CHRISTENSEN INSTITUTE

CREATING SEAMLESS CREDIT TRANSFER:

A parallel higher ed system to support America through and beyond the recession

BY MICHAEL B. HORN & RICHARD PRICE

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EXECUTIVE SUMMARY

In an era of increasing data interoperability in almost every sector of life, the idea that today's students can't seamlessly transfer credits from one institution to another seems preposterous. Yet higher education's broken credit transfer system has plagued students and stumped policymakers for decades—to this day, first-time students who transfer lose 43% of their credits on average. This increases their time-to-degree, tuition costs, debt load, and opportunity costs.

As COVID-19 wreaks havoc on institutions and the students they serve, ushering in a recession that could have existential implications for all, helping learners earn the credentials they need from the providers best suited to serve them will be a critical issue in determining how well and robustly the nation recovers.

The federal government has already provided increased financial support to postsecondary students and institutions. More stimulus funds are likely on the way, offering a rare opportunity to not just shore up existing models, but also to provide a much-needed jolt to the calcified collegiate system, and to rethink how its players interact. Directing additional funds toward interoperability issues could go a long way in alleviating credit transfer challenges.

But history from just a decade ago in the field of healthcare shows that how this is done—not just that it is done—will matter. Many of the interoperability constraints faced by the healthcare system, which tried to help patients transfer their records from one provider to the next more easily and affordably, plague college and university business models—and higher education would be wise to learn what it can from healthcare's flubbed attempt.

In order to tackle higher education's credit transfer challenge, the Department of Education, along with state departments of higher education, should foster a parallel higher education system in which they support third-party credentialing entities that validate industry-valued skills. Regulators would use additional dollars that are focused on training students for in-demand jobs in this time of rampant unemployment, such as expanded Pell grants, to fund these efforts.

This move away from an institution-centered posture to one in which third-party bodies are the assessors of quality and gatekeepers of credentials would skirt the debates about whether learning at one institution is equivalent to that of another. Such a learner-centered approach, focused on the accumulation of knowledge and skills, would facilitate seamless transfer without credit loss, shift significant portions of higher education from seat-time to competency-based learning, and help learners transition expeditiously back into the workforce.

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INTRODUCTION

Attempts at creating an interoperable higher education system—one in which students can transfer seamlessly between colleges without accumulating wasteful credits and debt—have long frustrated policymakers.

Thirty-eight percent of first-time students transfer schools within their first six years, according to the National Center for Education Statistics. Many change institutions more than once. These students lose, on average, 43% of their credits—roughly one semester of full-time enrollment—which increases their time-to-degree, tuition costs, debt load, and opportunity costs.

Despite a range of efforts, including common course numbering systems, mandates, systemwide articulation agreements, and better and more open databases and application programming interfaces, it's hard to get any organization to do something—in this case accept all credits that students earn at other institutions—when it's against the interests of their business model because it is not how they make money and it creates more work for them. Not only that, but faculty members at colleges and universities also rightly believe that there are genuine learning differences between schools. What a student studies at one school may not be the same as or even equivalent to what they would have done at another, which causes colleges and universities to be wary of granting credit toward a major or degree from courses taken and passed at other institutions. Students who transfer suffer accordingly in the form of classes that don't count and the associated costs.

As COVID-19 wreaks havoc across higher education and a recession looms that could have existential implications for some colleges and universities, the federal government has already provided increased financial support to postsecondary students and institutions. More stimulus funds are likely on the way in the months ahead.

Additional funds offer a rare opportunity to provide a much needed jolt to the calcified collegiate system and tackle the challenges that credit transfer poses. But history from just a decade ago in the field of healthcare during a time of recession and economic stimulus shows that *how* this is done—not just *that* it is done—will matter. Billions of dollars and the success of students are at stake.

To make a dent in the challenge credit transfer poses, the Department of Education, along with state departments of higher education, should use additional dollars focused on training students for in-demand jobs in this time of rampant unemployment—such as expanded Pell grants—to foster a parallel system in which they support third-party credentialing entities that validate industry-valued skills. Institutions would no longer be the sole gatekeepers of credentials in this world.

This move away from an institution-centered posture to a more learner-centered one focused on the accumulation of knowledge and skills would facilitate seamless transfer without credit loss, as the federal government and other entities could begin paying for outcomes. In essence, they could pay institutions as students demonstrate mastery on valid and reliable assessments that third-party bodies oversee and thereby skirt the debates about whether learning at one institution is equivalent to that at another. This would in turn shift parts of higher education to a true competency-based learning system in which payment is untethered from inputs like time and the credit hour, unlike today's versions of competency-based learning in higher education.

THE STORY OF ELECTRONIC HEALTH RECORDS

In 2009 in the throes of the Great Recession, Washington, DC was gripped by the potential of electronic health records (EHRs) to address problems in the quality of healthcare and the cost of administration, as well as empower patients and make healthcare work better. To usher in this supposed golden era in which patients would have control of their portable medical records that they could share instantly with doctors anywhere in the country to coordinate and strengthen their care, policymakers passed the HITECH Act in February 2009, which took a significant chunk of the stimulus funding for the cause.

In some ways, one could argue that the legislation was successful. As Ben Thompson wrote, "EHR penetration in physician offices went from just over 40% in 2008 to 86% in 2017, and in hospitals from around 10% to 96%."

But despite this growth, EHRs haven't led to a better, more affordable system that allows patients to coordinate seamlessly their care across a range of providers of their choice without accumulating hassle and additional costs. A lengthy piece in Fortune reveals how 10 years and $36 billion later, the system is an "unholy mess."

Rather than a golden era of interoperability, EHRs have remained largely stuck behind the walled gardens of individual health-care systems, unable to communicate across providers not in the same network—and used as a way to strengthen those individual providers' positions, even as many of the doctors that use them despise them, as they find them unwieldy and unworkable.

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As the Fortune article details:

> What the framers of that vision didn't count on were the business incentives working against it. A free exchange of information means that patients can be treated anywhere. And though they may not admit it, many health providers are loath to lose their patients to a competing doctor's office or hospital. There's a term for that lost revenue: "leakage." And keeping a tight hold on patients' medical records is one way to prevent it.
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> There's a ton of proprietary value in that data, says [President Obama's national coordinator for health information technology David] Blumenthal, who now heads the Commonwealth Fund, a philanthropy that does health research. Asking hospitals to give it up is "like asking Amazon to share their data with Walmart," he says.
>
> Blumenthal acknowledges that he failed to grasp these perverse business dynamics and foresee what a challenge getting the systems to talk to one another would be. He adds that forcing interoperability goals early on, when 90% of the nation's providers still didn't have systems or data to exchange, seemed unrealistic. "We had an expression: They had to operate before they could interoperate," he says.

In essence, providers leverage EHRs as a mechanism to coordinate care within their system but not outside of it. They serve as an innovation that helps individual providers create lock-in, so that it's harder for patients to leave.

Transforming the healthcare system through robust personal health records would require recognizing the interdependence of different business models, as well as the incentives and motivations of stakeholders.

What was so painful about this is that it was all predictable ahead of time.

In January 2009, just one month before the HITECH Act passed, Clayton Christensen, Jerome Grossman and Jason Hwang's book *The Innovator's Prescription* was published. It showed why treating EHRs as a problem of technology and funding was bound to fall short, as it would foster adoption but not systemic transformation. Transforming the system through robust personal health records (PHRs) would require recognizing the interdependence of different business models in the system,[1] as well as the incentives and motivations of the system's stakeholders.

As they wrote:

> Large provider organizations such as Partners, Mayo, Intermountain, the Veterans Administration, MinuteClinic, and Kaiser Permanente have had more success in implementing electronic health records. The frustration that advocates of *personal* electronic health records have expressed about the way these institutions have implemented the technology, however, is that the records are not *personal*—in that they are not portable, interoperable, standard-format records patients can take with them and use wherever they go. These entities have implemented electronic health record systems that are *proprietary*. The records can be accessed instantly from any point within their systems, but generally not from points outside the system.

The authors then pointed out why this was the case, which sheds light on potential paths forward that would be more productive in higher education as we stare down a pandemic-triggered recession and set of stimulus packages. In their words:

> The reason why the integrated health systems have all implemented proprietary electronic medical record systems is that their processes of care, compensation, costing, procurement and management are interdependent—in unique and proprietary ways. Rather than force their processes to conform to a standard-format electronic medical record system, it is much more natural and cost effective for them to develop a system that conforms itself to their own organization's established processes, not the other way around.
>
> In addition, just as doctors are individual actors within a larger system, so are these hospital systems—they're subsystems within a larger system. It is simply not in their interest to force-fit their operating processes into a standard format so providers in other systems can easily care for *their* patients. In other words, we cannot expect entities whose scope is that of individuals within a subsystem, or subsystems within a system, voluntarily to invest to solve higher-level systemic problems. We have gotten exactly what we could expect.

WHY CREDIT TRANSFER INTEROPERABILITY IS HARD IN HIGHER ED

This sounds awfully familiar to the challenge with credit transfer that has played out in higher education. Just substitute various college and university names for Mayo, Intermountain, and Kaiser, and you start to see the problem. As the health system continues to experience, the pathway forward is unlikely to be government coercion that flies in the face of colleges' business model incentives.[2] That's because colleges and universities, which have proprietary architectures, are not motivated—or designed—to conform to each other.

To help see why, consider that traditional colleges and universities are locked into a system that pays them by the credit hour. When they accept students who transfer from other institutions, by not accepting certain credits that students have paid to other schools—or not allowing them to count toward a major—they increase the number of credits for which students will have to pay *them* in order to graduate. Accepting credits could mean a loss of revenue.

On top of that, institutions, wired to believe that their version of education is superior or at least materially different from that received at other institutions, worry about "lowering their standards" and awarding credit. Much of the complication comes from the fact that schools stitch their majors and requirements together in proprietary—and ultimately idiosyncratic—ways.[3] Despite evidence that suggests there are a set of roughly 30 foundational courses taught across institutions that have content in common to all, faculty in traditional institutions tend to view their courses as unique, made up of the course materials they select, with distinct syllabi, different arguments and philosophies advanced, and the like. Econ 101 at one institution may in fact—not just theory—be quite different from the same numbered course taught at another institution. In an education world that measures inputs like hours spent learning rather than outcomes, it's hard to prove the case one way or the other.

Although states like Florida that have created common course numbering systems have reduced administrative hassle and created clarity for students as they plan their course of study, these systems do not guarantee that institutions will count the same courses toward fulfilling general education or major requirements. Knowing that courses will count relies on articulation and transfer agreements between institutions. These agreements are often onerous to create. Those seeking to strike such agreements must overcome faculty suspicions about the quality and overlap of learning at other institutions. They must also often show that it's in their economic interests because, for example, their cost of recruiting students will go down by having an agreement in place.

Despite evidence that suggests foundational courses taught across institutions have content in common to all, faculty in traditional institutions tend to view their courses as unique.

All of that means that, with certain exceptions, these agreements are hammered out on an institution by institution basis. Creating systemwide interoperability is grueling.

CREATING CREDIT INTEROPERABILITY

So what's the right pathway forward? In *The Innovator's Prescription*, the authors relate the importance of allowing information to travel and stack in a bottom-up fashion as opposed to a top-down one. When Toyota, for example, worked to empower their employees to build better cars and streamline their system, rather than create a hierarchical, centralized system that collected and dispensed information, it decided that all information about a product—what to do with it and when—ought to travel with a product as it worked its way both through and between its plants. That meant that the information had to be visible to all who needed to see it, "in a standard, immediately recognizable format."

Attaching this type of information to students through a mechanism like blockchain technology, which records information in decentralized digital ledgers that enable swift, transparent transactions, in order to understand what they know and can do in a way that can port across institutions would require a level of modularity that doesn't exist today. To move the system to this footing, at least two things would need to occur:

1. Third-party organizations must take on the role of certifying learning.
2. These third-party credentialing organizations would need to be able to offer standards that are specifiable, verifiable, and predictable in how they interact with the different entities they touch.

Third-party organizations that certify learning

First, a set of institutions, employers, and regulators would have to agree to shift the responsibility of certifying learning to third-party organizations. These organizations would, in essence, offer USB-type standards—industry standards that establish specifications for learning.

The most likely way forward is for industry-valued credentials to emerge that third-party credentialing and licensing organizations assess and validate when students demonstrate mastery and for which the Department of Education will pay. For this to occur, institutions, businesses, organizations, and the military would need to adopt skills-based standards with aligned mastery-based assessments as part of their hiring and promotion and then strongly back those standards.

An example of what this might look like can be seen in the financial analyst sector. To become a chartered financial analyst (CFA), a meaningful credential in the financial services industry, students must pass a series of three CFA exams. The CFA Institute, a nonprofit association of investment professionals that measures and certifies the competence and integrity of financial analysts, administers these exams. Today the Department of Education doesn't pay the fees associated with taking this exam, and the programs that offer support for passing it—offered by entities like Wiley, Kaplan Schweser, and the Princeton Review—don't receive federal financial

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aid. But the government could begin funding entities that, rather than certifying seat time, offer proof of mastery of a basket of industry-valued competencies and skills.

As the government moves in this direction, it's important that it not seek to replace the traditional time-based system by which most institutions are financed and governed, but instead target new funds in future rounds of stimulus funding that expand the use of federal financial aid for in-demand jobs in the economy. What's key is to create a parallel system, not threaten the current one. The current system serves many institutions and learners well in certain use cases. There's no need to change that or provoke a fight with it, particularly when there are many more resources invested in the status quo than in this new proposed value network.

Still, many many institutions may incorrectly view this as a move to force them to give up their role as validators of learning by dint of the degrees they confer. Given they would resist such a move, it will be critical that employers, the military, and innovative institutions and associations aggressively back this effort and frame it not as a replacement but as a supplement. Employers in particular are a huge consumer of what higher education offers. If they demand a certain offering, they can have enormous sway.

Specifiability, verifiability, and predictability

Second, for this shift to occur, three conditions would need to be met for schools to operate in a modular world:

1. The third-party credentialers like the CFA Institute must be able to **specify** exactly what students must know and be able to do.
2. Credentialers must be able to measure those skills and competencies so that they can **verify** that the specifications have been met.
3. The interdependencies between the education providers and the credentialers must be **predictable**—that is, what must be taught, how it will be measured, what constitutes mastery, how dollars will flow from the government to providers and the certification organizations, and how credentials will be broken up into stackable sets of competencies with assessments and the interdepencies between those subsets of skills—must be well understood ahead of time.

These three conditions—specifiability, verifiability, and predictability—are necessary to allow students to earn credits from a variety of institutions that will stack seamlessly into an industry-valued, mastery-based credential that would bypass the traditional credit transfer process.

Having all stakeholders on the same page about what learners must master, how they must demonstrate that mastery, and how to navigate the system's moving parts creates fertile ground for education providers to innovate with different learning methods and business models in pursuit of strong outcomes. This would also help learners move seamlessly between providers as needed based on their preferences and constraints. The more granularly defined the standards, the greater potential for education providers to specialize and for learners to piece together their optimal experience.

Returning to the CFA example, the CFA Institute offers three exams that individuals must pass to become a chartered financial analyst. There is reasonable clarity—or specifiability—about which topics and skills are necessary to study for each exam, such that any provider can create a course of study that prepares learners to pass the different exams. The Institute could increase predictability by breaking up the different topics on each exam into a greater number of predictable, stackable credentials and demand mastery on each topic as opposed to demonstrating proficiency across the basket of topics.

But all things considered, the value chain around becoming a chartered financial analyst is quite modular, as a prospective CFA charter holder who has passed the Level I exam—which the CFA Institute is responsible for verifying—could switch from one provider to another without worrying that, say, Wiley might reject the "credit" the learner obtained after studying with Princeton Review.

By shifting who verifies the learning from the provider to an independent assessor, issues of credit transfer vanish. Just as in the Toyota example, in essence the assessments attach information to the learner about what they already know and can do, which would in turn give education providers the requisite information to know what the learners need to work on next. They would not be in the business of debating whether the inputs at another institution—the time spent learning, the instructional methods, the curriculum and so forth—had resulted in sufficient mastery for a student to learn a new set of concepts. This attaching of information to students could be accomplished by leveraging blockchain technology, which the Department of Education is already exploring, so that each student had their own, secure, portable record of the certifications they had earned that they could bring with them to each institution.

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A CALL TO ACTION

To take the example of the CFA and operationalize it into a new paradigm for government funding of higher education that shifts from a seat-time based system to a learner-centered, skills- and competencies-based one will require significant changes to financial aid systems. It need not replace the current credit hour financing system, but instead offer a parallel path to Title IV federal aid funds.

The government will need to recognize third-party credentialing and licensing organizations as the de facto accreditor for providers operating programs aimed at those credentials.

To accomplish this, the government will need to recognize third-party credentialing and licensing organizations as the de facto accreditor for providers operating programs aimed at those credentials. It will need to create a mechanism to determine which bodies and credentials to recognize based on such criteria as whether the credentials are valued by industry, whether they employ mastery assessment practices that could take a variety of forms, from simulations to project portfolios and traditional tests, and whether those assessments are valid and reliable with ways to guard against cheating.

Once recognized, these credentialing bodies could receive fees for each skill assessment they offer. As for providers, they would no longer have to be paid based just on time spent learning. They could instead be paid, at least in part, as students demonstrate mastery as verified by the third-party credentialing bodies.

In K12 education, New Hampshire's Virtual Learning Academy Charter School (VLACS) provides a compelling example of how this could work. In essence, VLACS is paid as students demonstrate mastery of competencies. When a student demonstrates mastery of 10% of a course, it receives 10% of its allocated funding, which is held in escrow. When a student masters the next 10%, the school receives the next 10% of funds.

The table below summarizes the basic formula through which VLACS receives state dollars for a "half-credit course" and illustrates how it makes the time each student spends learning variable. The state funds VLACS on the basis of the percentage of material each student mastered. Note that each student mastered the competencies in each course at a different rate. The last student portrayed in the table decided to withdraw from the course after completing 30 percent of the competencies, which meant that VLACS would receive 30 percent of the funding for the half-credit course.

Table 1. VLACS funding calculation for a half-credit course

Student	% Competency completed	Days	State funding (Comp. % x 454)
John	100%	90	$454
Sally	100%	120	$454
Nick	100%	75	$454
Jane	30%	90	$136

In the case of higher education, providers could still set their own prices, and students could use federal financial aid dollars—a mix of Pell grants and loans—to choose where they enrolled. But full payment would be withheld until a student demonstrated mastery on the external assessment.

To usher in a new era of constructive innovation in higher education, students would ideally not only need a transparent view into what skills they must master to earn a certificate, but they would also be able to take the dollars to a wide array of providers that they determine could help them. Programs could produce audited quality assurance reports based on standards around learning outcomes as denoted by passing rates; percent completing and time to completion; placement and return on investment; and retrospective student satisfaction, among other data to help students make sound decisions about where to enroll.

Students not only need a transparent view into what skills they must master to earn a certificate, but must also be able to take the dollars to a wide array of providers.

To facilitate having a diverse array of innovative providers from which students could choose, the third-party certification organizations must not act akin to traditional licensing bodies. That is, they must not prescribe the inputs that learners must possess to gain a credential, but must focus only on mastery. Today in legal education, for example, most state bar licensing authorities require applicants for the bar examination to have a JD degree bestowed by an ABA-accredited law school upon completion of three years of legal education. Healthcare credentialing bodies specify similar requirements. These sorts of requirements should be abandoned. When we have clarity about outcomes and how we know with certainty that students have achieved mastery on valid and reliable assessments that are not reductive, then we create opportunities for endless innovation in delivery because delivery doesn't have to be debated, only proved.

CONCLUSION

We are living through an uncertain and deeply unsettling time. The federal government should not simply support traditional higher education institutions and preserve the status quo during this crisis. It should go beyond by working to establish a more learner-centered future.

Creating interoperability in higher education, such that students can move seamlessly through a variety of higher education experiences without accumulating wasteful credits and spending precious time and money is within our reach. But it requires learning the right lessons from the last time the federal government attempted to leverage a massive stimulus to transform a key sector of society in healthcare.

The opportunity before us is to use this horrific health crisis to support learners in accumulating the knowledge and skills required to make progress in their lives. The gateway to this future is through the creation of a parallel system of higher education that transcends the traditional credit-hour measure. A system that pays for third-party credentialing or licensing organizations to validate students' industry-valued skills could allow the seamless transfer of verified, mastery-based "credits" between institutions, payment for outcomes, and the shift from measuring time to competencies.

NOTES

1. Whenever there is a stage in an industry's value chain whose architecture must be interdependent--meaning its subcomponent parts are dependent on each other—in order to be made good enough, it cannot conform to anything else. That is, the products, services, and processes next to it on the value chain must be conformable and modular.

For example, in personal computers in the 1990s and 2000s, Intel's microprocessor had a proprietary, interdependent architecture because it was what determined how well the computer would perform. The computer, therefore, in which it was used had to have a modular architecture—that is, the engineers had to design the computer to conform to the architecture that the processor required. When Blackberry emerged, in contrast, engineers were working to optimize the performance of the device so that it would be good enough for the market. That meant it had to have a proprietary and interdependent design. As a result, that meant the processor inside was modular--it had to conform to Blackberry's needs, not the other way around.

When people try to force two proprietary, interdependent products against each other in a value chain, the result is vast expense and pain because neither side wants to accommodate the other.

2. As Rick Hess has written repeatedly, although it's easy for federal rules to tell people to do something, the rules cannot compel people to do it well.

3. For a clear example of how majors are constructed and negotiated at universities, we recommend reading Chapter 18 of The Innovative University, specifically the section titled "The Creeping Major."

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.

About the authors

Michael B. Horn is the co-founder of the Clayton Christensen Institute for Disruptive Innovation where he is a Distinguished Fellow. He also serves as chief strategy officer at Entangled Ventures and a principal consultant for Entangled Solutions, which offers innovation services to higher ed institutions. He has authored multiple books and articles on education, and serves as board member and advisor to many education enterprises.

Richard Price is a research fellow at the Christensen Institute where he focuses primarily on researching how new and innovative models can reshape higher education. Richard's work delves into some of the most pressing topics in higher education today, including policy initiatives, alternative financing mechanisms, and innovative business models.


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