning technology. Consistent with disruptive innovation theory, existing providers are likely to ignore GFA because it does not target the students they would like to enroll or provide as high quality a program as they would like to offer. Indeed, GFA meets all of the criteria for disruptive innovation, save one: as it struggles to attract nonconsumers to enroll in courses, it has yet to prove that it is embedded in a sustainable business model.



Crow and his colleagues are aiming to reach wide swaths of students who otherwise could not access a college degree. To date, GFA is still searching for the right channels to target those types of students. ASU initially introduced GFA courses through the edX platform, a partnership between Harvard and MIT that makes online courses from dozens of institutions available globally. GFA saw thousands of interested students enroll—but many of those enrollees were a reflection of the edX population: older, wealthier, and already in possession of college degrees. Adrian Sannier, chief academic technology officer for ASU’s online program, and one of the driving forces behind GFA, recognizes that the edX population doesn’t represent the students for whom GFA is designed, but is still hopeful. He said:

There are people here who will convert for credit—but they are hidden in a big stream of non-target clients. Those who don’t understand innovation say, “the majority of people here aren’t who we want to reach”—and they walk away. Disruptors say, “there is a lot of noise here but there is also a signal”—and they persist.

ASU is looking at marketing the program through other channels, including reaching out to select high schools.

Besides marketing challenges, ASU is also struggling to fit its pay-for-completion model into the Title IV system. Title IV dollars are disbursed on a pay-for-enrollment basis. This pricing model persists despite disadvantages: much of the money spent on federal student aid does not translate to credits earned. Providing federal aid dollars for completion rather than enrollment could create significant savings for students, as well as for the federal government. Pay-for-completion also puts pressure on institutions to focus on student success, which is a priority for many higher education stakeholders. Still, the federal aid system has yet to find a way to adapt its system to this new approach. In the interim, ASU is offering

credits through GFA for a significant discount relative to its standard online courses. Whether federal aid can be brought to bear will determine what students are willing and able to pay, and ASU will be conducting experiments with pricing over the coming months.

Regardless of GFA’s ultimate success, ASU is already benefiting from its GFA experiment. Leaders at ASU see their models—brick-and-mortar, online, and GFA—as learning collaboratively together, with each platform enriching the next. One area where this has been true is in personalized learning, which initially was a focus of ASU’s brick-and-mortar courses, then became part of the online courses, and was later reinvented for GFA. Through that process, ASU’s personalized learning capabilities have improved, and the university is now sharing those improvements with the brick-and-mortar program. The GFA project has also attracted talent and passion to ASU, which is a mecca of true believers about the potential of innovation in higher education. As President Crow said, “We may not be big enough to change the world, but we are big enough to show that the world can be changed.”

“We may not be big enough to change the world, but we are big enough to show that the world can be changed.”

- ASU President Michael Crow

NORTHEASTERN UNIVERSITY'S LEVEL BOOTCAMP

A “university leader” perhaps conjures up an image of someone in his late 50s, with a PhD and years of experience, working as a tenured academic. Northeastern University’s vice president for new ventures, Nick Ducoff, has a different profile altogether. In his mid-30s, he has a law degree and two venture-backed companies under his belt and serves as a mentor for Techstars, a startup accelerator.

Two years ago, Ducoff transitioned from the fast-paced startup world to the over 100-year-old Northeastern University because he believed that the institution was committed to doing the work of innovation. Reflecting on this decision, he said:

People want to give it [innovation] lip service, but people don’t want to commit to the ground game. Top down and bottom up, Northeastern has cultivated a culture of entrepreneurship. Every single person—whether you’re a cook in the dorms or leading a P&L [profit and loss] as a faculty member—you know the folks up the chain will support your ideas with money, recognition, and time.²⁴

His mandate has been wide ranging, but his role leading the university’s newest ventures is designed to “future-proof” the university.²⁵

To that end, one of Ducoff’s first projects was to build an experiential analytics bootcamp at Northeastern, called Level. Northeastern recognized that many college graduates struggle to translate general and theoretical knowledge learned in college into the practical skills required for workforce success.²⁶ On the other side of the challenge, employers struggle to identify workers who can fill roles in emerging but high-demand technical fields.²⁷ Northeastern’s president, Joseph Aoun, called for a fundamental rethinking of the traditional four-year degree. “It’s time to stop thinking of higher education as an experience people take part in once during their young lives—or even several times as they advance up the professional ladder—and begin thinking of it as a platform for life-long learning,” he said.²⁸ Level is Northeastern’s answer to higher education’s workforce readiness challenge.

Bootcamps have proliferated over the last five years; there are now 300 coding bootcamps, which together churned out an estimated 16,000 graduates in 2015.²⁹ Bootcamp programs promise intensive training in tech skills and boast robust job opportunities for successful



Location	Boston
Institutional type	Private research university
Founded	1898
Student enrollment	25,000

Level



What	>	A coding and analytics bootcamp with specializations in high-demand tech fields
Why	>	Create opportunities for lifelong learning
How	>	Built Level as an autonomous unit; partnered with employers to develop programs
Innovation type	>	Disruptive

graduates. They have found success in areas where technological innovation is creating jobs more quickly than traditional higher education can build programs to train workers. Course Report, an online bootcamp directory, estimates that over a third of bootcamp students are women; this stat compares favorably to traditional computer science programs, where only an estimated 14.1 percent of students are women. Bootcamp students tend to be older than traditional undergraduates, and the majority of them already have an undergraduate degree.³⁰ Given the short duration and low cost of bootcamps, they appear disruptive relative to longer, more expensive traditional master's programs.³¹

Level's main offering, Level Core, is a curriculum designed to immerse students in the tools of data analytics. The \$8,000 program gives learners—80 percent of whom have not previously enrolled in a Northeastern degree program—the flexibility to enroll in either a two-month full-time, in-person program or a five-month blended program, with online courses as well as in-person sessions one night a week and one weekend a month. Level also developed an introductory bootcamp called Level Set, a 15-week blended program that focuses on prerequisite statistics and Excel skills to prepare students for typical business analyst responsibilities as well as for more intensive data analytics programs like Core. Level also recently built an eight-week program in cloud computing with a curriculum co-designed by Amazon Web Services.

Level has built on Northeastern's tradition of partnering with industry. In designing its programs, Level evaluated research on the most frequently requested skills in analytics-focused job openings. Ducoff's team then talked to a series of hiring managers to further understand the skills required and how they prioritized them. Those insights drove Level's curriculum development.³² Level has also embedded employers in the curriculum itself: industry experts



engage with students throughout the program through lectures and panels. Employers also sponsor labs and experiential cases, which allow students to polish their skills in scenarios and projects designed by the employers who might hire them at the end of their program. All students finish the program with a capstone, which is a real-world project that each student works on directly with a potential employer. Level's goals are to help students build skills that are immediately applicable for the working world and to facilitate each student developing a professional network.

Innovation lessons

Level shows signs of being a disruptive innovation. Although it accepts some Northeastern students, most of its students are adult learners seeking to skill up in order to advance their careers. These students don't need a full bachelor's or master's degree, which would overserve them. By traditional measures, bootcamps are "not as good" as traditional degrees—they are shorter and more targeted to a specific job or role. Their short duration and, in the case of Level, flexible scheduling make them more accessible and affordable than a typical master's degree in computer science.

Ducoff's team has demonstrated an ability to improve Level's offerings and move into additional markets, and although it is still early, the business model looks sustainable. Other schools have shown interest in having Ducoff's team develop "white-labeled" bootcamps for them, but it is likely that most institutions will ignore the bootcamp model, given that these programs are not currently eligible for Title IV funding, do not enhance academic prestige, and do not meet the needs of universities' core customers.

At this stage, Level's business model appears robust; Level is operating ahead of plan and some programs have shown profitability early. Looking ahead, Northeastern will face strategic choices if the bootcamp model doesn't scale upmarket—but it may face *greater* challenges if it does. Level's first year saw over 100 graduates, but over the course of the next year, the team expects to see hundreds of students complete the program. As Level scales, however, Northeastern may find that maintaining its investments in disruptive innovation has inherent difficulties: integrated mills could successfully operate minimills, but they ultimately divested of them in order to focus on high-end specialty products.

Level currently employs its modular, skill-based curricula as a complement to a traditional degree, rather than as a substitute for one. Over time,

Northeastern will have to allow itself to be changed by Level, rather than importing Northeastern's processes and priorities to Level. The experience of integrated steel companies holds a lesson here. These incumbent companies also experimented with disruptive innovation, but ultimately walked away from minimills for "strategic" reasons. Although attracted to the promise of minimills, they failed to understand the strategic shifts that disruptive innovation was wreaking on their industry.³³

Leaders looking to build disruptive models under the traditional university umbrella can take a page from Ducoff's book. As described above, because resources, processes, and priorities become fixed over time, autonomous units with the freedom to establish wholly new business models are critical to deploying successfully disruptive innovations. Northeastern has followed this path. After spending a year on the Northeastern campus, Ducoff's team moved to a co-working space in downtown Boston. Ducoff's team recently took space in a newly leased office tower that previously housed Level-partner and publicly traded technology company Wayfair. Level runs programs throughout the year, rather than using the same term schedule as Northeastern. The team has its own culture: despite being a project of an established, venerated institution, Level continues to have the fast-paced, hungry feel of a startup. This autonomy is preserved through a conscious effort to limit any negative effects of Level's growth on Northeastern: Level's motto is "move fast and leave a small wake," in contrast to the typical startup slogan of "move fast and break things." Under Ducoff's leadership, Level is careful not to break anything, cognizant that Level operates under Northeastern's brand and accreditation.

"It's time to stop thinking of higher education as an experience people take part in once during their young lives ... and begin thinking of it as a platform for life-long learning."
- Northeastern President Joseph Aoun

UNIVERSITY OF WISCONSIN'S UW FLEX

Leaders at the University of Wisconsin System (UW System), which serves over half of the state's 350,000 college students, realized that the current trajectory of the state's flagship institution would never be enough to create the trained workforce that Wisconsin needs.

Wisconsin has historically been heavy in manufacturing employment, but as manufacturing has declined, the jobs the state is creating today require far more education. In February 2000, 598,800 Wisconsinites were employed by the manufacturing sector, which accounted for over a fifth of the state's jobs.³⁴ Manufacturing jobs declined precipitously from that point on and bottomed out in 2010 in the aftermath of the Great Recession. Wisconsin's unemployment rate tripled in those 10 years. As the economy recovered, unemployment has ticked back down, but those manufacturing jobs have not come back commensurately. Instead, new jobs are cropping up in sectors such as healthcare, science, technology, engineering, and math (STEM).³⁵

Wisconsin faced a challenge: how could it skill up quickly to meet demand for the new jobs that are being created in today's economy? In order to meet these demands of the 21st-century economy, a team at UW, led by UW-Extension Chancellor Ray Cross and UW System President Kevin Reilly, began to experiment with developing a competency-based program within the university. Competency-based programs have no time-based unit. Unlike most course-based models, in competency-based models learning is fixed, and time is variable. Students cannot move on until they have demonstrated proficiency and mastery of each competency, but are encouraged to try as many times as necessary to demonstrate their proficiency.³⁶

Perhaps most importantly for UW leaders, in addition to building online competency-based curricula that teaches academic disciplines and skills, competency-based education can also be designed to align to workforce needs by matching learning competencies to work-based skills and dispositions. Additionally, because of their flexibility, these programs can attract students who are older and already working, which could allow Wisconsin to help retrain workers displaced by the shift away from manufacturing.



Location	Wisconsin
Institutional type	Public research university
Founded	1848
Student enrollment	182,000

UW Flex



What	>	A competency-based program built in partnership with traditional UW System schools
Why	>	Address Wisconsin's specific workforce needs
How	>	Empowered a heavyweight team to utilize resources from across the UW System
Innovation type	>	Hybrid

Reilly and Cross found support to develop what became known as the UW Flexible Option, or UW Flex, from key stakeholders, including Wisconsin Governor Scott Walker. They hired Aaron Brower, professor and the vice provost for teaching and learning at UW Madison, as the provost of UW-Extension and special assistant to UW System President Reilly to lead UW Flex, along with David Schejbal, dean of continuing education, outreach, and e-learning at UW-Extension. Brower, Schejbal, and their team worked to develop a detailed business plan and identified key metrics like enrollment, graduation rates, and growth in the number of programs offered. Because they organized UW Flex around learning, rather than time, it required different resources and processes than traditional programs; through the planning process Brower and his team had to tackle challenges in curriculum design, staffing models, IT backend, and marketing expenditure and strategy.

The leaders conceived of UW Flex as a collaborative degree: UW-Extension could provide leadership and operational support to UW Flex programs, partnering with faculty from other UW institutions who could develop curriculum, teach in the program, and offer the degree from their institution. UW-Extension had 10 years of experience offering collaborative degrees through courses offered by a range of other UW schools. This gave UW-Extension a running start in building the processes necessary to support UW Flex, which could draw its programs from across the UW System. Given the buzz around the program, many veteran UW System employees were eager to join the effort.

UW Flex's initial programs included bachelor's degrees in nursing and information studies with UW-Milwaukee and an associate degree through the UW Colleges. Rather than designing programs course by course, teams of professors worked collaboratively to design the entire UW Flex degree competency by competency. This concentrated all of their attention on the outcomes of the whole degree, rather than only on the curriculum of any one course. Describing the discussions that ensued, Brower noted, "We no longer talked about an individual faculty member's course. Instead we talked about the sequence of things that students needed to learn as well as how to best get them there. Faculty felt like they owned the whole curriculum instead of only their course."³⁷

UW Flex also established a different revenue model: the program charges a set price for all students, based on a subscription period, during which students have "all-you-can-learn" access to the curriculum.³⁸ By charging for a period of time, rather than by the credit hour, a UW Flex degree could be substantially cheaper than the traditional program for those students who work through the online program quickly.³⁹ For others, the cost may end up being equivalent to a traditional program.⁴⁰





Innovation lessons

Online competency-based programs represent a promising and potentially disruptive model in higher education. These programs have built traction as online-learning technology has improved; they are now delivered to students wherever they are, thereby allowing students to pace their learning according to their own schedules and skillsets. But UW Flex is structured as a hybrid innovation, employing a new technology—online competency-based education—to sustain the current trajectory of the institution. It offers many of the benefits of the traditional model, including the quality and prestige of a traditional UW degree, but incorporates the benefits of competency-based education, like self-pacing and online access. UW Flex primarily relies on the faculty and collaboration with traditional UW schools and departments in order to develop and implement the program, thereby integrating it into the traditional UW business model. Faculty who teach at UW Flex are deployed in a more collaborative manner in order to develop UW Flex programs, but they are ultimately held to the same management and promotion structures as all UW faculty.

Because UW Flex was organized around learning, rather than time, the program required different resources and processes than traditional programs.

Thus far, this hybrid strategy is paying off. Today, UW Flex has over 1,000 students pursuing degrees in five programs, with more programs expected to go online over the next few years. UW Flex is meeting its goals on enrollment and retention, growth, new program development, burn rates, and profitability. It also expects to break even ahead of schedule. Now, Brower and his team have to wrestle with the potential—as well as the constraints—of the program. UW Flex was never intended to be the sole solution to increasing the number of college graduates in Wisconsin, yet it is a fair question to ask whether UW Flex will get big enough to impact meaningfully the state's workforce issues.

UW Flex's revenue and cost sharing arrangements, in addition to the novelty and excitement surrounding the UW Flex program, have motivated cooperation from across the UW System, but this could reach its limits. For example, UW System faculty members are governed by a tenure and promotion system designed for traditional teaching and research roles. UW Flex may find it challenging to continue to motivate faculty in the traditional UW schools—who have other teaching and research responsibilities—to help design and grow new UW Flex degree programs. Other models of program development are available to UW Flex; its newest degree program, the bachelor's in business administration, comes from UW-Extension using faculty hired from across the UW System.

Structuring UW Flex as a hybrid does have risks, but it also has advantages. UW Flex can attract resources from the traditional UW System, in part, because it is seen as a complement—not as a threat—to UW's offerings. Additionally, UW Flex can take full advantage of the UW's excellent national reputation. The system is learning critical lessons in how to structure, support, and market competency-based programs; and, particularly within UW-Extension, it is building processes and priorities that support competency-based, rather than seat-time-based, programs. This groundwork stands to create optionality for the UW System down the line: the system could ultimately build out UW Flex as a fully autonomous unit with its own disruptive business model.

SIMMONS COLLEGE'S PARTNERSHIP WITH 2U

Helen Drinan holds two graduate degrees from Simmons College and served as the chair of its board of trustees prior to becoming its president in 2008. Historically a women's college, Simmons has approximately 1,700 undergraduate students as well as co-ed graduate programs in nursing, social work, library science, and management. The beginning of Drinan's tenure was focused on finding a way to move the institution onto firmer financial footing by shoring up the quality and finances of the undergraduate college and building on the strengths of the graduate programs.⁴¹

As Drinan wrestled with how to build on Simmons's strengths, she viewed online programs as a potential source of growth. Working with a team of faculty and staff, Simmons built a small online degree program in healthcare administration. The experiment—which Drinan refers to as a “skunkworks”—was essentially a failure. There was deep cultural resistance to change and to online programs specifically. Faculty and staff were deeply anxious about maintaining quality while delivering online programs, and the processes and operations that worked well for Simmons's brick-and-mortar offerings didn't translate well to the online environment. Building online programs from scratch didn't seem to be the answer. But this failure successfully revealed Simmons's strengths and weaknesses at online program development, which helped Drinan chart a path forward.⁴²

Around the same time as the skunkworks project was winding down, a company called 2U reached out to Simmons to propose building an online nursing program. 2U is a publicly traded online program manager (OPM) that partners with graduate schools to develop online programs. The skunkworks project had led Drinan to believe that partnering would be more feasible than going at it alone. Simmons signed on, and within seven months the program was up and running. Drinan built a team to coordinate the effort, pulling in the dean of the nursing school, key nursing faculty, and a project manager from the president's office with a deep background in business and administration. The team relied on Simmons's faculty to design all of the courses, but they did so in the context of 2U's own design process, which is highly structured and transparent. Project managers could identify where course development was moving too slowly and could easily intervene to keep the project on schedule.



Location	Boston
Institutional type	Private women's undergraduate; co-ed graduate university
Founded	1899
Student enrollment	5,000

Online graduate programs

What	>	Online graduate programs built in partnership with 2U, an online program manager
Why	>	Scale successful graduate programs to a broader market
How	>	Partnered with an external provider to form a heavyweight team
Innovation type	>	Hybrid

They could also easily compare courses and identify overlaps and gaps in the curriculum, which a brick-and-mortar program might have missed.

Nursing programs are operationally complex: both the online program and the brick-and-mortar program have significant clinical placement requirements. These requirements limit the size of the brick-and-mortar program—beyond the constraints of Simmons’s physical classroom space, the number of clinical placements available in the Boston area also constrain enrollment. Conversely, the online program can leverage 2U’s staff to find clinical placements wherever students are, which has allowed the program to reach students in other metropolitan areas, in rural areas, and even other countries. This has allowed the online program to grow to over 800 students, a scale not contemplated by the brick-and-mortar program, which reaches only 150 to 200 students a year.

The success of the nursing program partnership has reverberated through Simmons. Fears of online delivery have receded: Drinan now hears faculty concerns that the brick-and-mortar program might not be achieving the quality standards of the online program. Staff and faculty are energized by the college’s ability to reach students from all corners of the country. The processes required to build the online program—including the course development process, the course scheduling process, and the support provided to admitted students—have laid a blueprint for improving Simmons’s brick-and-mortar programs. Most tellingly, Simmons has launched six additional partnerships with 2U to build online graduate programs, including a master’s in social work, a general MBA, a healthcare-focused MBA, a master’s in behavior analysis, a master’s in strategic communications, and a master’s in public health.



In the first year of the partnership, the online programs constituted less than five percent of Simmons's tuition revenues. By the very next year, online tuition revenue was up to \$24 million, representing nearly 20 percent of Simmons's tuition revenue.⁴³ In 2016, online tuition revenue nearly doubled to \$45 million, approaching 30 percent of tuition revenue.⁴⁴ Over two-thirds of those revenues will go to 2U in the early years of the partnership, as 2U recoups its investment in the programs. But over time, Simmons will begin to see a larger share. Drinan believes that the growth of the online programs has improved the reputation of the school overall and has spurred additional support from alums. Critically for Simmons's long-term strategy, the growth in the online graduate programs has enabled the school to reinvest in the quality and competitiveness of Simmons's undergraduate program.

Innovation lessons

Simmons's online graduate programs are clear examples of a hybrid innovation. Online learning has disruptive potential, partly because the business model can be scaled, thereby reducing per-student costs and creating the opportunity for lower-cost education. But Simmons's partnership with 2U does not operate this way. Instead, Simmons aims to keep the quality of the online graduate programs by incorporating in-person and experiential elements that limit scalability. Simmons's online programs layer over the curriculum, credit-hour structure, tuition price, and credentials of the "old" technology represented by the brick-and-mortar programs.

Simmons's partnership with 2U has allowed the institution to compete successfully with online graduate programs, despite not having the internal capabilities to operate such a program by itself. This partnership could serve as a stepping stone to Simmons developing those capabilities in the future, but it remains to be seen to what degree Simmons can "insource" the capabilities of 2U. As online programs become the new normal, Simmons may find that it has a leg up on the competition—or it may find that in outsourcing the processes required to support online programs, the institution has left itself vulnerable.

Innovations often run counter to existing processes and priorities. This can lead to the institution rejecting the innovation and abandoning the effort altogether—as was the case with Simmons's online skunkworks project. But under Drinan's leadership, Simmons moved forward using a heavyweight team in partnership with an external provider. This team was responsible for helping Simmons develop new processes to support online education, while 2U took over the parts of the effort that required expertise that Simmons didn't have or that were out of line with Simmons's priorities. Simmons effectively harnessed the tools of innovation.

Similarly to UW Flex, hybrid innovation will create optionality for Simmons. While Simmons's online programs are currently priced equivalently to the brick-and-mortar programs, the institution could more easily adjust the architecture of its online programs to facilitate lower prices if the market demanded it. Brick-and-mortar university operations have high-fixed costs. High-quality online programs are expensive to run, but costs are more variable (they increase as enrollment increases). Minimills initially charged the same for rebar or angle iron as integrated mills did—but when the market changed and prices dropped, minimills could still produce steel profitably, whereas integrated mills couldn't compete. Similarly, Simmons's entry into the online market could give it tools to adapt to a lower price environment.

Staff and faculty are energized by the college's ability to reach students from all corners of the country.

SOUTHERN NEW HAMPSHIRE UNIVERSITY'S COLLEGE FOR AMERICA

The president of Southern New Hampshire University (SNHU), Paul LeBlanc, has overseen stunning growth since beginning his tenure in 2003. Enrollment has skyrocketed from 2,500 students to over 63,000 today—with most of these students learning online.⁴⁵ SNHU's journey toward becoming one of the most significant players in online education initially began as a strategy to fight declining enrollment.

When President LeBlanc began his tenure, the school had a mishmash of programs, but no differentiated strategy beyond catering to the “average student.”⁴⁶ LeBlanc first drove growth in SNHU's online program, which stabilized the school's finances and carved out a successful niche for the school. In 2012, LeBlanc began focusing on designing a program around a group of students with distinct needs: working adults. The result was that SNHU became the first college in the country to have an accredited online competency-based program untethered to the credit hour and eligible for Title IV funding through a program called College for America (CfA).

The basic building blocks of what became CfA started in SNHU's online program. LeBlanc's team used the online program's experience with working adults to understand what progress these adults were trying to make in their lives and to design a business model around an education that worked for those learners—and for the companies that employed them. This meant creating a business model that differed radically from SNHU's brick-and-mortar campus serving young adults. CfA initially pursued a B2B model, which built partnerships with employers—including such companies as Gap Inc., Anthem, McDonald's, Dell, and Goodwill Industries. Employees are eligible to enroll in CfA and pay \$3,000 per year for all-you-can-learn access to project-based associate or bachelor's degrees in fields ranging from communications to healthcare management. Employer-partners partially support the program.

CfA began offering associate degrees in 2013 and then built bachelor's degrees in business, communications, and healthcare. The program targets non-degreed, working students who need additional skills to advance in the workforce.⁴⁷



Location	Manchester, N.H.
Institutional type	Private
Founded	1932
Student enrollment	63,000

College for America

What	>	A competency-based program targeting working adults through employer partnerships
Why	>	Meet the distinct needs of working adults
How	>	Designed the program in SNHU's Innovation Lab; employed an autonomous unit to build program
Innovation type	>	Disruptive

Relative to traditional programs, CfA relies on a very different deployment of resources. In the traditional learning model, faculty members are the front-line contact with students. At CfA, however, coaches are the main point of contact for students: they help students analyze and accomplish their goals and intervene by email or phone in order to motivate students. CfA also employs subject-matter experts to develop course material, instructional designers who structure the student-facing elements of the course, and reviewers who assess the final projects for each competency.

CfA has also restructured the processes embedded in the learning model. For instance, rather than dividing learning up into term-based courses, the general studies associate degree is made up of 20 goals and subdivided into 120 competencies. Students can show mastery by the completion of real-world projects. Students move through their competencies through a learning platform, called Motivis, which the university built in-house on top of Salesforce, a customer relationship management (CRM) solution. Motivis enables CfA to keep track of and report out all interactions with the student on a dashboard and measure engagement with the student.

Like Level and Global Freshman Academy, institutional leaders have structured CfA as an autonomous unit. This autonomy has allowed the program to step away from prestige as a priority and instead focus on creating an experience that meets the needs of working adults. CfA has educated thousands of students who otherwise might not have gone to college—which is an achievement on any terms. Along the way, it has also reinvented the financial and strategic position of SNHU, which went from being a typical small liberal arts school with a \$100 million budget in 2008 to being one of the biggest providers of online education and a powerhouse of innovation, with over \$500 million in income in 2015.⁴⁸ LeBlanc's efforts

CfA has educated thousands of students who otherwise might not have gone to college—which is an achievement on any terms.

to design a program aligned with the needs of a particular population of both students and employers, coupled with the strategic foresight to build a disruptive, autonomous business model around that program, have led to a complete organizational transformation.

Innovation lessons

CfA is an example of a disruptive innovation. It targets nonconsumers with a service that enables them to progress through college in a simpler, affordable, and more accessible way. The CfA college experience doesn't have all the bells and whistles of the traditional brick-and-mortar program—it is a far narrower offering, focused exclusively on the academic experience. But CfA's business model of partnering with employers to provide a dramatically lower-cost education has proven wildly successful. Although interest in competency-based education is growing, most institutions are deploying competency-based education as a hybrid innovation, rather than developing a fully autonomous unit to grow these programs to scale.⁴⁹

This model still carries some risk. Competency-based programs have demonstrated success, but are still building awareness among employers. CfA is at the vanguard of efforts to drive recognition of competency-based degrees, given its relationships with employer-partners.⁵⁰ Still, evidence suggests that most employers have little recognition of competency-based education.⁵¹ Building awareness of competency-based programs among employers will be critical to the long-term success of CfA's model.

LeBlanc's approach to building CfA provides a helpful lesson to fellow innovators. Disruptive innovations thrive when innovators hone in on the performance dimensions that matter to these overserved consumers—who often become nonconsumers and forego participation in the market entirely. SNHU's previous efforts to be all things to all people resulted in mediocre outcomes—but a strategic focus on the needs of a particular type of student in a particular circumstance led to success. Battles of sustaining innovation allow organizations to compete by providing products that meet the performance demands of very high-end customers, but these products often overserve many customers. SNHU used insights from its online students to develop an experience that precisely met the needs of working adults and the companies that employ them. Strategic focus has enabled tremendous growth at SNHU, as well as huge achievements in student outcomes.

CONCLUSION: SOLVING TODAY'S PROBLEMS, PREPARING FOR TOMORROW'S CHALLENGES

The institutions profiled in this paper are diverse—some are small and some are large; some are public and some are private; some were in financial straits, whereas others were hoping to broaden their missions. The range of problems they are tackling is equally broad. But each is masterfully bringing the tools of innovation to bear against a particular challenge. Taken together, these examples not only elucidate insights about how to innovate—that is, how to classify innovations, how to identify what types of innovations will be easily accepted by the organization, and how to execute on organizational strategies—but also *why* to innovate.

The power of sustaining innovations should not be understated: sustaining innovations are a powerful tool for tackling inefficiencies and improving outcomes for students already participating in the higher education system. Hybrid innovations may enable organizations to build the capabilities required for disruptive strategies further down the line, while leaving the traditional business model intact. Disruptive innovations are harder to execute, but can help leaders radically expand the prospects of those currently shut out of the current higher education system, as well as put institutions in a position to thrive in a future in which the basis of competition changes.

For many challenges, the reality is that sustaining, hybrid, and disruptive innovations can all be part of a systemic solution.

For many challenges, the reality is that sustaining, hybrid, and disruptive innovations can all be part of a systemic solution. For leaders aiming to tackle affordability head-on, both sustaining and disruptive innovations can help. In the short term, sustaining innovations can help in either curbing costs or by subsidizing access. In the longer term, disruptive innovations with wholly new business models, like ASU's GFA or SNHU's CfA, can dismantle higher education's traditionally high-cost structure.

Aligning higher education to workforce needs can likewise result from sustaining or disruptive approaches. Hybrid programs like UW Flex stand to match local employer demand while maintaining existing cost structures and brand of the flagship institutions. Others like CfA and Level have taken a disruptive tack to not only align to employer needs but also to do so at an affordable price tag and with geographic flexibility.

Finally, for leaders looking to build an innovation agenda to protect against future shifts in the plane of competition, both hybrid and disruptive innovation strategies may help buffer risk. Simmons's hybrid approach of incorporating a disrupting technology onto an existing business model builds an insurance policy against shifts in competition that online learning will eventually enable. Hybrid innovation may allow institutions to build the internal capacities to run disruptive models down the line. Disruptive strategies like CfA can radically reshape the business model of institutions by positioning them for competition across wholly new dimensions.

Regardless of the innovation strategies that leaders choose or the problems they elect to innovate against, each of these case studies also demonstrates the long-term value of taking bold and deliberate steps toward innovation—even if some of some of those steps falter. For example, Simmons’s successful partnership with 2U built on its own skunkworks effort to build online courses, thereby revealing both its organizational capacities and constraints. Innovative efforts can build processes and capabilities that, in turn, facilitate more innovation. SNHU first built an online program structured as a hybrid innovation. But this experience provided the institution with the essential insights on adult learners that inspired CfA. Northeastern’s record of innovation precedes its development of Level; in fact, Level built upon a long tradition of partnerships with employers and experientially oriented programing. UW’s commitment to lifelong learning and online learning, embodied in UW-Extension, gave the system the infrastructure it ultimately needed to build UW Flex.

Innovation, in other words, is continuous. It is a muscle that all institutions should train and maintain. It is also best realized through a healthy balance of sustaining and disruptive strategies and team structures that allow each form of innovation to thrive. Institutional leaders should consider that innovation can help solve problems facing higher education today, but also that building the capacity for innovation has long-term benefits to help the institution compete down the line.

The history of American higher education has long been dominated by a battle of sustaining innovation. But the emergence of a technological enabler—online education—portends disruption in higher education. This is both a threat and an opportunity for institutional leaders. The entrenched resources, processes, and priorities of traditional institutions make it difficult for these institutions to respond to disruptive innovation. But, as many of the case studies in this paper demonstrate, leaders can successfully harness the tools of innovation, which allow them to not only innovate against today’s challenges, but also to embed the capacities to remain relevant and competitive in the future.

Each of these case studies demonstrates the long-term value of taking bold and deliberate steps toward innovation—even if some of some of those steps falter.



NOTES

1 Georgetown's Center for Education and the Workforce estimates that 65 percent of all jobs in the economy will require postsecondary education and training beyond high school. Over a third of all jobs will require a bachelor's degree. See Anthony P. Carnevale, Nicole Smith, and Jeff Strohl, "Recovery: Job Growth and Education Requirements Through 2020," Georgetown Public Policy Institute, November 2014, p. 5, https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.ES_Web_.pdf.

2 Tuition has far outpaced income; men have more heavily borne the change in affordability, although tuition continues to represent an outsized share of women's income. According to ProCon.org: "In 1971 the tuition for a public 4-year college was \$428 (\$2,456 adjusted for inflation) per year. By 2012 tuition had risen to \$8,646 (\$8,816 adjusted for inflation) per year, a 1,920% (259% for inflation-adjusted numbers) increase. Meanwhile, the median income in 1971 for men was \$6,903 (\$34,898 adjusted for inflation) and for women was \$2,408 (\$12,174 adjusted for inflation), making tuition 6.2% of men's median income and 17.8% of women's median income per year. In 2012, the median income for men was \$33,904 and \$21,520 for women, making tuition 26% of men's median income and 41% of women's median income per year." See "Median Incomes v. Average College Tuition Rates, 1971-2012," ProCon.org, <http://college-education.procon.org/view.resource.php?resourceID=005532> (accessed January 25, 2017).

3 Based on College Board data, inflation-adjusted net tuition at four-year private, nonprofit schools peaked in the 2007-08 academic year and has yet to recover, despite a 24 percent increase in top-line tuition over the same period. Net tuition at state schools rose considerably over the same period, a reflection of reduced state support for higher education. See "Average Net Price over Time for Full-Time Students, by Sector," College Board, <https://trends.collegeboard.org/college-pricing/figures-tables/average-net-price-over-time-full-time-students-sector> (accessed January 25, 2017).

4 The State Higher Education Executive Officers' (SHEEO) recent report shows a long-term decline in state appropriations. In 1990, state budgets provided \$8,688 per student FTE; by 2015, that number was down to \$6,966. The cost of education has risen in the interim; as a result, the burden is falling more

heavily on students. Net tuition accounted for only 25 percent of revenues for state institutions in 1990; by 2015, it comprised 46.5 percent of revenues. See "State Higher Education Finance: FY 2015," SHEEO, 2016, http://sheeo.org/sites/default/files/project-files/SHEEO_FY15_Report_051816.pdf.

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6 Mark W. Johnson, Clayton M. Christensen, and Henning Kagermann, "Reinventing Your Business Model," *Harvard Business Review*, vol. 86, no. 12, December 2008, pp. 50-59.

7 A recent book by Clayton Christensen, *Competing Against Luck*, highlights the strategic benefits of focusing products and services on solving particular problems that customers face in specific circumstances—the job they are trying to get done in their lives. This job drives organizations to evaluate what is motivating their customers, not just what purchasing decisions their customers are making. In higher education, this focus is particularly relevant, given the breadth of activities and programs at most institutions. *Competing Against Luck* provides an introduction to the jobs-to-be-done theory, applied to a variety of industries. See Clayton M. Christensen and Karen Dillon, *Competing Against Luck: The Story of Innovation and Customer Choice* (New York: Harper Business, 2016). A forthcoming work by Michael B. Horn and Bob Moesta will explore the jobs-to-be-done framework as it relates specifically to higher education, based on interviews with hundreds of college students across the country.

8 J. Douglas Toma, "Institutional Strategy: Positioning for Prestige," in *The Organization of Higher Education: Managing Colleges for a New Era*, ed. Michael N. Bastedo (Baltimore: Johns Hopkins University Press, 2012), pp. 118-159.

9 Prestige is also an important signal of quality in the higher education marketplace. As Clayton Christensen and Henry Eyring wrote: "In the absence of comparable measures of what universities produce for their students, the well-respected institutions have a natural advantage; because they have been admired in the past, they are presumed to be the best choice for the future." See Clayton M. Christensen and Henry J. Eyring, *The Innovative University: Changing the DNA of Higher Education from the Inside Out* (San Francisco: Jossey-Bass, 2011), p. 17.

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12 Donald F. Barnett and Robert W. Crandall, *Up from the Ashes: The Rise of the Steel Minimill in the United States* (Washington, D.C.: Brookings Institution Press, 1986), p. 48.

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14 Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (New York: Harper Business, 2011), p. 127.

15 Seth Porges, “Airbnb’s Cofounder Opens Up About The Companies New ‘Experiences’ Features,” *Forbes*, November 22, 2016, <http://www.forbes.com/sites/sethporges/2016/11/22/airbnbs-cofounder-opens-up-about-the-companys-new-experiences-features/#249729b363be> (accessed January 25, 2017).

16 David J. Deming, Noam Yuchtman, Amira Abulafi, Claudia Goldin, and Lawrence F. Katz, “The Value of Postsecondary Credentials in the Labor Market: An Experimental Study,” *American Economic Review*, vol. 106, no. 3, March 2016, pp. 778–806.

17 President Michael Crow’s inaugural white paper called for the development of a new model of research university that maintained the traditional focus on knowledge creation, but rejected exclusivity and high selectivity as a definition of excellence. He wrote: “The new American university would cultivate excellence in teaching, research, and public service, providing the best possible education to the broadest possible spectrum of society. The new American university would embrace the educational needs of the entire population—not only a select group, and not only the verbally or mathematically gifted. The success of the new American university will be measured not by who the university excludes, but rather by who the university includes, and from this inclusion will come its contributions to the advancement of society.” See Michael M. Crow, “A New American University: The New Gold Standard,” Arizona State University, November 2002, p. 3, https://president.asu.edu/sites/default/files/address_0.pdf.

18 “Most Innovative Schools: National Universities,” *U.S. News & World Report*, <http://colleges.usnews.rankingsandreviews.com/best-colleges/rankings/national-universities/innovative> (accessed January 25, 2017).

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32 Anna Louie Sussman and Melissa Korn, “Colleges Drill Down on Job-Listing Terms,” *Wall Street Journal*, April 3, 2016, <http://www.wsj.com/articles/colleges-drill-down-on-job-listing-terms-1459704268> (accessed January 25, 2017).

33 IBM’s experience also provides a warning to incumbents that are successful in developing disruptive units. IBM entered the personal computing market and competed successfully for the first five years, but then began to slip behind its competitors. Clayton Christensen wrote in *The Innovator’s Dilemma* that this, in part, was a result of IBM later on linking its personal computer division too closely to its mainframe division. This constrained the PC division, and it ultimately fell behind. See Christensen, p. 127.

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47 Weise and Christensen, pp. 42–43.

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About the Institute

The Clayton Christensen Institute for Disruptive Innovation is a nonprofit, nonpartisan think tank dedicated to improving the world through disruptive innovation. Founded on the theories of Harvard professor Clayton M. Christensen, the Institute offers a unique framework for understanding many of society's most pressing problems. Its mission is ambitious but clear: work to shape and elevate the conversation surrounding these issues through rigorous research and public outreach. Our higher education research aims to find innovative solutions for a more affordable, sustainable postsecondary system that better serves both students and employers.

About the author



Alana Dunagan leads the Christensen Institute's higher education research, where she analyzes disruptive forces changing the higher education landscape. Her research includes studying business model innovations, public policies, and investment strategies that can give rise to new and sustainable postsecondary models. She holds a BA in economics and political science from Macalester College and an MBA from Harvard Business School.



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