Background Paper
The Learning Generation

Leapfrogging College
Moving Beyond the Incumbent Model
to Achieve Success, Affordability, and
Quality in Postsecondary Education

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Learn Capital
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Moving beyond the incumbent model to achieve access, affordability, and quality in postsecondary education.

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Introduction

Hundreds of millions of new learners are coming online to demand postsecondary educational opportunities, many in emerging economies without a large higher education infrastructure. For all its historic strengths and accomplishments, the incumbent, global postsecondary system is sadly unable to meet this budding need. Emerging economies have the ability to learn important lessons from established institutions, but they also have the opportunity to leapfrog the incumbent system to create better options through technology innovation.

Every nation and city wants marquee universities, and every post-secondary organization aims to increase its own prestige. These related goals have heavily influenced global thinking and higher education policy to date. In reality, productive research institutions that do all things for all people (and do them well) are rare, and they take decades and effusive budgets to build. Yet this institutional model is valorized and widely imitated. As a result, available investment capital for education has been misspent and the global community has been distracted from the real challenge that needs to be met: to provide opportunities for broad and diverse populations, and to make those opportunities affordable, accessible, and effective in the myriad situations, contexts, and populations for which they are needed.

Today’s post-secondary system has been stretched to its limits, and it is failing to provide the kind of learning opportunities that the world now needs and demands. While there is much to learn from the traditional model, today’s educational institutions are being held responsible for costly, diverse and conflicting goals. Just to name a few, they must create and contribute to new fields of knowledge and areas of commerce; provide a platform for equal opportunity; prepare young people for an uncertain social and economic reality; and retrain the workforce as some industries contract and some grow at accelerating paces.
The evolution of and state of affairs for postsecondary education in the United States is full of lessons for others but also serves as a cautionary tale. The costs have been enormous and seem to be increasing unchecked. The system has struggled to meet evolving demands. Many interventions, such as mass government subsidy and financial aid, have backfired.

The widespread availability of connected devices has changed the possibilities for post-secondary education. These new opportunities are deeper, more diverse, and more profound than most acknowledge or foresee. In fact, many important innovations are roundly dismissed because they operate on entirely new models, serve entirely new audiences in different situations, and are delivered at price points too low to be considered serious outlets for public investment. On the contrary, these “dismissible” offerings arguably represent the future of postsecondary education.

Many necessary changes to global postsecondary will be in direct response to increasing, more diverse and more informed demand. Individuals will seek and access opportunities that meet their specific, situational needs and drive results, and they will likely use a wide mix of services to do so; families will be supportive of new approaches; communities will include and highlight new models; and governments will need to create frameworks that embrace transparency and outcomes while rewarding both affordability and excellence. And to meet surging demand, our global society must be willing to foster, finance, and embrace innovation. The whole ecosystem must be ready to welcome change.

The goal of this report is threefold: to understand the world’s post-secondary landscape, to make sense of the innovations afoot, and to envision a path forward. Readers will understand the extent to which the system is currently transforming and the scope of the implications of this transformation, and by being informed they will be better positioned to take advantage of the opportunities for learning and investment that this new wave of educational innovation promises.

This report was initially drafted for the Education Commission, an entity set up to guide education policy in emerging and frontier market nations, at the suggestion of the Center for Universal Education at the Brookings Institution, a team whose mission is to reduce the educational opportunity gap between high-income and low-income countries. Though this report has taken on a life of its own, and seems to be circulating amongst professionals and policy makers in American and European higher education, the original purpose of the paper was to give leaders in emerging markets food for thought as they invest in their tertiary systems. To achieve this, the report needed to outline ways of thinking about and investing in innovation in education, which is a topic of broader interest. So, much of the content of Leapfrogging College seems to be helpful for, well, anyone who wants to understand what the future of higher education might look like.
The Growing Demand for Postsecondary Education

Education has long served as a foundation for society. As humans have sought to advance ourselves, methods and subjects for teaching and learning have evolved in parallel. Thinking of education as a phenomenon that has coexisted with us—reinforcing our progress as people, shaping and being shaped by our values—for millennia, allows us to understand that education should be a flexible and responsive tool. Education has not been static and it is not fixed, nor should it be.

Today, education is responding again to our changing world. Our economy is global, families are mobile, and our societies have become multicultural and multilingual. The economic imperative to generate income is straining families as adults struggle to find the time to parent their children. The industries that have created employment opportunities in the past are now stagnant, in decline, or barely hiring as they increase profits. Innovation is speeding up. Many people can no longer expect to work in a single industry, let alone a single organization, over the course of their lifetimes. The economic security and social safety nets (in the US: health insurance, paid leave, unemployment insurance, pension benefits) that offered through employers is eroding. A 2015 study revealed that nearly 54 million Americans (34% of the workforce) are now doing some kind of freelance work. Today’s workers will need affordable, accessible and effective platforms for skill development, and youth around the world are now confronted with a reality that requires rethinking our education systems.

Education is now tasked with empowering each individual to adapt and thrive in an economy where a significant sector of the workforce must continuously seek out and create its own employment opportunities. Software (design, engineering and application proficiency) has become a new core literacy. Today’s students will need to master 21st century skills like communication, problem solving, collaboration, creativity and critical thinking. As futurist Alvin
Toffler declared: “The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.”

The coming generations will understand education as an ongoing process, something that cannot be completed but instead relentlessly pursued. Those best positioned in the economies of the future will approach learning with a steadfast motivation to search for new challenges and opportunities. The mindset for those learners will move them away from considering accomplishments like degrees and certificates as the end of the road for their learning objectives.

How should education evolve to meet these new demands? Let us assume for this report that this is not only possible but inevitable. How should it occur? While we do not have the answer, at Learn Capital we can see many current innovations in their most nascent stages. Futurism and prediction is a peculiar activity; very rarely are even the most thoughtful experts completely accurate. We don't believe seeking 100% accuracy should be the goal of prediction, rather it is to create frameworks for strategy and action. Two things seem certain, though: almost all of these innovations use computing technology to achieve profound breakthroughs that are currently dismissed or misunderstood, and no one should be resting on their laurels and sitting still. To explain more, for a moment, we must discuss the collision course between education and technology.

Context on the Authors
I, Michael Staton, am the primary author of this report, though sections were built out with great contributions and assistance from the people at Learn Capital and many others that we consider friends and partners. So while the prose might have my (heavily edited) voice, the ideas, points of view, examples and anecdotes, were developed in the context of too many conferences, organizations, and meetings to count. Embarrassed in moments of obvious self-promotion, I was asked to put more context on Learn Capital and my personal background up front so readers can have that understanding as they read through what at least some readers might consider unconventional thinking. So, here are the general descriptions we send out:

Learn Capital is a venture fund dedicated to education technology companies. The fund invests in early-stage companies with ideas, products and services involved in the creation, delivery, management and scaling of learning experiences and educational access for students worldwide. Since its founding in 2009, the firm has backed startups that have achieved leadership positions in multiple high growth areas encompassing learners of every age and income. Its portfolio now includes over 80 companies and combined reach an estimated 300 million learners, globally. Notable investments include Coursera, Udemy, Bridge International Academies, AltSchool, VIPKid, Edmodo, Minerva, Andela, and General Assembly. The partners are former entrepreneurs, executives, and organizational leaders that have worked together for nearly a decade; combined, they have started seven ventures and helped found the education practice of the Gates Foundation and the High Tech High school network. The fund’s efforts increasingly concentrate on the intersection of highly scalable Silicon Valley approaches with education services and solutions addressing large global audiences and emerging growth economies.

Michael Staton is a General Partner at Learn Capital. Transitioning into venture, he was selected to serve as a Kauffman Fellow - the industry leading learning network and training program for Venture Capital. Prior to Learn Capital, Michael worked as a co-founder of DevBootcamp (sold to Kaplan) after being the founder and CEO of Uversity (sold to TargetX). Uversity’s pioneering work in Postsecondary Education earned the company the first-ever venture investment from the Gates Foundation’s US Programs. Starting his career as a public school teacher, Michael served
as a Venture Partner and Community Advisor to NewSchools Venture Fund’s Seed Fund, now Reach Capital. Additionally, he has had early roles, befriended and advised many EdTech companies, making him sought after by founders, events, and policymakers. Michael was declared a top one hundred innovator by the Chronicle of Higher Education, and he is on the advisory board of SxSW EDU and the Higher Education Working Group of the American Enterprise Institute.

Contributing authors include Brad Popiolek, who has been a product leader at three Edtech companies and at the University of Texas after getting an MA in Higher Education Administration, and Luis Pinto, who has worked in business development in Education in 40 countries and helped whole nations roll out technology plans in their schools. Our primary editor has been Katherine Carlin, who meticulously reworks our jargon and polishes our prose so that our ideas don’t get lost, and checks our claims to make sure that our analysis is based on fact instead of our own thinking.

More than a few others helped directly shape this report. Rebecca Winthrop and Eileen McGivney from the Center for Universal Education at the Brookings Institution both roped me into writing this, posed questions that shaped its development, and gave consistent feedback. Members of the Higher Education Working Group of the American Enterprise Institute, especially Peter Smith of the University of Maryland, University College has generously made comments that required reworking, clarifying, and filling gaps.

As a reader, you have likely read reports or books from folks who are in the flow of new ideas and innovation. But, I will be bold and say this report is different. Long reports by Venture Capital are rare, certainly in education. Some of the early readers of this report emphasized that our day-to-day thinking at Learn Capital is quite unique, unconventional, and some even said fresh, neuron popping and myelin forming. To the extent there may be unique insight in this report, it’s largely based on our own context. Venture Capital’s greatest asset is also its greatest challenge: making decisions and supporting innovation relies on human networks, strong relationships with outstanding people, and constant iteration on frameworks for decision and action. Therefore, all of the team members are in a perpetual state of going to conferences, meeting with diverse professionals with unique points of view, and befriending and developing entrepreneurs with distinctive and bold ideas for introducing new things to the world. If we don’t have deep insight and strong convictions about where the future is going, we will do a poor job and then be out of a job. So, being in the networked flow of ideas isn’t a perk or a hobby, it is entirely what we do. And like any great passion turned profession, it turns out it’s a relentless hustle and a lot of hard work, and it’s easy to get bogged down in our own little bubble. So, we’re using this report as a way to contribute ideas back to the communities of people that have shaped our own thinking. And, you’re probably part of them in some way, so thank you.
1. Education and Innovation: A Collision Course?

Technology innovation is populated with and driven by optimists. On April 19, 1965, for the 35th anniversary issue of Electronics magazine, Gordon Moore wrote a short piece called "Cramming More Components onto Integrated Circuits", speculating that for at least ten years the complexity of integrated circuits would double every two years for roughly the same cost. A colleague at Intel soon revised these projections, estimating the doubling of integrated circuit performance every 18 months. By 1975, this observation had become the phenomenon referred to as Moore's Law. Moore initially underestimated the longevity of his observed trend by at least 40 years. Though there have been naysayers predicting the end of this remarkable trajectory through the 1990s and 2000s, the trend has actually sped up since 1985 to doubling chip and circuit productivity, and thus computing power, every 10.3 months at roughly the same cost. The result has been almost exponentially decreasing costs for computing.

Since the semiconductor industry was born in the early 1960s in what is now Silicon Valley, technology innovation based on computing has grown into a powerhouse of economic growth and global trend setting. The rise of accessible computing through Personal Computers and now Smartphones has translated to eager interest in innovation from much of the general public. While some innovations are met with controversy or dismissed as unimportant, many are also met with anticipation, optimism, and wonder.

Now contrast Moore’s Law with Bowen’s Rule. In 1980, the economist Howard Bowen, struggling to find sense in the variations of expenditures per learner in higher education, hit upon a profoundly cynical explanation dubbed the Revenue Theory of Cost. Bowen demonstrated the following four rules of post-secondary institutions:

1. An institution’s dominant goals are excellence, prestige, and influence;
2. There is a limitless amount of money that an institution can spend on “seemingly fruitful educational ends”;
3. Each institution raises all the money that it can; and
4. Each institution spends all it raises.

Taken together, these four factors lead inexorably toward ever-increasing expenditure. In other words, education costs whatever sum of money a college can manage to bring in through every possible means divided by the number of students they serve. And in fact, higher education in the United States has increased in cost at rates well ahead of any other product, good, or service. This has led to a profoundly cynical view of progress in postsecondary education.

On the surface, Moore’s Law and Bowen’s Rule may not appear to intersect, let alone collide, but Moore’s law has firmly established a culture-wide expectation for innovation and progress at ever decreasing costs, and this new demand is explicitly at odds with the modus operandi of the modern university.

While the esteemed university model provides value far beyond educating students, as the world continues to grow in the 21st century, policy makers and families are taking note of the implications of Bowen’s Rule. In economies where networks of institutions now have the organizational capacity to educate a considerable percentage of the population, the general public is becoming cynical in three key ways. First, institutions are losing credibility in their ability to equitably serve the growing diversity and numbers of aspiring postsecondary learners. Second, institutions are seen as struggling to prepare learners for new economic realities and are proving inept at solving the structural challenges of unemployment and underemployment. Third, even if they were making satisfactory progress on the first two, institutions seem incapable of containing, much less lowering, costs.
It is time to question the “incumbent” model of postsecondary institution and the environment that perpetuates it. While there may be potential fixes to help institutions meet the challenges of global higher education, this report aims to awaken readers to the need to look past the incumbent model and embrace technology innovation as a cost-effective, promising way to meet the challenges of mass access, affordability, and efficacy in postsecondary education.

Defining the Incumbent Model

Simply put, the incumbent model refers to the archetype of the modern research university. While incumbent institutions can accurately claim to be differentiated and unique compared to one another, this report frames and refers to an incumbent model because a comparable organizational template and common attributes can be found within global higher education with uncanny consistency. Furthermore, the complexity of the incumbent model plays a central role in ever-increasing costs in postsecondary education.

Incumbent institutions are characterized by these key attributes:

- Programs of courses that lead to degrees authorized by an accrediting body or government
- Academic departments (or colleges) of professional faculty members unified by a field of study, hired for subject-matter expertise, and measured by their publications
- Measurement of student progress via course enrollment and completion
- Amenity-rich campuses designed to attract students to enroll
- Complex administrations fulfilling broad missions through the adoption of costly, diverse and often conflicting goals

The most heralded incumbent institutions—research universities—have even more attributes. These include intense demands on and investment in productive faculty research, tenure tracks, graduate students as undergraduate instructors, free-standing institutes and libraries, journals and publishing arms. The campuses of research universities are designed like large parks, with beautiful architecture and manicured grounds. They offer undergraduate, professional, and graduate degrees. They have staff to secure research dollars. They operate “auxiliary enterprises” like property development companies, hospitals, and technology enterprises based on faculty research. And they have athletics programs that compete in formal conferences, often in large arenas, televised to the general public.

Many (state subsidized) public universities operate as a single system of many institutions. Clark Kerr, the former Chancellor of the University of California, described the complexity of the University of California system as of 1963 thusly:

“The University of California last year had operating expenditures from all sources of nearly half a billion dollars, with almost another 100 million for construction; a total employment of over 40,000 people, more than IBM and in a far greater variety of endeavors; operations in over a hundred locations, counting campuses, experiment stations, agricultural and urban extension centers, and projects abroad involving more than fifty countries; nearly 10,000 courses in its catalogues; some form of contact with nearly every industry, nearly every level of government, nearly every person in its region. Vast amounts of expensive equipment were serviced and maintained. Over 4,000 babies were born in its hospitals. It is the world’s largest purveyor of white mice. It will soon have the world’s largest primate colony.” (Kerr 1963: 6)
Our collective investment in the incumbent model has returned immense value, but it has also spurred this complexity, which in turn plays a central role in the rising costs of higher education. Indeed, the history of higher education is a history of increasing complexity.

Demonstrated Uncontained Costs of the Incumbent Model

Figure 3: Expenditure per student (equivalent USD converted using PPPs)

Continuing to invest in the incumbent model is fiscally fraught even in high-income countries. OECD countries spend between .9% and 2.8% of GDP on postsecondary education, with the United States in the lead. Despite these large direct subsidies, the incumbent model is struggling to meet expectations on multiple fronts even as costs continue to rise at unsustainable rates. For emerging nations making education investment decisions today, there is good reason to question the wisdom of investing in the incumbent model.

<table>
<thead>
<tr>
<th>US Snapshot in College Spending 2013²</th>
<th>Private Research</th>
<th>Public Research</th>
<th>Private Bachelor’s</th>
<th>Public Bachelor’s</th>
<th>Community College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Spending per Full Time Enrollment (FTE)</td>
<td>$72,000</td>
<td>$40,000</td>
<td>$30,000</td>
<td>$20,500</td>
<td>$11,300</td>
</tr>
<tr>
<td>Education Related Spending per FTE</td>
<td>$37,800</td>
<td>$17,300</td>
<td>$23,100</td>
<td>$14,000</td>
<td>$10,800</td>
</tr>
<tr>
<td>Education Related Costs per Completion</td>
<td>$115,800</td>
<td>$66,771</td>
<td>$103,200</td>
<td>$65,484</td>
<td>$40,354</td>
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Getting the incumbent model right is even more expensive. The highest performing institutions are also the ones that continue to demand the most financial resources, despite the fact that they are almost impossibly rich. The average size endowment of the top 100 ranked universities in the US is $3.72 billion USD, meaning combined they control nearly $372 billion USD yet only serve 2.3 million students per year, about 13% of total US enrollments. This is an unfathomable war-chest of financial resources that is not replicable outside of the US. Yet, these institutions continue to raise money at unfathomable rates. In the twenty-year period of 1995 to 2015, summing the major gifts to Harvard, Yale, and Princeton alone reaches nearly $5 billion dollars, $1.97B, $1.59B, and $1.27B respectively. In 2015, Stanford alone raised $1.63 billion dollars, and the top 20 ranked universities raised $11.5 billion.\(^6\)

While a handful of incumbent institutions make a billion dollars look like a drop in the bucket, financial resources are scarce for almost all institutions in even the wealthiest economies with the largest higher education systems and the greatest tax subsides. As learners around the world come to demand more postsecondary opportunities and for more diverse populations, in more contexts, and at varying price points, clearly those creating the future of tertiary education in emerging markets will need to be looking for less expensive models.

**Emerging Economies Need to Leapfrog the Incumbent Model of Postsecondary Education**

How could emerging economies even attempt to replicate the incumbent model at scale? Yet, it appears they are trying to anyway. Governments in low-income countries spend 34 times more on a student in tertiary education than they spend on a student in primary education, and 14 times more than a student in secondary education.\(^9\) This is despite near universal agreement among policy wonks and economists that educating young children broadly shows much larger economic returns than do the college graduates that cost thirty-four times as much. Emerging nations can see and point to lighthouse universities, and they somehow skip over the fact that high-income countries spend ten times more on primary and fifteen times more on secondary education than low-income countries.

It is now simply too costly to invest in replicating the incumbent model in order to meet the new global challenges put forward to higher education: affordably educating an increasingly diverse and numerous population of aspiring learners, and providing workforce development within the new economic reality of structural unemployment and underemployment in an era of rapid technological change and globalization. This report will discuss costs more thoroughly in Section 2.

With the advent of technology-enabled education innovations, many attributes of the incumbent model no longer justify their costly maintenance. This is good news for all economies, but especially emerging ones. The interplay of scarce resources, deliberate planning, and curiosity about new opportunity can be a “perfect storm” for a better model. Perhaps a collision course between the incumbent model and technology-enabled innovation is now welcome.
This Time is Different: Technology-Enabled Innovators and Learners Explore New Possibilities

These new innovators are different from historical innovators: they are departing from the incumbent model because they are taking advantage of a new possibility—a landscape enabled by connected technology. Many evaluate potential innovations only through the lens of the offering, and in particular by comparing performance to incumbent models. But innovations can occur across many factors, grouped into configuration, offering, market, and experience.

There have always been innovators in higher education, as we describe in future sections. However, new innovators find themselves capable of creating services for learners note previously possible. Some ways innovators are departing from the incumbent model are depicted in the table below:

<table>
<thead>
<tr>
<th>Vectors of Innovation</th>
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<tbody>
<tr>
<td><strong>Configuration</strong></td>
</tr>
<tr>
<td>Disruptive cost</td>
</tr>
<tr>
<td>structures</td>
</tr>
<tr>
<td>Cost-shifting to</td>
</tr>
<tr>
<td>employers</td>
</tr>
<tr>
<td>Big data and</td>
</tr>
<tr>
<td>dashboards</td>
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<td></td>
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</table>

New organizations are unleashing technology-enabled learning by creating new models for serving learners. Breakthrough models rarely come from incumbents in any industry, and this should be even more true in postsecondary education where incumbent providers are complex, subsidized, regulated and have little discretionary capital for unproven enterprises. Even when innovations arise from incumbents, new models most often stem from a small team of intrapreneurs through a spin out, such as MIT Open Courseware becoming edX. Either way, possibilities develop organically through entrepreneurial endeavors, and the new landscape is defined more by small teams of outsiders rather than well-resourced and well-known insiders.
Current innovation with connected technology sit on top of a broader, radical paradigm and economic shift, what Sangeet Paul Choudry describes as from *pipes to platforms*. According to Choudry, our society and economy is moving from production models of value creation – where goods and services are produced and shipped to customers – to platform models of value creation – where value is created when ideas and information are exchanged between participants.

**Figure 5: From Pipes to Platforms (adapted from Choudry 2016)**

While the learning providers make interesting case studies, the true changes are occurring in the learner experience. A vision for a future system of postsecondary will not be a top-down mandate. However, one can project a new narrative by observing trends among the emerging organizations and abstracting their models. Learn Capital has observed nearly a thousand of such ventures globally in the past two years out of the 1500-2500 listed in various industry databases.

In tandem with the rise of technology-enabled innovators, there are now technology-enabled learners that are also exploring the new possibility landscape. Because of connected technology, learners are able to access and take advantage of new kinds of services. Here are five ways learners are departing from the incumbent model:
In recognizing patterns across these organizations, their plans and proposals, Learn Capital has broken the emerging innovations into the following taxonomy: 1) A-la-Carte Learning, 2) Next-Generation Content Platforms and Online Programs, 3) Hub and Spoke Delivery Systems, 4) Cloud-Powered Schools, and 5) Learning Accelerators. Without connected technology and the ability to create and refine applications delivered through devices, none of these would be possible. Connected technology allows not only dramatic cost efficiency of operations, but, more importantly, in fully online and hybrid models, allows increased reach at zero marginal cost. These are examples of how, through the use of computing technology, innovators are now able to develop entirely new kinds of offerings to learners, detailed in the table below.
<table>
<thead>
<tr>
<th>A-la-Carte Learning and Support Services</th>
<th>Next-Generation Distance Learning</th>
<th>Hub and Spoke Delivery</th>
<th>Cloud-Powered Schools</th>
<th>Learning Accelerators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select Example</strong></td>
<td>Degreed allows learners to log all kinds of informal learning, online and offline, in a way that gives points to learners who demonstrate their learning through a profile and dashboard.</td>
<td>Coursera allows the learner to audit, enroll, and add premium services to university courses from famed faculty at premier universities at almost no cost to Coursera and no or low cost to the learner.</td>
<td>UNICAF provides an online university curriculum for learners to access at learning centers across the African continent.</td>
<td>Minerva uses their online seminar platform to deliver high-engagement, lecture-free courses to enrolled students, eliminating the need for an expensive campus, and at costs far below traditional institutions.</td>
</tr>
<tr>
<td><strong>Learner Experience</strong></td>
<td>Learners can identify and assemble the best learning resources for them from the universe of options and services available through platforms and point solutions.</td>
<td>Learners have access to content and services at almost no cost and can enroll at tiered price points to get the additional services they need.</td>
<td>Learners enroll in a hybrid online program and can attend local learning centers staffed with facilitators and tutors.</td>
<td>Learners can choose programs offered at reduced prices that use technology to provide a more personalized, effective and supportive learning environment.</td>
</tr>
<tr>
<td><strong>Types of Learners Utilizing the Innovation</strong></td>
<td>Learners who actively seek to assemble their own learning who are otherwise disengaged from or dissatisfied with formal program offerings.</td>
<td>Learners who lack access because of geography, income, or life constraints.</td>
<td>Learners who want some benefits of classroom-like experiences with peers.</td>
<td>Learners who are dissatisfied with the value equation or pedagogy of traditional programs.</td>
</tr>
<tr>
<td><strong>Projected Costs per Annum</strong></td>
<td>$300-$2K, 1-4% of GDP Per Capita</td>
<td>$1K-$10K, 1-19% of GDP Per Capita</td>
<td>$4K-$16K, 8-30% of GDP Per Capita</td>
<td>$8K-$20K, 15-38% of GDP Per Capita</td>
</tr>
</tbody>
</table>

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2. A Brief History of the Incumbent Model: Complexity Creep and Increasing Costs

The incumbent model of higher education is best represented by today’s modern universities. These institutions have a core operation that serves undergraduate programs, and they recruit, educate and graduate promising young adults poised to make significant contributions to their country’s civic, social and business institutions.

Since roughly the 1860s, the demands on postsecondary institutions have increased in variety and scope, and the initiatives of entrepreneurial college leaders, massive philanthropy and government subsidy have fundamentally added to the activities of these institutional incumbents. In this report, we refer to this as complexity creep. The 150-year trend of adding to the scope and activities of institutions—of complexity creep—is central to understanding how to increase the quality, access, and affordability of postsecondary education. This brief history focuses on the evolution of the incumbent institutions of the United States because American postsecondary remains remarkably influential around the world.

“The university started as a single community—a community of masters and students... Today the large American university is, rather, a whole series of communities and activities held together by a common name, a common governing board, and related purposes.” (Kerr 1963: 1)

As a British colony, early American colleges were inspired by English and French residential colleges, informed by Protestant values and Scottish liberal curriculum, and almost always set up to preserve and educate in accordance with various Christian religious sects. Early subsidies were secured by catering to churches and devout wealthy merchants and landowners; college leaders sold the need for one church or denomination to outdo the other with college amenities for their parishioners. This helped grow the number of colleges and their overall support in the early colonial period, as the United States was a refuge for the diverse array of religious groups persecuted in Europe.

The relative lawlessness of the early American period left room for postsecondary entrepreneurship. Unlike in England, where the monarchy had the sole authority to grant a college charter, the U.S. had no clear rules. For many centuries, Cambridge and Oxford were the only institutions that had degree granting authority in England. In contrast, Harvard opened as the first college in the continental United States in 1636 and operated for 14 years, including granting degrees, without bothering to figure out if it was authorized to do so. In 1650 when it was granted a charter by the Massachusetts colony, no one was sure if the Massachusetts colony had the power of granting college charters—still supposedly reserved for the King back in London. In 1780, after 144 years of operating, the Massachusetts Constitution went into effect and officially recognized Harvard as a university. Harvard was the template not the exception—most all college founding, building, fundraising and promotion was entrepreneurial and enabled by a lack of regulation and oversight for over three hundred years.
Early colleges were generally serving young adults of privileged means whose parents were concerned with the mischief and idle time of adolescent young men. Thus, colleges were finishing schools acting as an insurance policy for wealthy and busy families so that their sons would not go wayward, and the learning experience was almost always concerned with discipline, ethics, character and religious values. As a sign of the coming role of higher education in social class relations, families achieving new wealth wanted their sons to go to the same colleges where old money families sent their sons – college became a way for families to demonstrate their entrance into the elite class. The promise of early colleges had little to do with what societies now expect of higher education today. With the exception of the University of Pennsylvania, founded by Benjamin Franklin in the 1740s, the advancement of knowledge and free thinking was outside the scope of American college charters.\textsuperscript{14}

It wasn’t until the news of a research-focused University of Berlin, established in 1809, that secular trends were set in motion leading to the postsecondary institutional model that is now world-renowned. Through the University system, the Prussian state financed scholarly research and experimentation that bolstered commercial and industrial applications in fields such as chemistry and mechanical engineering, not coincidentally of strategic value to the military. In the golden age of the European university in the early 19th century through the first World War, the Prussian research university model captivated the academic world and caught the attention of political leaders noting the rapid rise of Prussian power.\textsuperscript{15}

While the American population expanded westward across the continent, the act of college building expanded with it. Would-be college founders sold towns a local college as an amenity that would attract more residents, this business proposition allowed them to raise money from the community eager for the success of speculative land investments. Real-estate promoters searched for college entrepreneurs, often recruiting them from colleges further east. These “booster” colleges, (serving to promote communities to migrant and immigrant populations), seeded the growing postsecondary capacity in a rapidly growing country and also instilled a commitment by colleges to the economic development of the surrounding community that carries to this day.\textsuperscript{16}

American expansionism required practical skills, and political and business leaders openly criticized the classical, liberal curriculum of the east coast colleges. In response, the public university system of the United States was firmly catalyzed in 1862 when Congress passed "An Act Donating Public Lands to the Several States and Territories which may provide Colleges for the Benefit of Agriculture and the Mechanic Art." Bolstered by yet more land grants in 1890, The Morrill Act, as it became known, provided every state with tens of thousands of acres of federal land for the purpose of generating money to fund colleges with a practical curriculum. The federal act left the decision of choosing who and how these funds got allocated to the state legislators, which sparked a frenzy of college leaders promoting their institutions to state politicians with fantastic promises about the role of their college in the growing state economy. Sixty-nine colleges were funded through these land grants, including Cornell University, the Massachusetts Institute of Technology, and the University of Wisconsin at Madison - all making claims to advance the cause of economic development wanted by their state supporters. The Morrill Act added profound capacity to American postsecondary education and forged a deep bond between public institutions and state prosperity.\textsuperscript{17}

The Prussian model of research university was fully imported in the United States with the founding of Johns Hopkins in 1876. Hopkins shirked the model of the teaching college and dedicated itself entirely to research and graduate programs. Not to be outdone, Harvard, Yale,
Columbia, Princeton and other well-known private colleges pursued investment in graduate programs, adding these activities alongside their bachelor's program. Cornell, Michigan, Columbia, Minnesota, Stanford, Chicago, and Wisconsin were not far behind in trying to keep up. The major land grant institutions, quickly growing after the endowment by the Morrill Act, all sought to replicate the model. In the following seventy years through World War II, research would become the primary activity by which university prestige would be measured and would become the primary business of marquee postsecondary institutions in the United States.  

The era from the 1870s through the 1920s was a time of great wealth accumulation to American entrepreneurs, investors and industrialists who built, financed and scaled enterprises across the United States. Finding themselves subject to great public scrutiny and criticism, a trend of philanthropy emerged consistent with the religious ethos of the times, represented by Andrew Carnegie’s 1889 article “The Gospel of Wealth.” These business leaders amassed enough wealth to endow philanthropic enterprises, including private colleges and universities, that would serve communities and geographies of interest to these wealthy titans. During this time, as much as 70% of private wealth served to found new private colleges, endow public universities, and bolster the booster colleges that were struggling to make ends meet.  

The founding and expansion of colleges and universities in the United States fit the freewheeling libertarian ethos of the era. There was still no national attempt at standardization, oversight, or regulation. So, when philanthropist Andrew Carnegie set up a pension fund for American professors in 1905, his Carnegie Foundation for the Advancement of Teaching quickly assessed that American higher education was a wily, diverse and amorphous grouping of institutions that had little in common and no standard practices.  

The Carnegie Foundation set in motion the industry standards and self-regulation systems in American postsecondary education. Colleges who wished to access the pension fund for their instructors were required to have vigilant standards for the admission of students and required them to demonstrate 120 student hours of contact time with an instructor prior to graduation, now called the Carnegie Unit. America’s postsecondary institutions rapidly instituted the reforms so their professors could have access to the pension benefit. There was an open debate at institutions, including the University of Chicago and Harvard, whether three or four years was the appropriate amount of time to complete these new time requirements. The faculty of Harvard voted against a three-year bachelor’s degree in favor of four years, a choice made not to pace learning for students but to keep a reasonable teaching load and full employment for instructors teaching electives. The four-year bachelor’s degree was formalized by all other American institutions shortly thereafter.  

The positive feedback loop between research, academic freedom, and student choice gained strength and institutions grew. In an era of no telecommunications, professors were recruited by departments based on their publications in peer-reviewed journals distributed to libraries. Becoming a professor became a secure career option for an emerging class of university graduates, so they all prepared for and adopted the publication model of work output. Corporate and government funding for research increased and was allocated to departments based on the proof of their research, further pushing towards research publications, increasing specialization among faculty. As a result, professors lightened their teaching obligations to focus more on research. Their interests, work and expertise dictated the course topics and curriculum. Classes taught for the benefit of students or in alignment with employers’ needs were pushed aside in favor of the preferences of the professor. Professors were free to teach what they wished, and students were free to take courses of interest to them. Course catalogues grew from strict and
narrow to thousands of course offerings. Academic freedom, specialized departments, and interest-driven course offerings became central to the model of postsecondary education.

By the roaring 1920s, the incumbent model was coming into form and, unwittingly, had institutions juggling an impossibly complex set of priorities and activities. At its core, institutions were enrolling and teaching undergraduates at a residential campus. The areas of study available to students were multitudinous, but departments hired professors by and for their research and were helped by graduate students also recruited for their research. Both were then asked to teach undergraduates. Students needed a Carnegie Unit to graduate, which took four years to complete. Institutional leaders were beholden to communities and government. To boot, University Athletics, prior to the age of television, entertained local populations.

By the Great Depression of the 1930s, many saw clearly that American postsecondary institutions had become distracted from teaching and learning. College leaders derailed these other activities. Universities as an organization had taken on too much and had become “service stations” for the general public, according to Harvard President Abraham Flexner. In the 1930s he complained “it is clear that of Harvard’s total expenditures not more than one-eighth is devoted to the central university disciplines at the level at which a university ought to be conducted,” (Theilin 2005). A movement in higher education urged college leaders to focus on undergraduate education, leading to a cascading set of additional amenities and services in pursuit of a stronger learning environment. These schemes for refocusing on the undergraduate experience birthed communal residence halls and built up libraries and student unions.

Ironically, the renewed focus on educating undergraduates actually added to the complexity of the incumbent model. New initiatives were created, and new facilities were erected. But none of the other activities were reduced or eliminated, “there were no sunsets in universities; programs that had outlived their rationale were continued simply because no one could summon the political will to close them,” (Zemsky et al, 2005). And the expectations from populations outside of their enrolled students continued to increase.

After World War II, the federal government of the United States initiated two programs that bolstered the incumbent model and scaled it into the immense industry seen today. The famous GI Bill paid for returning soldiers to attend college as a path back into civilian life while gaining a leg-up in the workforce. The bill’s success in bolstering enrollment and the clear relationship between college degrees and higher incomes inspired further federal intervention. Following WWII the United States became obsessed with competing with the Soviet Union in the new world order. Education and research productivity were seen as arenas to compete with the communist bloc. This is demonstrated in the brazenly named National Defense Education Act of 1958 that created the first federal financial loan program for learners pursuing postsecondary education. Federal initiatives culminated in the 1965 Higher Education Act. The act contained section Title IV authorizing federal Pell Grants and four federal student loan programs: subsidized, unsubsidized, PLUS, and Perkins.

With perhaps a greater impact on complexity creep in the wake of WWII, the Director of the Office of Scientific Research and Development, Vannevar Bush, recommended to then President Eisenhower that the US government invest in continued scientific advancements through universities and their research. This led to the founding of the National Science Foundation and formalized government funding streams to university professors and departments based on the perceived future value of their research. By 1968, federal funding was twenty-five times higher than in 1948. In 1980, the US Congress passed the Bayh-Dole
Act, enabling universities to easily own and license patents on inventions created by their faculty. This further cemented research as a revenue stream with great potential – research grants empowered faculty to focus on their research agenda, and revenues were invested in labs, equipment, research assistants and graduate students.23

Since federal subsidies were going to students and departments, no real oversight mechanisms developed for sound operational management and costs were beginning to rise to a point of concern. By the 1970s, a budgeting practice gained momentum to institute better management practices and rein in costs. Dubbed Responsibility Center Management, the practices made each department be responsible for its own budget. First developed at the University of Pennsylvania, initial moves towards balanced departmental budgets seemed promising. However, these initiatives also added to the complexity of institutions, as each department felt acute pain in cutting costs (which usually involved breaking contracts and laying off colleagues) so instead focused on generating revenue. Raising funds made every department an entrepreneurial and promotional organization, and fundraising emphasized the importance of their department’s research and public impact agenda. The net effect was a further focus on research, adding more distance between department scholarship and undergraduate instruction. Moreover, departments were incented to reject any efforts of the institution to try streamlining staff, processes and curriculum across the university; each department wanted unique practices that could attract grants and donations.24

The challenge now facing the incumbent model is one of costs to learners and families. For the past thirty years, conversations in the United States and elsewhere have centered on eye-popping inflation rates in Higher Education. In 1987, Secretary of Education William Bennett wrote an op-ed in the New York Times entitled “Our Greedy Colleges,” setting off a decades long public inquiry into the costs of college.26 As of 2012, students were borrowing nearly $120 billion dollars a year to pay for college. State appropriations to public incumbent institutions,
while declining, peaked in 2001 at $9,092 per full time enrollment, $266 per capita, and represented 11.1% of all state expenditures. Federal financial aid to nearly 15 million students amounted to $182 billion in the fiscal year 2010-2011, providing additional subsidies to the state appropriations totaling $75.6 billion.

The costs of higher education are now being passed onto learners in a way that could lead to economic catastrophe. Between 1993 and 2012, the share of American postsecondary learners taking out student loans rose by 25 percentage points to nearly two-thirds of all learners, and the average amount per borrower doubled, adjusting for inflation. Student debt topped $1 trillion in mid 2012, well ahead of consumer credit card and mortgage debt, a crisis so alarming that MarketWatch created a student loan debt clock that currently estimates the total as $1.35 trillion. Student loan defaults among Americans below age 30 skyrocketed to 35% in 2012, the highest levels on record.

But how can an organization reduce costs if it is not allowed to focus? Is the purpose of universities to contain wayward youth? Create ethical business and public leaders? Serve their communities? Seed the economic development of the state? Produce advanced scientific research for commercialization? Assure national military advantages? As University of California Chancellor Clark Kerr astutely observed in his 1963 Goddard Lectures, *The Uses of the University*, “these several competing visions of true purpose, each relating to a different layer of history, a different web of forces, cause much of the malaise in the university communities of today. The university is so many things to so many different people that it must, of necessity, be partially at war with itself.”

The Cost Drivers: An Unsolved Mystery

Complexity creep manifests in an unsustainable state of affairs for the incumbent model. The embedded costs are too great. A recent report from Bain Consulting, *The Financially Sustainable University*, found that universities are increasingly incurring debt without the revenue or cash reserves to serve as a safety net. US colleges currently owe $307 billion in debt – an 88% increase since 2001 – worsening since the 2008 financial crisis. 180 private colleges even received a failing Financial Responsibility score from the Department of Education in 2011. Many high-profile characters have prophesied the closing of the long tail of independent, private colleges. This trend, too, has its own book: *Cautionary Tales: Strategy Lessons from Struggling Colleges* by Alice Brown.

As of 2013, the Delta Cost Project revealed that private research institutions annually spent $72K per full time enrollment, public research institutions spent $40K annually per student served, $20,500 at public universities, and $11,300 at community colleges. These are indisputable facts. However, there is more than a little debate about why costs keep rising in American higher education. It is worth highlighting a few of the obvious contenders.

**Cost Driver: Competing on Prestige**

The authors of this report prefer the explanation of Bowen’s Rule -- in pursuit of prestige, incumbent institutions will simply bring in as much money as they can and then spend as much money as they can bring in. Even if institutional leaders wanted to opt out of this behavior, they are incentivized to continue on through perverse rankings systems that drive consumer awareness and decision making about which college to attend.
The U.S. News and World Report, introduced in 1983, and Barron’s College Admissions Selector Rating, introduced in the late 1960s, serve as go-to tools when college aspirants compare institutions. Rankings focus on a selection of metrics (such as incoming students’ grades and test scores) that are chosen largely because they are easily measured, self-reported, and readily compiled and published. Most importantly, the data used to rank institutions has traditionally been inputs-centric. Though the rankings have dominated learners searching for colleges, 80% of the US News methodology benefit people other than students. According to Kevin Carey in College Rankings Reformed, “the magazine’s rankings are almost entirely a function of three factors: fame, wealth and exclusivity.”

The information that drives consumer preference has more to do with the reputations of the institutions than their ability to serve students. They also provide a repeatable path for ingenious leaders to focus on gaming the system: research productivity can go up by raising money and hiring away productive scholars. Selectivity can go up by marketing heavily and then rejecting more applicants. Class sizes can go down by hiring more professors and offering more courses. The highly affluent and academically qualified students are attracted based on expensive amenities ranging from residence halls to recreation centers, despite feasibility or impact on tuition levels. The rankings reward institutions for spending money.

Cost Driver: Supply Constrained while Demand Surges
Higher Education was late to the trend of experiencing an increasingly national and international market with competitive dynamics. For the centuries leading up to the initial publication of the U.S. News and World Report College Rankings, post-secondary education was almost entirely a local affair. (In many ways, it still is)

*Figure 1*

![Graph showing total number of applicants at 4-year public & non-profit private institutions from 2001 to 2011](image)

Source: National Center for Education Statistics (NCES), Integrated Postsecondary Education Data System (IPEDS)
Note: Institutions selected include 1,900 4-year and above public and private not-for-profit degree-granting institutions in the United States
Since roughly the early 1990s, higher education has become a true marketplace. The total number of applications increased from 4.6 million in 2001 to over 8 million in 2011 as noted by Figure X. In the beginning, a small and growing market of learners were able to seek out, apply, and enroll in colleges and universities that fit their preferences. This market ended up with undue influence, as it was composed of high-performing students that would increase institutional prestige and full-pay students whose families could afford to send their children “off” to college, encouraging them to go wherever they preferred. However small this market segment was relative to the overall population, the incentives all led to the entire post-secondary system catering to them. And they did not want the basics for low cost, they wanted more for more (Bok, 2003).37

Incumbent institutions likely have fixed capacity and are not planning to meaningfully increase enrollments. In part, the reason to not expand enrollment is that most institutions with campuses would need to invest in buildings, professors, and staff in order to do so. For example, expanding the Yale freshman class by a few hundred slots took a capital investment of $500M. The national average of capital expenditure per-student construction costs is $48,387. (Rodrigues 2014)

The unspoken and far more pernicious reason institutions do not expand their capacity is that their incentives point them towards the opposite: to become more selective. The majority of the top 50 institutions have adopted this tactic, as displayed by Figure X, which displays a stagnation in almost all of the universities listed. Rather than increase in size, the highest performing institutions instead became more selective.38
Just as the volume of applications went up considerably and the number of college-going individuals was increasing, the growth in the supply of institutions stagnated. After a significant growth in institutions in the 1900s-2000s, total degree-granting institutions have displayed very minimal growth since 2001.

**Figure K**

![Number of Degree-Granting Institutions](chart)

Source: National Center for Education Statistics (NCES), Integrated Postsecondary Education Data System (IPEDS)
Note: Data available before 1999 only collected at beginning of each decade

**Cost Driver: Financial Aid**

Federal financial aid to students has become a large and increasing obligation in the United States. In the fiscal year 2009-2010, federal distributions to undergraduates were $124 Billion, adding to $49 Billion from non-federal sources of financial aid. A year later, federal student aid provided $144 Billion to 15 million students. At its best, financial aid to students increases access; it allows families without the ability to pay out of pocket to enroll in postsecondary institutions. However, scholars, economists, and policymakers have been asserting that these subsidies could just enable incumbent institutions to spend more, consistent with Bowen’s Rule.
In 1987, an opinion piece entitled “Our Greedy Colleges” by Secretary of Education William Bennett claimed that financial aid actually enabled increases in the cost and price of college, working to counteract the goals of increased access for lower-income families. This has become known as the Bennett Hypothesis.

“If anything, increases in financial aid in recent years have enabled colleges and universities blithely to raise their tuitions, confident that Federal loan subsidies would help cushion the increase. In 1978, subsidies became available to a greatly expanded number of students. In 1980, college tuitions began rising year after year at a rate that exceeded inflation. Federal student aid policies do not cause college price inflation, but there is little doubt that they help make it possible.”

In the years since, trends have confirmed Bennett’s thinking. In 2012 Bennett wrote in a contribution to CNN entitled “Stop subsiding soaring college costs,” that began “The cost of college tuition will continue to rise as long as federal student aid programs continue to increase with little or no accountability.” Bennett exclaimed to the New York Times, “In 1970, the bottom quartile economically constituted 12 percent of the student population. In 2010, the bottom quartile constituted 7.3 percent. Poor kids look at the tuition — $40,000, $50,000 a year — and say, ‘Forget it.’”

Two years later, economists from the New York Federal Reserve published an analysis that confirmed the Bennett Hypothesis. They calculated that for each dollar of Pell Grants allocated tuition prices rose $.55 cents and for each dollar in subsidized student loans tuition prices rose $.65 cents. This suggests a pass through rate of roughly 60% of every dollar in financial aid to further institution costs. A National Bureau of Economic Research working paper revealed an even greater effect on the tuition prices charged by for-profit companies, showing those
companies with access to Title IV funding charged 78% more than their unsubsidized counterparts. This unfortunate reality is an extension of Bowen's Rule: if incumbents can raise more money through direct subsidies and student financial aid, they will find ways to spend it.

Cost Driver: Professor’s Salaries and the Cost Disease

Economists Robert Archibald and David Feldman refute Bowen’s Rule, instead pointing to Baumol’s Cost Disease -- the global economic trend of increasing labor costs in high-end, complex services sectors in the knowledge economy. In researching productivity gains across industries, William Baumol (1967) found that some sectors rely on extremely skilled labor and human talent and through a variety of incentives have fixed models of production.

Archibald and Feldman used economic data in other sectors suffering from the Cost Disease and found that increasing costs in higher education can be explained by the increasing wages of professors and professor salaries are within a band of other industries seeing similar rising labor costs: law, medicine, and most closely -- dentistry. They thought the data and the message was important enough to write a well-regarded book, Why Does College Cost So Much?

As the institutional model was replicated and massification of enrollment became the trend, there was a dramatic rise in the Professor and commensurate salaries and benefits, which have become a central cost of the institution. According to the accreditation regime, full-time, tenured faculty must necessarily be a recipient of a PhD, a five-year (or more) educational endeavor on top of a four-year bachelor's degree. Professors are recruited based on their expertise and evaluated based on their publication record in peer-reviewed journals, which takes ten or more years to develop. This is fine as a guild system designed to filter and promote experts. However, as a system-wide, government-mandated, officially-tracked practice, it
makes increasing costs almost inescapable. Anya Kamanetz, a well-known journalist and author covering postsecondary education, has juxtaposed Baumol’s Cost Disease with Moore’s Law. 48

Cost Driver: Administrative Bloat
Archibald and Feldman’s data has merit, wages and benefits comprise seventy to eighty percent of a university’s operating budget (Archibald, 2006). However, investment in human capital for instruction has actually flattened since the mid-1990s while the human capital costs of the administration keep rising.
The rise in administrative staff and costs is so alarmingly well-known that this issue, too, has its own book -- *The Fall of the Faculty: The Rise of the All-Administrative University and Why it Matters* by Benjamin Ginsberg. Ginsberg named the phenomenon the "deanlet" -- the class of credentialed intelligentsia that forgo the publish-or-perish incentives of professorship and instead work in the cozy, unbusiness-like business roles of university administration. Zemsky et al call it the “administrative lattice,” a kind of institutional kudzu (a foreign vine species growing unchecked in the American southeast) in which administrators promote their own work, bid for more budget, hire their own teams, and add to the overall institutional complexity and overhead costs. Administrators have trapped the Higher Education industry in a prisoner's dilemma. (Morely 2015)
Cost Driver: Physical Space

University construction spending in the United States has doubled in a decade: from $6 billion in 1994 to $12 billion in 2014. $9.4 billion of the 2014 total was spent on new buildings, and the median new building cost is estimated at $20.2 million with approximately 55,280 square feet of space.

Moving Beyond Unsolved Mysteries and Making Space for Innovation

As summarized above, thoughtful higher education economists have put forward supposedly competing explanations for the ballooning of costs in American postsecondary education. With esoteric names like Bowen’s Rule, Baumol’s Cost Disease, and the Bennet Hypothesis, it’s no wonder most people are still unsure where to place the blame. From the perspective of the authors, however, it is clear that all of these explanations feed into a broader explanation of increased complexity costs.

It is time our societies move from demanding that these complex institutions lower their costs and watching helplessly as the costs of higher education keep rising. Instead, societies should accept that the complex institutions comprising the incumbent model are likely incapable of substantially lowering costs. And so, despite the historical legacy and their outsized effect on the economy, incumbent institutions are a poor vehicle for investing in access that can scale affordably. What can we do to lower costs? The answer, it seems, is to make space for innovation.
3. Innovation as an Opportunity for Lower Costs

In February 2016, Nike founder Phil Knight donated $400 million of the $750 million dollar fundraising goal to endow Stanford University with the Knight-Hennessy Scholars, a program that will admit 100 high-achieving graduate students per year for a three-year program. At a total enrollment capacity of 300 learners, this program will be endowed with $2.5M in capital for every learner.53

Stanford University is already one of the world’s most prestigious and well-resourced universities with $22.2 billion endowment. It is the archetype of the incumbent model - a complex research university with undergraduate, professional, and graduate programs in a wide array of disciplines. It is already receiving more than its fair share of donations -- $801.6 million dollars reported for the fiscal year ending August 31, 2015. Stanford currently enrolls roughly 17,000 (10,000 undergraduates and 7,000 graduate students) and its capacity is basically fixed, making the historical capital contributions to the endowment come to a little over $1.3 million dollars per enrolled student at Stanford.

Around the time of the Knight donation, a technology company called Coursera (located about eight miles from Stanford) received $61.1 million dollars in private capital, bringing the total capital raised since its founding in 2012 to $146 million. Coursera publishes university course content online, making it freely accessible to learners with access to a web browser or mobile phone. In a mere four years since its founding, Coursera has partnered with over 150 highly-reputable universities to put postsecondary course content online for free, and as of this writing has an estimated 100,000 concurrent verified enrolled learners, over 1 million active learners registered for courses, and 25 million monthly unique visiting learners. Coursera is growing exponentially, at almost no additional marginal cost per learner. But if we just take the 100,000 verified, paid enrolled learners in the one month of February 2016, the capital contribution per enrolled learner is $1,460 dollars. Coursera is surely an innovator - a new organization with new technology serving learners with a new model.

If an initiative was set up to serve a comparable 100,000 learners with the Stanford University model, the capital endowment necessary would be $130.6 billion dollars, or 876 times more than the Coursera model. To serve those same learners with the Knight-Hennessey Scholar model, the total would be $250 billion, or 1678 times more than the upfront capital needed to catalyze a Coursera.

To be sure, Coursera does not have the beautiful ranch campus or the buzzing student life of 17,000 students exchanging ideas across disciplines and activities. However, Stanford does not have interactive, chunked video content from 145 universities and sophisticated peer-to-peer grading techniques based on machine learning algorithms serving twenty-five million learners on every continent. The point is not to claim that Coursera is better than Stanford, nor to boast that Stanford is better than Coursera. Learning is not either/or, nor zero sum. More than a handful of Stanford students take Coursera courses and more than a handful of employees at Coursera are Stanford graduates. The world wants and needs both organizations.
The purpose of this contrast in capital, costs, and prices is to demonstrate that opportunities to invest in education are numerous and varied. Given the recent rise of education technology, it is worthwhile to review these opportunities. Today’s stakeholders have the ability to invest in organizations whose offerings scale to unprecedented numbers of learners at marginal costs far below those of legacy, incumbent institutions.

Analyzing investments into postsecondary education is perilous, yet the aim of this report is to shed light on the broad range of opportunities for financial investment in postsecondary education. There are numerous types of organizations serving different communities of learners in unique geographies. Most incumbent institutions operate independently in a unique way that has developed over time. Public and non-profit institutions are subsidized by governments, endowments, and other revenues, so the price to the learner is less than the cost. More frustrating, analyzing learning or economic outcomes remains impossible because there is almost no data on either. Nor is there any truly informative data set on costs, to the dismay of the many wonks interviewed for this report. To get a frame of reference, the authors have summarized and derived cost data from the Delta Cost Project of the American Institutes for Research in the table below.

<table>
<thead>
<tr>
<th>US Snapshot in College Spending 2013</th>
<th>Private Research</th>
<th>Public Research</th>
<th>Private Bachelor’s</th>
<th>Public Bachelor’s</th>
<th>Community College (2 Years)</th>
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<td>Total Spending per Full Time Equivalent (FTE)</td>
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<td>Education Related Spending per FTE</td>
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</tbody>
</table>

Trying to compare the cost of technology-based delivery to campus-based programs is admittedly fraught; one can easily make the case that there is no fair comparison because the services and the intended outcomes are different. According to critics of innovation and skeptics of private capital, there is simply no apples to apples comparison. As authors we have an obligation to forge ahead, to demonstrate that innovations are delivering opportunities for learning experiences at radically lower costs for an exponentially growing market.
To accomplish as fair a comparison as possible, we must momentarily adopt instructional time as a measure of performance (a powerful, status-quo reinforcing metric we don’t endorse.) The standard measure of instructional time and thus student progress is the “credit hour,” defined as one hour per week of contact with the instructor over a fifteen-week semester. Typically, full-time students would receive a bachelor’s degree after acquiring 120 credit hours (known as a Carnegie Unit) over four years.55

Below we are attempting to work with estimates of actual costs for recent high-profile postsecondary investments, rather than published prices. To do so, the authors have assembled this table of interesting recent and notable investments into postsecondary education. The profiled investments are selected to demonstrate contrast between the incumbent, institutional model and innovative, new models.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Knight-Hennessey Scholars at Stanford</th>
<th>NYU Global Network University</th>
<th>Minerva</th>
<th>Coursera Verified Course Registrations</th>
<th>Coursera Non-verified Course Registrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Type</td>
<td>Philanthropic</td>
<td>Philanthropic</td>
<td>Venture Capital</td>
<td>Venture Capital</td>
<td>Venture Capital</td>
</tr>
<tr>
<td>Investment Type</td>
<td>Program Endowment</td>
<td>Branch Campus</td>
<td>Cloud-Powered University</td>
<td>MOOC</td>
<td>MOOC</td>
</tr>
<tr>
<td>Initial Capital Expenditure</td>
<td>$750MM</td>
<td>$3B</td>
<td>$89MM</td>
<td>$146MM</td>
<td>$146MM</td>
</tr>
<tr>
<td>Estimated Operating Budget</td>
<td>$37,500,000</td>
<td>$68,812,000</td>
<td>Private</td>
<td>Private</td>
<td>Private</td>
</tr>
<tr>
<td>Covered Subsidy</td>
<td>$37,500,000</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Additional Subsidy</td>
<td>$-</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Net Price of 4 year program to Students</td>
<td>$0</td>
<td>$194,666</td>
<td>$40,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Reach</td>
<td>0</td>
<td>1,310</td>
<td>300</td>
<td>100,000</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Projected Reach</td>
<td>300</td>
<td>4,400</td>
<td>20,000 or more</td>
<td>Exponential</td>
<td>Exponential</td>
</tr>
<tr>
<td>Annual Cost Per Student Reach</td>
<td>$125,000</td>
<td>$52,528</td>
<td>$10,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit Hours</td>
<td>90</td>
<td>120</td>
<td>120</td>
<td>1</td>
<td>None, no credit.</td>
</tr>
<tr>
<td>Price Per Credit Hour Equivalent</td>
<td>$0</td>
<td>$1,622</td>
<td>$333</td>
<td>$79</td>
<td>Free</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----</td>
<td>--------</td>
<td>------</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td><strong>Cost Per Credit Hour</strong></td>
<td>$1,389</td>
<td>$1,751</td>
<td>$267</td>
<td>$63</td>
<td></td>
</tr>
<tr>
<td><strong>Cost for Carnegie Unit</strong></td>
<td>$166,667</td>
<td>$210,113</td>
<td>$32,000</td>
<td>$2,022 - $7,584</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Price for Carnegie Unit</strong></td>
<td>$0</td>
<td>$194,666</td>
<td>$40,000</td>
<td>$2,528 - $9,480</td>
<td>$0</td>
</tr>
</tbody>
</table>

Comparing these models may pose many more questions than they answer. Readers deeply familiar with the incumbent model may safely claim that NYU and Stanford do not reflect the costs of higher education in general. While this is true, it is clear in the first table that other incumbent institutions would likely fall between institutions like Stanford and NYU on one side representing high costs and Minerva and Coursera far on the other, at a lower cost than is possible for an incumbent institution.

The real question should be: if innovation is this great, why haven’t we had more of it? Why don’t people trust innovation in higher education?

The centuries’ long history of higher education has created a diverse array of trusted institutions with prestige, legacy, and track record, have created a clear devotion to most of the institutions that offer postsecondary education. The clear differences between the success of college graduates, and the known relationship between the economic prosperity of communities, regions, and nations has fostered deep support for incumbent institutions and the model that sustains them - even at significant costs to taxpayers, philanthropists, and governments. The community within higher education and the broad range of peoples who support them have forgotten that higher education itself is a story of innovation. For this, we will spend time demonstrating that many of our now sacred, historic institutions were innovators in their time.
## Sustaining Innovation

<table>
<thead>
<tr>
<th>Challenge to Innovator</th>
<th>Efficiency</th>
<th>Improvement</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do we save costs or time while keeping the same performance?</td>
<td>How do we make educational gains on established performance measures?</td>
<td>How do we bring our current offering and performance to more learners?</td>
<td></td>
</tr>
</tbody>
</table>

| Innovative Solution | Incumbents increase margins on current offering. | Incumbents improve performance. | Incumbents scale delivery to more learners. |

| Postsecondary Example | A trade school adopts enrollment data systems and drives down the cost of marketing to new students. | A college increases seminar-based instruction and reduces large lecture time. | Universities offer an online degree option at a similar tuition price point to their traditional campus-based model. |

| Well-known Example | Southwest moves all ticket bookings to online purchases and eliminates sales staff. | Apple releases increasingly more powerful laptops with each production cycle. | Facebook writes a codebase that allows its users to translate Facebook into every language. |

## Value Innovation

<table>
<thead>
<tr>
<th>Challenge to Innovator</th>
<th>Disenfranchised Market</th>
<th>Disengaged Market</th>
<th>Dissatisfied Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do we address new communities of learners who do not have access to current opportunities?</td>
<td>How do we better meet the needs of communities who struggle to find value in their current offerings?</td>
<td>How do we meet the sophisticated needs of learners who believe current offerings are inadequate?</td>
<td></td>
</tr>
</tbody>
</table>

| Innovative Solution | Innovators tweak value propositions to create access for those left out by current providers. | Innovators tweak value propositions to resonate with communities of learners awkwardly utilizing current offerings. | Innovators tweak value propositions and increase performance according to the preference of sophisticated learners. |

| Postsecondary Example | UnCollege offers a Gap Year program for learners who have yet to find success in a | General Assembly offers a twelve-week boot camp teaching skills for employment in technology | Minerva offers an elite bachelor’s program for high-achieving students wanting a high-performance learning |
4. Outside Innovation is the Historical Norm: Low-End, New Market, and Value Innovation

Across the globe, societies are demanding more from postsecondary education. Unfortunately, much of the thinking is dominated by challenging incumbent institutions to improve. When societies want their postsecondary institutions to serve their current students better, they are demanding sustaining innovation.

However, we must differentiate between the need for “sustaining innovations” (those that improve on existing models), “value innovations” (those that adapt existing models to resonate with marginalized learners), and “disruptive innovations” (those that serve new sets of learners using new models) – which encompasses both “new-market” and “low-end” innovations. If we expand our thinking outside the “sustaining innovations” we can discover novel ways of reaching new learners while achieving breakthroughs in cost. Of particular importance, emerging economies can leapfrog the incumbent model by overcoming the tendency to focus on sustaining innovation.

### Disruptive Innovation

<table>
<thead>
<tr>
<th>Challenge to Innovator</th>
<th>Low-End (Overserved)</th>
<th>New Market (Unserved)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Innovative Solution</strong></td>
<td>How do we make education more accessible (simple, affordable, or convenient) to those that aspire to learn?</td>
<td>How do we address entirely new populations of learners with new performance measures?</td>
</tr>
<tr>
<td><strong>Postsecondary Example</strong></td>
<td>Innovators find entry points into the market to serve learners with straightforward, inexpensive offerings.</td>
<td>Innovators introduce products to serve learners heretofore unserved or unnoticed.</td>
</tr>
</tbody>
</table>

| **Historical Examples of Disruptive Innovation** |
|---|---|---|
| **Type** | **Category** | **Description** |
| Value Innovation | Culturally Specific Institutions | Private institutions were founded to serve religious and ethnic communities unwelcome or out of place at established institutions. |
| New Market Innovation | Western Public Land Grant Institutions | Publically subsidized institutions were set up to serve learners away from the supply of colleges on the American east coast. They captured additional subsidies from the |
state to improve regional economic development. The institutions focused on applied curriculum for the growing industries in the west: mechanical engineering, mining, and agriculture.

<table>
<thead>
<tr>
<th>Value Innovation</th>
<th>Institutions in Urban Centers</th>
<th>Private and public institutions were set up in growing urban centers convenient and accessible for immigrant populations. Jesuits and Christian Brothers focused on developing Italian and Irish immigrants with religiously accepted curriculum and learning experiences.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-End Innovation</td>
<td>Regional State Colleges, Community Colleges</td>
<td>Regional state and community colleges were set up to be more accessible. They lowered admissions standards to serve students without strong academic backgrounds and many remain open access. Government subsidies were meant to cover more of the tuition for learners.</td>
</tr>
<tr>
<td>New Market Innovation</td>
<td>Distance Learning, Online Learning</td>
<td>Distance learning programs targeted a new audience of learners: working adults who did not have time or access to convenient campus-based learning.</td>
</tr>
</tbody>
</table>

**Defining Disruptive Innovation**

We will begin with a discussion of disruptive innovation because it has somehow become cliché and yet misunderstood. Innovators who succeed at building a lasting enterprise most often begin by differentiating themselves to attract and serve new customers rather than competing for existing customers. In his landmark works *The Innovator’s Dilemma* and *The Innovator’s Solution*, Clayton Christensen defined two ways in which this occurs; low-end innovation and new market innovation. Low-end innovation introduces to the market an offering that is more accessible, simple, and/or lower cost, and new market innovation captures a new set of customers, previously not recognized as a market at all, by offering a novel and affordable product that they adopt.\(^5\) An adaptation of the Christensen model is depicted below, with sustaining innovation illustrated in A, low-end innovation illustrated in B and new market innovation depicted on an entirely new axis in C.
Despite the fact that the theory of disruptive innovation was only published in 1994, it actually describes much of the historical evolution of postsecondary education worldwide. New institutions were most often set up to serve new markets and to provide offerings, often at lower costs regardless of the perceived inferiority of their institution at the time. If we can see that disruptive innovation explains the founding of institutions that now serve as icons and models for the world, then we can see that innovation will and should continue to change post-secondary education for the better, though perhaps in surprising ways.

Yet the founding of many postsecondary institutions cannot fit neatly in the disruptive innovation framework. Many upstarts copied existing models for new markets, or re-segmented existing markets by finding ways to resonate with learners, payers, and funders. Many examples match the pattern described by value innovation.

Defining Value Innovation

Value innovations do not by necessity rely on new technology or even new business models, rather they rely on uncovering previously unknown, untapped or unmet demand. This demand is satisfied by designing a substantially altered product or service offering. These innovations change the value propositions to customers and the competing factors between providers.

The lines between disruptive innovations and value innovations can and do blur, and the reason to differentiate them is to help explain myriad approaches of innovators and how they succeed at bringing new offerings and options to learners in education.
For our purposes in this report, we are differentiating three approaches to value innovation for three distinct types of markets: disenfranchised, disengaged and dissatisfied. Disenfranchised learners are not able to access or utilize existing offerings, and they are often unaware that there could be an offering that works for them – this could include those who cannot afford or who believe they are unqualified to access postsecondary opportunities. Disengaged learners are skeptical of existing offerings and either opt-out or dabble. Dissatisfied learners participate in the market (this could be searching, enrolling, attending, and learning) but have sophisticated demands that either differ from or exceed current offerings.

Historical Examples of Innovation in US Postsecondary Education

Throughout the history of postsecondary education, new organizations served new, disenfranchised, disengaged, or dissatisfied learners – not in a small number of cases but as a typical pattern of innovation. Even as we look to brick and mortar institutions that now define the incumbent model, they began as innovators that differentiated from those institutions that were incumbents at the time.

The state institutions of the United States (like the University of California or the University of Texas) are prime examples. While they are now massive research institutions that exemplify the incumbent model – competing for reputation, professors, research dollars, and students – when they began they were almost entirely differentiated. The private institutions prior to the 1870s taught a liberal curriculum, were exclusive in their admissions, and were located on the East Coast. Initially focused on agricultural and mechanical engineering, these new institutions taught a practical curriculum and were located in the resident’s home state. In the 1870s, these were innovators that represented an entirely new set of organizations with new models meeting the needs of new learners.

The demand for practical, skills-based curriculum choices and geographical proximity inspired the founding of new institutions across the country for nearly a century. Small colleges were founded to serve specific geographies in an era when local culture superseded national identity and everyone was limited by slow, expensive transportation. Trade schools sprouted up to fill vacancies in specific employment verticals. Community colleges in newly-populated cities targeted commuter students with low-cost educational offerings, while working in partnership
with local employers. Distance learning colleges arose to serve students in rural areas and those unable to attend classes in person due to long work hours.

Despite a growing range of options and locations, specific demographic communities remained unserved or underserved by the incumbent system. Innovators stepped in to fill this need, serving specific cultural or ethnic communities and offered curriculum based on shared cultural values and historical experiences. Religious affiliations drove the founding of many new colleges, from the colonial period through today. Catholic colleges were founded to serve immigrant populations from Europe disenfranchised by limited postsecondary options at the time. The Historically Black Colleges and Universities educated African American students who were excluded from segregated American post-secondary institutions until at least a decade after the passing of the Civil Rights Act of 1964.

Clayton Christensen, Michael Porter, Peter Drucker and many other mavens of innovation have demonstrated that incumbents and those served by them tend to initially dismiss the products of innovators who discover, create and access new markets. This is as true in education as anywhere else. Incumbents remain doggedly unaware of or unresponsive to the opportunity to innovate for the following reasons: new organizations and models are generally seen as marginal, unserious, and less substantial; and incumbents tend to be skeptical of the size of the early markets and the attractiveness of the customers. Initially, the size of a new market seems inconsequential compared to the incumbent’s market, and the customers are unattractive because despite their having fewer economic and social resources, serving them well would require the incumbent to rethink its product offerings.

But it is not the incumbents that define which innovations succeed, it is the new customers who do. Capturing these customers requires an offering that is just good enough. From there, the
important thing is growing the market of these new customers. Here the innovators benefit from the incumbents' bias: they fly largely under the radar while their organizations are still small, thus escaping competition from well-resourced organizations. Even when incumbents acknowledge a new market, they most often cannot devote considerable attention, energy, and resources to serving it without endangering their competitiveness in the existing market.

In education as with other socially important services, low-end and new market innovation is powerful because it grows the market overall — allowing unreached populations to access services that had been simply unavailable to them, or by bringing reduced-cost services to populations that had trouble affording them in the past. As seen in the chart below, the extraordinary growth in the number and type of educational institutions—the state and regional systems, the community colleges, the trade schools and distance learning programs—grew the existing market for postsecondary learners in the United States from just a few thousand privileged students prior to the civil war to the nearly seventeen million enrolled college students today.

![Figure 16: Enrollment Growth in the United States in a Diverse Range of Institutions 1975-2012 (Source: National Center for Education Statistics)](image-url)

Rising to meet the postsecondary market challenges of today—improving access, affordability, quality and outcomes for postsecondary learners—requires that we confront our assumptions about what is possible. Doing so requires a working knowledge of the innovative models
available courtesy of the technological innovations now sweeping the space. What is not going to be helpful is throwing more money at the incumbent model. (Sorry Stanford.)
5. Two Waves of Online Degree Programs: Lost Opportunities to Lower Costs

Many people are aware of the inconvenient truth that online learning has historically failed to lower costs for learners. According to Hanover Research, the average net tuition price in 2014 for an online bachelor’s degree was $43,477 and it was $21,959 for the average master’s program, which is not meaningfully lower than campus-based counterparts.  

Online degree programs are not served at lower prices because they are more or less the same incumbent model in Internet clothing. They evolved (or rather, failed to evolve) in this way. Online degree programs were limited in their ability to innovate in the United States; they were constrained by the omnipresence of the incumbent model and had to conform to the accreditation system. So, instead of innovating for lower costs and prices, they:

- Responded to an employment environment in the US that strongly favors bachelors and professional degrees, and to issue degrees organizations must be accredited
- Sought and centered their business model around financial aid from the federal government, linked to accreditation and the pursuit of these degrees
- Developed in a regulatory environment set up to regulate and perpetuate the incumbent model, and that regulatory structure is operated by incumbent institutions...
- Must survive and thrive in the same “higher education” marketplace driven by prestige and status as the existing system of and for the incumbent model is what is publically known and socially accepted
- Thus, they manage themselves by the same inputs of the incumbent model: they offer courses measured by the credit hour and programs measured by the Carnegie Unit rather than emphasizing outputs like learning progress, skill development, and perhaps most importantly, employability.

More critically, online degree programs use a similar organizational and staffing model. Thus they have a similar cost structure as incumbent, in-person counterparts. To understand why this will not continue to be the case, readers must understand the peculiar development of online learning in American postsecondary institutions.

The First Wave: Online Learning inherits Models from Distance Learning

The first wave of online degree programs inherited cost structures from distance learning programs rather than inventing new models with the possibilities of the Internet. Innovators that created distance learning programs served working, adult learners with families. Adult learners needed to access curriculum from the convenience of their home and work, and the flexibility of going through the curriculum at any time, fitting learning time around an already busy schedule. While distance learning was a value innovation for disengaged adult learners, it was not a substantially altered organizational model and did not have a considerably lower cost structure. With the advent of the Internet in 1994, distance learning companies quickly started using the Internet to compliment and later to substitute for mail-based correspondence.

The American financial aid system has propped up higher cost structures by enabling organizations to avoid finding ways to lower costs. In the 1970s, federal financial aid became available to learners enrolling in degree programs provided by private companies. The result was that private companies could charge a substantially higher price than learners would pay out of pocket, so companies became experts at assuring that all of their enrolling students received financial aid. This effective subsidy of private companies cemented the unfavorable
trend of private companies charging market-rate tuition prices and accessing federal aid instead of finding ways to lower costs. A National Bureau of Economic Research working paper published in 2012 revealed that private companies with access to federal financial aid for their students charged 78% more than unsubsidized counterparts. By 2014, 96% of students enrolling in online degree programs received federal financial aid and this subsidy comprised 86% of revenue across the industry.

Most of these new-market, distance learning innovators were private companies. Private-sector businesses will always charge a price that the market is willing to pay. Given that the alternatives were to enroll in a campus-based incumbent institution, the tuition prices learners expected to pay were already relatively high. As more distance learning companies moved their businesses online, they already had access to federal financial aid. Thus, the first wave of online degree programs promised learners access and flexibility, made sure enrolling learners were tapping into financial aid, and had no need to substantially lower prices.

Owners and executives at private companies financially benefit from scaling, so many of the companies used the rapidly growing Internet as a way to enroll larger numbers of students. From 1991 through 2000, private companies were serving around 600,000 learners per year, which was 3-4% of all enrollments in the US. As the Internet took off, so did the distance learning programs that were now online. From 2001 to 2011, enrollments increased over six times to four million learners per year. As an indicator of how important enrolling new students is, the Apollo Group, the parent company of The University of Phoenix, spent $1 billion USD on marketing in 2011, representing 23% of its revenue.

Despite the rapid growth of online programs provided by private companies, they failed to disrupt the incumbent institutions. The theory of disruptive innovation posits that innovators start with new markets and then outcompete incumbents for the mass market. However, because it is nearly impossible to make gains on prestige and compete for students in the established market, most companies offering online degrees expanded by moving “down market” to students who were underprepared academically and dependent on federal grants and subsidized loans to pay for their tuition. After a decade or more of marketing to and then largely failing these learners, online education and distance learning earned a reputation that was devoid of prestige. Instead these providers became known for abysmal graduation rates, high-student loan delinquencies, and poor employment outcomes.

The Second Wave: Incumbent Institutions Copy Their Model Online

Students looking for access, convenience, and flexibility in legitimate, high quality higher education programs have become the greatest growth market in American higher education. Adult learners now outnumber traditional college-aged pupils (ages 18-24) in the United States. Online coursework is now so mainstream that one in four enrolled students in the US are engaged in coursework using online platforms. Incumbents can no longer dismiss this high demand model.

For incumbent institutions, accessing this market is irresistible. Attitudes towards online learning at incumbent institutions are changing, and this is leading to increased numbers of institutions offering online programs. In 2002, a survey of institutional leaders at nonprofits showed that fewer than half agreed that “online education is critical to the long-term strategy of my institution.” By 2014, over 70% of institutional leaders agreed that online programs were critical to the long-term strategy of their institutions.
The incumbents have responded en masse to the demand for online programs, as illustrated by the title of a 2012 report by the Parthenon Group: *Are the Sleeping Giants Awake? Non-Profit Universities Enter Online Education at Scale*. Since that report, non-profits have been taking market share from the original for-profit program providers. Non-profits grew their online enrollments by over 500,000 students from 2012-14 while for-profits lost over 100,000 enrollments over the same period. Of the top 30 institutions with growing online enrollments, only one institution was a for-profit corporation. The fastest scaling online programs came from Southern New Hampshire University, which grew its enrollment by an astounding 18,000 students from 2013-14.\(^{64}\)

Online programs have emerged as a way for incumbents to subsidize their other complex operations. They can compete on access, convenience, and flexibility in a way that complements and copies much of their existing operations. The organizational model and cost structures of online programs can serve students profitably, especially if the price points are similar to campus-based programs. Because of their non-profit status, profits from their online programs can actually subsidize the overall organization. This subsidy is needed because various other revenues have been harder to increase, and state subsidies have been cut. As a bonus, institutions can lower admissions standards for adult learners and not affect the ranking or prestige of their campus-based programs.

**Online Enablers: The Partnership Between Technology Companies and Incumbent Institutions**

Most incumbent institutions that have attempted to spin out online programs using their own teams and technology have failed, and burned plenty of cash in doing so. In order to successfully access the market of learners looking for online offerings, incumbent institutions have partnered with companies that have the know-how, execution ability, and upfront capital to make an online program launch successful.

This time, the successful innovators are private companies that work in partnership with incumbents. In general, these companies must partner with institutions instead of offering their own educational programs because the accreditation regime does not allow technology companies to offer degrees. Becoming accredited can take years. Building a prestigious brand accepted by potential students also posits serious challenges.

This kind of partnership is now big business, with billions in revenue among a category of companies called either Online Program Managers or Online Enablers. Examples include Pearson (acquiring Embanet for $650M\(^ {65}\)), Deltak, Bisk, Academic Partnerships, and 2U (now publically traded at a $1.3B valuation after its initial public offering in 2014\(^ {66}\)). These partners take between 50% and 80% of the revenue, but incumbents find it more financially rewarding than trying to provide the service themselves.

The vast majority of the new online offerings launched with Online Enablers are not lower cost than their campus-based program equivalent counterparts. The darling Online Enabler 2U went to market with prestigious university partners with the specific claim that their online professional programs would cost the exact same for students as campus-based counterparts and provide the same or better quality. 2U was so wildly successful that it went from its founding as a startup in 2008 to its $110M+ initial public offering in just six years.
The continued dominance of the postsecondary incumbent model should not be credited to its inherent resilience or superior product. The truth is that it has been propped up by the same forces that keep it from innovating in the first place. Prestige-based institutions continue to dominate in US higher education because these nonprofit and public institutions are subsidized through endowments, philanthropic giving, research grants, and through the public purse in addition to being effectively subsidized by federal and state financial aid for students.

As of this writing, the initial hope that online degree programs would drive down costs and prices remains unrealized. Online degree programs have been fundamentally additive to the incumbents who use them to enhance their revenue streams -- validating Bowen’s revenue theory of cost, that “institutions will raise all the money they can, and spend all the money they raise.” If decreasing the cost of postsecondary education is our priority, we must look outside of incumbent institutions offering credit hour based degree programs.

6. Learners Hack the Incumbent Model: Credit, Pathway, and Transfer Programs

The incumbents’ refusal to lower costs has not stopped learners from demanding and accessing a number of ways to lower the net price of a degree. Increasingly, students hack the credit hour system and stack credits from multiple institutions, getting as many early credits as they can from cheaper alternatives. Perhaps unsurprisingly, this hack has been largely embraced by incumbents. Institutions can keep their aspirational sticker price while they fill empty seats and beds outside of the incoming freshman class, preserving their selectivity numbers and position in the rankings.

Higher Education economist Robert Archibald predicted the rise of what we call “credit stacking” as an agreeable innovation, particularly for “introductory classes that service large segments of the student population.” (Archibald 2006: 31). As if on cue, the technology company Straighterline came on the scene in 2010 to provide online “general education” courses with readily transferable credits for degree programs. Straighterline partners with one hundred colleges who guarantee that they will accept the course credits towards a student’s degree. Students pay $99 per month plus $49 per course. Straighterline has a counter on its website showing that, as of April 2016, it has saved students and taxpayers well over $108 million dollars. When checked one week later, the total was $109.5 million, suggesting learners are saving $1 million dollars a week.67

<table>
<thead>
<tr>
<th>Proportion of Content Delivered Online</th>
<th>Type of Course</th>
<th>Typical Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>Traditional</td>
<td>Course where no online technology is used -- content is delivered in writing or orally.</td>
</tr>
</tbody>
</table>
Students starting their college careers at community or junior college and then transferring to a more selective university for advanced coursework is a pathway to an advanced degree that has been commonplace for decades. Recently, a national conversation on various “pathways” to earning degrees has revealed many challenges and barriers that learners face while trying to use pathways to their advantage. As it turns out, the pathway process has been rife with logistical problems and barriers to learners.

(Figure X: Allen et al, 2016. Online Report Card: Tracking Online Education in the United States)

In the United States, colleges individually review and then accept or deny credit for each course proposed for transfer credit eligibility. Because curriculum is typically managed at the department level, and departments are largely self-governing, this means that professors and administrators must review curriculum and assessment standards for each course in order to
approve a transfer credit. The way around this piecemeal process has been to create a process called an “articulation agreement,” a pre-arranged contract between institutions that each will accept credits from the other. A recent survey by the Edvance Foundation illustrates how onerous this process is and how often it breaks down: While 93% of four-year college respondents said they recruit from two-year colleges, only 68% of respondents have active articulation agreements in place, and only 23% have more than six such agreements in place. The pathway conversations, like most other conversations in higher education, are cursed with a lack of data, with the Edvance Foundation proclaiming “without better metrics, it will be difficult or impossible to measure the success of students who participate in a college transfer partnership.”

Sensing the need for better and more straightforward pathways through community college, American Honors was born. American Honors partners with community colleges to provide a two-year honors program for students that intend to transfer to a four-year university. They estimate that students attending American Honors who successfully transfer to a competitive four-year university will avoid 30-40% of the tuition and fees normally associated with earning a four-year degree. As of this writing, 42 selective four-year institutions have articulation agreements with American Honors, and the company currently operates honors colleges at seven community college partners. Students have successfully transferred to Emory, Purdue, USC, Vanderbilt, Smith, Stanford and Penn State, among others.

Enrolling in a community college or online “credit stacking” platform in order to gain credits for advanced degrees are not the only pathways to a more affordable college experience. Prior-learning assessment is emerging as a verifiable metric to help students earn credit prior to college enrollment via learning accomplished through work and life experience. Currently, available mechanisms for demonstrating sufficient knowledge to earn credit for prior learning include submitting student portfolios for review and sitting for examinations to verify knowledge. Institutions opting in to this scheme use platforms including the College Level Examination Program (CLEP), Excelsior College Exams, and the DANTES Subject Standardized Tests, (Fain 2012).
7. Innovators Finally Introduce Lower Costs

Competency-Based Education

Neither the rise of online degree programs offered by for-profit companies nor the partnerships between incumbents and innovators to provide online education has structurally addressed issues of total costs and net price to students. The “credit stacking” hack, while pursued by thrifty and resourceful students, has had almost no effect on the structural cost increases in American Higher Education. In this context, a new model of postsecondary programs is starting to get enough traction to take note; this emerging category has been dubbed competency-based education, or CBE.

Competency Based Education departs from previous online innovations in that it does not merely replicate parts of the incumbent model and put it online, it has actually created entirely new models upon which to operate. The competency-based program aligns curriculum content to learning outcomes -- called competencies -- and empowers learners to go through them at their own pace. Each competency is paired with a micro-assessment, which can be in the form of a brief series of quiz questions or an assignment that requires a submission of work. Learners who feel comfortable with the competency can choose to take the assessment, regardless of how much time they have spent with the content.

CBE programs are the first real move away from the tyranny of the credit hour. The entire CBE process is decoupled from an academic calendar. In fact, instructional designers make the curriculum and assessment, and delivery is done through a specialized learning platform. The traditional role of the academic professor who stands in as a part-time lecturer for three courses per term does not exist. In this way, the model switches the unit of progress from inputs to outputs: from instructional time to meeting the objective of the stated competencies.

Many competency-based programs are co-developed or developed with significant input from employers. Employers are showing interest in this program model because hiring managers and human resources professionals can move past a blunt credential as a signal of candidate qualifications. Instead, they can analyze a more precise, information-rich set of job-specific competencies and see how candidates fare at mastering the sets of competencies most interesting to employers.

The most visible organization operating on the competency-based model is Western Governors University, set up in 1997 by a coalition of 19 member states of the Western Governors Association. WGU was specifically concerned with the increasing costs of postsecondary education. The tuition per term is listed per program, ranging from $2,890 to $4,250 USD -- half the price of a term at a comparable fully online degree program. A notable aspect of its pricing is its all-inclusive model; students can earn as much course credit as they are able to in any term.70

Western Governors University is also leading the trend of transparency in measuring outcomes. A 2015 Harris Poll survey revealed that 80% of graduates say the majority of competencies are related to their professional development, and 86% of graduates are employed full time in their field of study. Within four years of graduation, alums report an average $14,700 increase in income.71
This combination of lower price and stronger outcomes has the higher education community abuzz about Competency Based Education. A 2011 article about Western Governors University entitled *The College For-Profits Should Fear* was an early indicator of interest in this phenomenon. For-profit companies serving online degrees have begun to respond with their own competency-based programs. MyPath, Brandman University’s CBE offering, is priced at $5,400 per academic year. In 2016, CareerBuilder and Capella Education Company announced Rightskill, a plan to develop sub-$1,000 accelerated courses in a CBE model with placement services that guarantee a job within 90 days. As is typical of incumbents confronted with market-proven innovation, post-secondary institutions have risen to compete with their own CBE offerings. In 2014, 52 colleges participated in a CBE conference called CBExchange. Two years later, there were 600 colleges present. (Fain 2015). College For America, one of the earliest CBE launches from an incumbent, non-profit institution (the previously mentioned Southern New Hampshire University) is offered at a tuition of $2,500 per year, approximately a quarter of the cost of attending a 4-year public college as a state resident, a tenth of the cost of attending as an out-of-state resident, and a twelfth of the cost of attending a 4-year private college.

There are plenty of signs that competency-based education may not be close to the lower-limit in terms of cost of delivery or net price to students. Western Governors University created the category for an average cost of $15K to graduate. College for America now boasts a $10K offering (isn’t this the same as in previous paragraph?). Recently, Teachur, a startup announced by two professors who served as adjunct professors in online programs, declared they could deliver a Bachelor’s degree for only $1,000 USD, (Schuman 2016).

The innovation of competency-based education is not just about driving down the price of learning and credentials -- it is also about enriching the signals that learners are able to use in the labor market. Student who do not attend highly-ranked institutions are more likely to stand out to employers if hiring managers can make data-driven decisions surrounding a candidate’s breadth of demonstrated skills and depth of knowledge.

As part of the movement to support incumbent institutions in demonstrating outcomes and measuring outputs, several institutions are experimenting with “doubleclick degrees” through a grant from the Lumina Foundation. This is a reimagined representation of student achievement, whereby instead of being presented with a paper degree or transcript, employers can click around in an online student profile to reveal a series of competencies, which then further breaks down into one or more proficiencies and skills. Through this new type of transcript, employers can review more meaningful and detailed signals of skills and competencies. The shift to capability-centered student stories and profiles rather than activity-centered degrees and transcripts, can chip away at the cycle that rewards the inputs of the credit-hour over learning and employment outcomes in postsecondary education.

It is unlikely that the competency-based model will serve all learners in all contexts. To date, “forays into competency-based education have been in disciplines with professional licensing and a heavy dose of task-based learning,” (Fain 2016). These disciplines tend to more closely align with programs in which mastery is easy to define, assess, and measure.

Testing this trend, however, Purdue Polytechnic Institute appears to be competing for traditional students with their competency-based program, a Bachelors in Transdisciplinary Studies, which contradicts a few points discussed previously. The program will offer interdisciplinary
coursework, 21st century soft skills, and technical education for students ages 18-24. In a departure from the current standard of mastery-based assessment that moves learners through a progression of competencies, Purdue will track progress based on the credit hour, with competencies having established time estimates. Perhaps the use of seat time as a measure of student progress will have staying power for traditional students.74

Emerging Market Innovators Serving Low-Cost Degree Programs

While the online delivery models of the US rarely introduce lower costs than the status quo, a number of innovators, mostly in emerging markets, are beginning to serve learners that require low price points and generally do not have access to the kind of financial aid available in the US and Europe. Because organizations have to keep the price point low, they also have to reduce cost structures. Thus, the world is finally beginning to see low-cost tertiary programs that use technology for operational efficiency, new business configurations, and even ways to manage and provide transparency around outcomes.

Kuepa offers low-cost, blended-learning programs at approximately $45 USD a month in Mexico and Colombia. The programs are hub and spoke, with over 200 learning centers with offerings centered around standardized proprietary content and study programs. Kuepa also assists with high school completion, secondary exit exams, and English as a Second Language. In addition, they offer curriculum aligned to the needs of local employers with a focus on computer skills, hospitality, sales, management, and software engineering. As of 2016, Kuepa is serving 6,000 students through its distributed campuses and reaches another 40,000 students through training partners like the Citi Foundation in Argentina and Colombia and Fundacion Inicia in the Dominican Republic. Since launching in 2014, they have graduated 10,000 students.75

Topica is an Online Enabler headquartered in Hanoi, Vietnam serving Vietnamese, Filipino and other Southeast Asian learners with a low-cost model. The company offers programs with tuition around $500 USD per year and boasts 82% retention rates. Topica has 23,000 current enrollments in their degree programs, but the number of enrollments has been doubling every year since the company’s founding in 2012. Topica collects data through continuous surveys to students revealing that their program, teacher, curriculum, and service quality are consistently rated as better than previous tertiary education experiences, with 73% reporting that their overall experience with Topica is better than other tertiary options.

UNICAF is an Online Enabler for European and American universities serving learners in Africa, and styles itself “Africa’s Higher Education Platform.” UNICAF delivers curriculum through modules, requires between nine and twelve modules to complete, and prices modules between $200 USD and $600 USD. Their online offerings currently serve 8,500 enrolled students. UNICAF projects by 2020 they will serve 100,000 learners in Africa. 91% of learners say the experience has helped them with their careers.
University of the People is a non-profit organization serving online degree programs for free and reduced costs to learners around the world, and has enrolled over 2,500 students from 180 different countries. Enrolling and participating in coursework from UoP is free, though getting course credit towards an associates or bachelor’s program requires passing an exam requiring a fee of $100. The company now offers a tuition-free Associates and Bachelor’s degree in Health Sciences. In May 2016, UoP announced they will offer the world’s most scalable, affordable MBA at just $2,400 USD. Over 6,100 people applied from 1,700 different countries, and UoP expects to enroll 1,500 students in the online MBA program in their first year of operation.
8. The New Promise of Value Innovation

The now-canonical business book *Blue Ocean Strategy* proposes a framework for innovators to unlock what authors W. Chan Kim and Renee Mauborgne call value innovation, here useful because it expands upon more well-known theories of technology-based innovation to address the uniquely different higher education market. Blue Ocean Strategy is a playbook used by innovators to successfully enter markets, escape competition, and grow. The “Blue Ocean” represents a previously untapped market where the ability to innovate lies in challenging the boundaries and dynamics of the competitive landscape by creating a new market or re-segmenting existing markets.76

To unlock value innovation, Blue Ocean Strategy prescribes the following exercise for innovators: eliminate or reduce some value propositions of competitors, raise some value propositions to meet the needs of a segment of the market, and create entirely new value propositions that differentiate the new offering from the competition. This is expressed in a diagram called the Strategy Canvas, similar to the diagrams from our previous sections. The idiomatic “blue ocean” symbolizes market segments that do not yet have competition versus a “red ocean” in which customers are well served by competing offerings.

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<tr>
<th>Eliminate</th>
<th>Reduce</th>
<th>Raise</th>
<th>Create</th>
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<tbody>
<tr>
<td>What do other providers do that you cannot?</td>
<td>What do other providers do that you can do less well?</td>
<td>What do other providers do that you can do better?</td>
<td>What can you do that other providers do not?</td>
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While disruptive innovators in low-end and new markets are summarily dismissed by incumbents, value innovators who successfully address the demands of a dissatisfied market are noted, respected, envied, and copied. By definition, dissatisfied customers have sophisticated sets of wants and needs that are not addressed by current offerings. They will actively seek to find new solutions. They may be willing to pay a premium.

Innovators who capture this market can increase their service offerings and can, but don’t always, charge more. Innovators like Tesla Motors are not making transportation more accessible but are instead making the cars that dissatisfied, environmentally-conscious road enthusiasts clamor for. While the iPhone was a disruptive innovation in computing, it was a value innovation for dissatisfied mobile phone owners and the Apple line of personal computers has always been a value innovation for computer enthusiasts. These are now offered at prices almost comically above low-end offerings by other PC makers. Because innovators like Tesla and Apple command the high end of the market and serve profit pools – pools of customers that can be served at high price points – they typically have outsized influence on the market overall. Serving premium customers and commanding higher prices often corresponds to both strong brand value and the envy of competitors. Competitor envy sets in motion attempts to copy the innovator’s premium offerings and compete for their profit pools.

In higher education, value innovation for dissatisfied markets is disproportionately visible compared to the low-end and new market disruptive innovations. Even though disruptive innovations have increased access to postsecondary education by orders of magnitude and now serve millions of learners, the most respected and discussed innovations in higher education are those that serve dissatisfied learners. Because prestige remains a sought after
competitive factor for enticing the most attractive learners, and prestige has traditionally followed the enrollment of learners with strong academic backgrounds from families of means, innovators that attract competitive students are preordained with prestige. The University of Virginia was perhaps the first example of this in the United States. Admission carried with it the most expensive tuition in the nation as a way to signal elite status and attract sons of the landed Southern gentry—a class of Southerners dissatisfied with the idea of their progeny getting cultural ideas from Yankees at Yale or Princeton. Setting aside the problematic inspiration for its inception, and acknowledging that today we seek inclusion, rigor and equal access from our innovators, the University of Virginia is in fact a historical example of successful value innovation in higher education.

Modern Examples of Value Innovation: Minerva and General Assembly

Minerva

Using the framework of value innovation, readers can more easily understand the market entrance of The Minerva Project, known simply as Minerva. Founded in 2011 by Ben Nelson, whose unique insights into the network of elite, global, postsecondary institutions, Minerva captured $25M in seed funding one year after its inception. By September 2014, the Atlantic Monthly wondered whether Minerva was “The Future of College?” in a cover story exposé.77

Three main insights animate Minerva’s innovations. First, parents all over the world are increasingly aware of the opportunities for students who secure a spot and graduate from an elite postsecondary institution. These parents want their children to have a fair chance of accessing those opportunities, yet the famous incumbent institutions have not and cannot increase their incoming class size to meet the global rise in demand. Second, admissions departments at these elite institutions consider multiple factors outside of academic and intellectual merit that effectively disadvantage young scholars outside the U.S. and Europe who are not born to powerful families. Third, as discussed in other sections, elite incumbents have evolved into expensive operations focused on research productivity at the expense of undergraduate instruction. Thus, our brightest global minds face tuition barriers that even if surmounted can land them in bloated institutions where great teaching is no longer prized. Following the playbook of value innovation (“eliminate, reduce, raise, create”), Minerva set out to create an elite university that greatly reduced the complex operational and administrative aspects of the incumbent model that do not serve instruction and learning goals. Minerva hires faculty who, while well-known for their scholarship, will commit to student instruction over the publication of academic research. By eliminating the expectation from faculty that they will produce research, Minerva can avoid the expense of building research laboratories and also free up its faculty to engage more meaningfully in instruction. Minerva has also reduced the typical breadth of a college course catalog in order to focus on developing a small framework of courses that promote student acquisition of core competencies called Habits of Mind and Foundational Concepts. These promise to serve young adults aspiring to a vast array of field and career choices. Minerva’s revolutionary class participation platform has allowed it to raise expectations for academic rigor because the platform’s technology is designed to monitor and enforce active student participation and preparation for class. To create an international student experience, each class will advance through the four-year program while rotating through dorms in eight cities of global importance. Taken as a whole, Minerva’s innovations in postsecondary education hold great promise to meet the growing demand for focused learning and immersive experiences in an interconnected global society.78
In response to dissatisfaction with admissions processes at the world’s leading universities that make enrollment highly improbable for even the brightest students, Minerva crafted a technology-facilitated, merit-only admissions process for all of its global candidates. The process relies on metrics and inputs intended to transcend cultural bias and privileged upbringings to find the best students from any socioeconomic or cultural background. Minerva has committed to continuously scaling its operation in order to admit the top 2% of applicants and meet the rapidly growing demand of families for the best postsecondary option for their high-achieving children.

Thus far, Minerva's entrance as a value innovation for a dissatisfied market has earned respect and admiration, as well as hype and controversy. An increasing number of candidates have applied in each of the last three years, culminating in the latest round of more than 16,000 applicants for the 2016 class.

As discussed in previous sections, the incumbent institutional model has for the most part been additive, increasing in institutional complexity and unable to reduce or eliminate services and cost structures. When innovators fall into this trap, the value innovation model is really only half fulfilled: they raise and create, but fail to eliminate and reduce, leading inexorably to runaway costs and unsustainable economic models. Minerva may prove to be an exception to this historical rule.

Minerva’s annual tuition of $10K for its undergraduate program is one fifth of the tuition price of elite incumbent institutions. Though Minerva has received over $80M in venture funding, as an upstart, Minerva does not have decades of philanthropy or state support and does not use
federal financial aid for which non-US students are ineligible anyway. Minerva has a technology platform that will help it scale to tens of thousands of learners without replicating the traditional cost structures of a complex organization, administration, and campus.

Minerva is an example of how technology-based innovations that avoid the incumbent model may be able to succeed where the incumbent model has not: to deliver the highest quality postsecondary experience at a lower cost. Minerva must continue on the value innovation track of creating and raising, but must also stay committed to the decisions they’ve made to reduce and eliminate. The incumbents are not as dismissive – they are taking note, they are showing envy, and they may have to respond by figuring out a lower cost offering focused on student learning that can scale while maintaining the sought after quality of the world’s most selective institutions.

**General Assembly (GA)**

General Assembly (GA) is an innovator focused on dissatisfied learners that seek to accelerate their careers in the emerging digital economy by building skills that are in demand by high-growth technology companies. GA is the early leader in an emerging content sector called New Economy Skills Training and provides a category of program Learn Capital calls career accelerators, a type of learning accelerator focused on career outcomes with active placement services.

After its founding as a co-working space in 2011, General Assembly quickly evolved into a provider of wildly popular immersive programs in software engineering and other technology topics through a combination of immersive full time and part-time programs, both in-person and online. As of June 2016, the company lists the following programs:

- **Android Development Immersive** (12 weeks) - Designed in exclusive partnership with Google, this course prepares students for a career in the field of Android app development. This course teaches the full life cycle of app development, from concept validation through execution and launch of live, functional applications. Students graduate with a portfolio of work including an Android app.
  - Skills & Tools: Java, XML, SQL, Android Studio.

- **Data Science Immersive** (12 weeks) - This course prepares students for full-time roles as Data Scientists, Data Analysts, or other roles that require advanced work with data. Focusing on the ability to analyze, make sense of, and convey data-driven facts from massive data sets and predict what happens next through predictive modeling and pattern recognition. Students graduate with a portfolio of work showcasing their ability to create machine-learning insights.
  - Skills: Data Wrangling, Analysis, Machine learning, Data visualization, Big Data

- **User Experience Design Immersive** (10 weeks) - The intent of this full-time course is that you graduate ready to start a career as a User Experience Designer. Through mapping out and executing the entire design process using techniques like wireframing, storyboarding, prototyping, and conducting market research, the key curriculum components include: Learn UX Design, Fundamentals of UX, Digital UX Design, Storytelling w. Design, UX Design in the Real World. Students graduate with a portfolio of student work as well as a client-facing final project.

- **Web Development Immersive** (12 weeks) - This course prepares students with the necessary skills and job-relevant programming languages like HTML, CSS, Javascript, Ruby on Rails, SQL, etc. The intent of this course is for you to emerge as a job-ready, full-stack developer. Students graduate with a portfolio of work from in-class assignments and projects.

- **Other offerings include 8+ part-time courses and 5 part-time online course circuits** - These courses run for 10-12 weeks but do not meet every day. Part-time courses include: Data Analytics, User Experience Design, Data Science, Front-End Web Development, Visual Design, Product Management, Digital Marketing, Javascript Development, Back-End Web Development, iOS
Rapid success has allowed the company to expand to 15 campuses on 4 continents, and the company has now graduated over 5,500 graduates, with a current capacity to enroll 5,000 students. Some would say career outcomes from General Assembly and a few other similar providers are unprecedented: GA boasts that 99% of students that have graduated from their immersive programs have found paid employment in fields relevant to their program within six months of graduating. To assist with this process, GA has staff members called Outcomes Producers who do nothing but advocate for and place graduates into high-paying, full time roles.

9. The New Frontier: Unbundling and Re bundling in Education Technology and the rise of the A-la-Carte Learner

Udemy is an online course marketplace that allows anyone to publish courses and any learner to buy them – with prices ranging from $10-$50 USD. Founded in 2007 by young mathematician Eren Bali from Ankara, Turkey, Udemy currently has over 10 million registered learners and has served over 42 million course enrollments.\textsuperscript{81}

Udemy has no campus, employs no instructors, sponsors no research, and has no book publisher or hospital. Udemy eschews most of the services that make up the bundle of services found at colleges and universities, yet it is on a growth trajectory that suggests it may be one of the most important postsecondary innovators in the world. Though not the first to attempt this model, they brought to the mass market something that will be with us from now on - the course marketplace – and the world has been fundamentally changed.

The small startup in San Francisco, CA is able to accomplish this feat by focusing on only one thing: bringing compelling video-based instructional courses online and providing them to learners who value them and are willing pay for them. Certainly there are other features and capabilities that drive this one service; doing this well is by no means simple. Udemy boasts a sophisticated course and instructor evaluation system. Their video playback technology has been built and rebuilt, as has the user interface. Their marketing and remarketing and learner re-engagement systems are sophisticated, and their pricing strategies are designed to hook repeat learners. Clearly, doing one thing well is not easy, and doing it in a best-in-class manner requires tremendous thought and iteration.

Udemy is a leading example of an emerging class of education technology startups, now so numerous that even organizations like Learn Capital struggle to track them all. With Internet and mobile devices creating connected learners, unbundling is not only increasingly possible but swiftly becoming mainstream. It allows the innovator to make up for breadth and high prices with volume, aggregating as many Internet users as possible and empowering their learning globally. This phenomenon has become known as the \textit{Zero Marginal Cost Learner} - each additional learner can be served at almost no additional marginal cost -- and this is what allows these companies that focus on just one service to grow into much larger organizations than their bundled counterparts.

Some combination of a campus, the credit hour, a course catalog, professional instructors, a sequence of courses, and a credential presently form the base model for nearly all postsecondary institutions. As if using a template, this model has stayed consistent through prior waves of innovation. From this core, other services have multiplied and grown, the complexity of the offerings have increased beyond measure, and for the most part the costs and prices have increased more rapidly than the ability for governments and families to pay.

With the rise of connected devices and concurrent, on-demand access to media and information, a form of creating new markets has become en vogue: unbundling. Unbundling does not have the same canon of literature as disruptive innovation, but as a theory it has become well known inside innovation circles and has received significant discussion in education. Unbundling can be described as the process of isolating customer needs, defining more specific value propositions, and providing a narrow scope of services that more clearly meet those isolated needs.
In this section, we will illustrate unbundling from the perspective of both the service provider and the learner.

Unbundling the Needs of the Learner

Unbundling clearly maps to Clayton Christensen’s “jobs-to-be-done” approach (known for the theory of disruptive innovation). Customers “hire” a product or service to do a particular “job.” From this view, Christensen suggests that markets should not be segmented demographically but rather by shared needs, wants, and goals that can be met with a similar product or service experience.

What “job” is the learner hiring for, what does the learner want from enrollment? Is the learner seeking to come of age, an opportunity for self-exploration, or hands-on engagement amongst scholars developing the frontiers of knowledge? Or are they seeking to transition from one industry to a new one with better opportunities? Are they needing to freshen up on the basics, do they want a broad interdisciplinary understanding, or are they refining an understanding of something they already know? Do they enjoy learning for learning’s sake or is it a means to employment or promotion? Do they want options across professions or do they want a specific profession? Do they want to advance within a profession or are they starting from scratch?

However, when institutions adopt an “emporium” approach to learner’s needs – with every institution attempting to do any or even all of the jobs a learner wants to be done – the result is Bowen’s Rule: that institutions raise all the money they can and spend all the money they raise, furthering complexity creep within the incumbent model. Within the institutional model, an ever-increasing set of stakeholders -- governments, donors, alumni, and communities -- add to the complex set of expectations thrust upon institutions. As time goes on, institutions get further and further away from the needs of the learner. This creates both a cost crisis as well as a market opportunity for innovators to focus on the learner first.

Edtech innovators are upending the “emporium” practice. Small, startup companies isolate and deliver upon just one job, and together they are “unbundling” education.

Within the institutional model, an ever-increasing set of stakeholders -- governments, donors, alumni, and communities -- add to the complex set of expectations thrust upon institutions. As time goes on, institutions get further and further away from the needs of the learner. This creates a cost crisis as well as a market opportunity for innovators to focus on the learner first.

In the diagram below, we try to identify discrete needs of learners in postsecondary education. Collectively, we at Learn Capital have spent decades in the education industry and feel that our understanding and representation here can serve to illustrate our thinking on unbundling learner needs. The following diagram is represented with a color spectrum: darker colors signify the ease with which an innovator can isolate and deliver upon a single learner need.
• **Inclusion** reflects the likelihood of any one learner being offered enrollment. While elective admissions processes drive the prestigious institutional model, innovators can redefine the admissions processes in favor of inclusion.

• **Convenience** is largely based on how close the campus is to a student’s daily routines, homes or workplace. The rise of for-profit degree programs in the US can be mostly attributed to excessive distance between potential learners and the closest college campuses. With the rise of connected devices, internet and mobile applications can now enable learners to access learning conveniently.

• **Flexibility** is primarily concerned with course attendance and deadlines. Adult learners who work and/or have families need the flexibility to decide when they attend classes and submit coursework.

• **Enrollment timing** speaks to flexible enrollment schedules that work better for individual learners. Traditional institutions operate on a seasonal calendar from the age of agriculture, and they generally enroll people on a term schedule that begins in the fall. Many learners need a different time of enrollment, with immediate enrollment being a common demand.

• **Affordability** is a mix of listed tuition price, net price after financial aid, and the ability/willingness of an institution to work with students to help meet their financial obligations (known as gap funding) while enrolled in a program.

• **Payback period** is the time needed for the learner to make back the tuition spent on their education post-graduation. Career-minded learners often need to generate income immediately after graduation, while others may accept a longer-term payback period.
• **Support** is a set of services that help learners work through challenges associated with selecting and completing coursework.

• **Rigor** is the nuanced set of expectations around coursework. It reflects both the expectation that students can perform and complete demanding coursework, as well as the expectation that learners will remain adequately challenged through the duration of their enrollment.

• **Duration** is the expected period during which the learner is enrolled. For bachelor's degrees the duration is four to six years, while professional programs are typically one to two years. Many innovators are introducing different periods of duration.

• **Breadth** reflects the likelihood that subject matter will be interdisciplinary or stay focused on one field of study. Young learners generally seek exploratory curriculums, whereas adult learners are more likely to want direct mastery of the skills and subject matter for their career objectives.

• **Program reputation** is the result of expectations held by employers – and society in general - about a particular curriculum, the students’ learning experiences, and the presumed skills of the program’s graduates.

• **Prestige** is equated with brand recognition, selective admissions, quality and trustworthiness. Learners are often influenced by their peers, parents, and communities who are all swayed by an institution’s perceived prestige. Though institutions can often compete on program reputation, prestige is intangible, abstract, and difficult to influence.

**Unbundling Learner Audience Types**

Examining the various vectors of learner needs can be an eye-opening exercise. However, providers do not serve each individual learner according to their particular needs – to build an enterprise, providers must inherently serve groups of learners. After surveying 3,200 respondents enrolled or considering enrolling in a postsecondary program in the United States, the Parthenon Group segmented learners into six distinct student archetypes in a report entitled *The Differentiated University.*

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Aspiring Academics value prestige and seek the opportunities of a research university. They are academically prepared, and have the cognitive and behavioral skills to succeed in advanced coursework. They are interested in graduate schools, and have little trouble navigating the complexity of undergraduate education.

The Coming of Age learner segment is unsure of their interests and unaware of compelling career choices. They seek to take advantage of a broad curriculum, a rich social environment, and extracurricular offerings that will allow them to explore their interests and learn more about the world.

Career Starters are young adults interested in specific career opportunities after college and are seeking the most direct path that can get them there. The reputation of the program matters but only from the perspective of future career opportunities in a given field. Rigorous curriculum is important but only insomuch as it prepares them for future success.

Career Accelerators have work experience in a given industry and are seeking to accelerate the status, respect, and salary of their chosen path. They are often made aware of learning opportunities through industry networks and have opportunities lined up after they complete the program. These learners seek advanced curriculum specific to their chosen field because they already have basic knowledge and are attempting to stand out from others.

Industry Switchers are seeking to start a career in a different field, either because they believe there are better economic prospects or because it seems to suit them better. These learners are looking for a secure pathway and need introductory curriculum as well as support services to break into their chosen career path.

Academic Wanderers are typically adults that have taken coursework but not completed a postsecondary degree. They are not particularly committed to a course of study and do not have strong interest in rigorous or advanced coursework. They are
motivated by a general sense that they would have stronger opportunities and better economic prospects if they were able to get a college degree.

Drawing on both my previous work and the descriptions above, Learn Capital proposes that newly segmented markets will be addressed in the diversity of need and demand, rather than by propagating the incumbent model, as has historically been the case. For the purposes of modeling the needs of such learners, we group various cohorts that are likely to have similar circumstances. The mix of online and in-person experiences in postsecondary will vary by age cohort, and estimates here are a rough number that would need to be adjusted based on actual demographic data, an analysis too complex for this report. A taxonomy and terminology that may more accurately illustrate the diversity of demand is proposed below, based on sources discussed in the Section on Unbundling and Re Bundling in Education.

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<th>Learner Needs</th>
<th>Foundational Curriculum Needs</th>
<th>Broad Curriculum Needs</th>
<th>Focused Curriculum Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation Seekers</td>
<td>Learners need foundational curriculum that assures they can thrive in an information economy.</td>
<td>Learners need exposure to a broad range of subjects, industries, fields and opportunities to help them make informed directional choices.</td>
<td>Learners need focused content and to develop skill sets necessary for a field or profession.</td>
</tr>
<tr>
<td>Idea Explorers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Launchers</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Coming of Age (18-24 yrs)
- Foundation Seekers: 50%
- Idea Explorers: 40%
- Career Launchers: 10%

### Early Career (24-34 yrs)
- Late Bloomers: 40%
- Opportunity Evaluators: 30%
- Career Switchers: 30%

### Working Adult (35-50 yrs)
- Family Providers: 50%
- Workforce Transitioners: 40%
- Advancing Professionals: 10%

The movement of technology-based innovation unveils a new hope for more fully meeting the challenges posed to postsecondary education. Yet many societies still look to the incumbent model to meet these challenges. Why can’t the beloved institutions make the structural changes necessary to evolve? Below a brief review of the history of the incumbent model explores the dynamics that have incumbent institutions stuck.

### Unbundling the Provider’s Offerings

Higher education providers seek to deliver a complex bundle of services for enrolled learners. As the incumbent model has evolved to provide this set of services, it has both grown in complexity and ballooned in cost.

Taken as a spectrum of complex services, and by understanding the discrete value propositions of each for the learner, service providers can see options for creating a unique and more concise package of offerings. They can choose to increase or decrease institutional investment in the performance of these services.
After proposing the following framework in the book *Stretching the Higher Education Dollar*, since its publication in 2013, it has been cited in higher education communities and used as a kind of strategy guide for those trying to use unbundling in their thinking. Daniel Lautzenheiser of the American Enterprise Institute appropriately summarized the implications:

In Staton’s framework, the various pieces of “college” include delivering content, providing a valid credential of a student’s knowledge or skills, fostering a ready-made network of relationships, and providing a personal coming-of-age transformation. For Staton, the earlier parts of the stream (content and credentialing) are more easily replaced by alternative providers than are the latter parts (the network of relationships and coming-of-age experience). This makes intuitive sense: it is easier to share information online than it is to create a vibrant social experience. But, crucially, to the extent Staton’s framework is true, it further suggests that our focus on radically lowering the cost of a full degree at an existing school is misguided, and we would be better served to reorient toward new modes of delivering courses, awarding credit, and providing labor-market signals to stretch the higher education dollar.\(^{84}\)
Knowledge Acquisition

Although learners now have internet-enabled access to information at any time, the behavior of learners has not yet caught up with technology. They are still pursuing access to institutions and courses taught by lecturers. In the long run, however, the ability for the Internet to enable a disintermediation effect – decoupling the process of learning from the process of teaching – cannot be underrated. Traditional models of instruction have only been a means for learners to learn. The value of service providers lies instead in the provision of knowledge.

Service offerings that meet this need include:

- **Expert Information** where the content that the learner needs to learn is created by experts that help define and diffuse that body of knowledge.
- **Delivery Formats** can include lecture, video, texts, workbooks, exercises, games, simulations or other formats of conveying information.
- **Pathways and Sequencing** describes how content is scheduled for the learner, allowing them to progress through curriculum units or chunks of information in a sequence that builds understanding.

Access to Opportunities

Learners want access to opportunities. This is expressed in learner needs for a payback period, program reputation, and prestige. Institutions meet these needs by providing signals of aptitude in their selection process and through their grading, calculating GPAs, and the differentiated credentialing shown through the Cum Laude, Magna Cum Laude, and Summa Cum Laude system. They attempt to provide degrees that are accepted in the labor market as a currency of individual capabilities. Additionally, institutions attempt to provide an opportunity network of involved alumni, career services, and sometimes engaged employers.

Service offerings that meet this need include:

- **Signals of Aptitude** allow learners to demonstrate their academic and intellectual capability for others to view, particularly with a mind towards opportunity generation. The admissions tournament of American postsecondary often plays this function as the selectivity of the institutional admissions process is a cue to others about the aptitude of the learner. Academic performance, rigor of subject matter, program and prestige also play a role.
- **Credentials of Accepted Value** are a binary issuance of a document stating the completion of the requirements to graduate.
- **An Opportunity Network** is a set of interconnected relationships that increase the probability and availability of opportunities, generally for employment but also for other endeavors.

Cognitive and Employable Skills

Knowledge is not just factoids and content, most of which learners assimilate into patterns and generalizations and are then forgotten. Performable skills are generally more valuable, stick with the learner, and come in handy in the future.

Skills are generally divided into two broad and vague buckets: soft skills and hard skills. Hard skills are the tactics and practices of a profession, such as software, mechanical, or operational skills. This type of skills can be easily listed as requirements for a position and can often be demonstrated or have various levels of competency certifications. Soft skills are more fluid, are
harder to assess quickly, and do not have any kind of certifications or grading. Soft skills and are centered around attitude, character, and the quality of interactions with others.

Service offerings that meet this need include:

- **Models of Thinking and Doing** can be easiest to describe as *know-how*. Words that describe cognitive and procedural models thrown about to the point where they lose their meaning, such as critical thinking, argumentation, persuasive communication, quantitative reasoning, and research methods. Irrespective of how challenging they can be to define, scope, and teach, these are probably the most important takeaways for the learner.

- **Facilitated Practice** enables the continual improvement of skills. While knowledge can be rehearsed and studied, skills must be practiced. Appropriate practice is chunked, scaffolded and sequenced: sessions are broken down into achievable tasks, guidelines and assistance increase the probability of success, and tasks are sequenced to improve discrete and interrelated skills.

- **Coaching and Mentorship** keeps skill development on track through complex and personalized feedback and adds the human element that improves motivation and a sense of purpose.

**Personal Transformation**

While many aspiring students state they are seeking better employment options, graduates often state the true value of their postsecondary learning was in the personal transformation that occurred. While many colleges tout their curriculum offerings, which are comprised of their instructors and programs, learners find more value in a complex set of services that create an environment through which an individual grows in their sense of self, confidence and agency, and ability to navigate the world moving forward.

Service offerings that meet this need include:

- **A Rite of Passage** serves as a societal ritual through which individuals change their status in society, often leaving one group to enter another. Postsecondary education serves as rite of passage to the knowledge economy: a learner leaves the group of the less educated to enter the group of the more educated and degreed.

- **A Secured Life Transition** is a term for the need for a secure pathway from one state to another, particularly the transition from a set of less attractive opportunities to a set of more attractive opportunities. This is true for undergraduate degrees for young adults, and is even more valuable for those who attain graduate degrees (is this where you were going with this?).

- **A Culture of Personal Exploration** describes the campus-based, interdisciplinary curriculum offerings of many degree programs -- particularly undergraduate degrees. Many learners are unsure of their personal interests or career aspirations, and they seek a service environment to explore topics and fields of study, or to explore and trial various career options.

**Unbundling in Public Policy**

While governments in the industrialized world are still having heated political debates about how to get incumbent tertiary institutions to lower costs, governments in countries with limited availability of tertiary learning opportunities are embracing and even subsidizing unbundled offerings, providing hope that leapfrogging college will be under way in the near future.
Singapore
Singapore created a Workforce Development Agency, and in 2014 the agency launched the SkillFuture program funded with $700M USD to provide employable skills to all Singaporean citizens who are 25 and above. The WDA created a skills portal on the Internet, and every citizen can enter their unique ID (equivalent to a US Social Security number) and passcode to claim up to $500 USD in credits that can be spent on online coursework and content, including on partner platforms Udemy and Coursera, that will increase their skills and knowledge to unlock further professional and employment opportunities. The Singaporean government is budgeting $1B USD a year for the program through 2020. Thailand sent a delegation to review the initiative and is expected to launch a similar program soon.

India
India has created a Ministry of Skill Development and Entrepreneurship, responsible for the coordination of skill development efforts across the country. The ministry works with 33 Sector Skills Councils and 187 training partners; together, they have launched four major skill development schemes – the Pradhan Mantri Kaushal Vikas Yojana, UDAAN, STAR, and the “Vocationalization of Education.”

Pradhan Mantri Kaushal Vikas Yojana (PMKVY)
The PMKVY is the country's flagship outcome-based skills training scheme. The plan seeks to enable Indian youth (targeting secondary education dropouts) to take outcome-based skills training to increase employability. Training is done according to standards as defined by third-party assessments and allocated to providers by job role and district or city whenever possible. In return, successful trainees receive a financial reward depending on the cost of training, the trainee’s willingness to pay, and various other factors.

UDAAN
UDAAN is a “Special Industry Initiative” for the state of Jammu and Kashmir. The program develops partnerships between the public and private sectors to provide skills training for unemployed graduates, post-graduates, and three-year engineering diploma holders. UDAAN aims to provide training for 40,000 youth over a period of five years, and Rs. 750 crore ($7.5 billion USD) has been earmarked for implementation of the initiative over a period of five years.

STAR
STAR - also known as the Standard Training Assessment and Reward scheme - was a government initiative to provide skills training to 1 million Indians by providing financial incentives for completing certain approved training programs. As of 2015, successful candidates have been paid an aggregate of $141M and over 1.4M Indians have completed the training. Astonishingly, only four people enrolled did not end up completing the program and over 900,000 have passed the corresponding skill assessment.

Entrepreneurship Development
One last example in the works is the Proposed Scheme on Entrepreneurship Development. Currently being developed, the scheme will integrate entrepreneurship courses into the curriculum of 3,000 colleges around India by leveraging massively open online courses (MOOCs). The scheme also aims to set up over 50 nodal “Entrepreneurship Hubs” (E-Hubs), which will connect entrepreneurs to peers, mentors, and incubators.

The Ministry of Skill Development and Entrepreneurship also oversees the National Skill Development Corporation. Structured as a corporation, the agency is separated and physically
distanced from other government initiatives to spur and protect innovative approaches. The NSDC is expected to launch a learning portal online where citizens can claim credits for online learning, similar to the one in Singapore, in July 2016.

How Unbundling Can Reduce Costs and Increase Quality (forthcoming)

Incumbents can only make difficult decisions to cut costs if they are able to see they are not competing on an undefinable, magical student experience but instead offering a bundle of discrete services that can be identified and altered. Innovators can only exceed learner expectations at lower costs if they see they do not have to recreate the whole bundle, but instead can provide just one or a few services.
10. How Innovation is Financed: A Peek at the Silicon Valley Funding Ecosystem

Now that we have reviewed the ways innovation shows promise in terms of offering postsecondary solutions at lower costs, it is worth discussing the funding environment that can bring it to scale. Governments, foundations and development financial institutions can look to the ecosystem that has developed in Silicon Valley and is starting to be found in innovation hubs around the world.

The report *Millions Learning: Scaling Up Learning in Developing Countries* proposes flexible and long-term financing, with particular attention to the what they call the middle phase: “This phase, which occurs after prototype or proof of concept but before implementation at scale, is particularly important but often neglected.” The Center for Universal Education at Brookings focuses on government policy, but clearly explains that funding is readily available for pilot projects and large, established organizations, but is lacking in between. When asking the authors about a supply chain of funders during the launch of the report in April 2016, the answer was that there doesn’t seem to be one.

To explore how there might be a more robust supply chain of funders, readers of this report must briefly entertain looking to the Silicon Valley venture capital model that has unleashed a mindboggling ecosystem of entrepreneurship. Readers should not see this as a promotion of private capital over public funding, but rather a model that can be understood and translated into other contexts where a stable funding supply chain may be lacking, public, philanthropic, or private. (?)

The way the funding supply chain develops is through an organic arrangement of middlemen, often referred to as fund managers, that act as financial intermediaries. Fund managers must raise capital through a variety of capital sources, and must demonstrate that they can create a return on invested capital for those that act as capital sources. Returns come through three primary means: the ability to find and select the strongest organizations and help vet and shape their operating plans, the ability to fill gaps in the funding supply chain so funds are able to get valuable equity without competing with too many other
capital providers, and by providing advice and services that add value to the venture and assist in scaling up to create value for investors through increased revenue and market share.

It is worth noting that the investment that goes into emerging companies is not a subsidy – private capital is invested and the organizations that provide capital expect and often see a return on their initial investment. There is typically no government subsidy at all. As a matter of fact, many venture capital funds outperform public stock markets. Cambridge Associates, the leading research and advisory firm covering venture capital, has an index tracking 1,605 firms that shows investing through venture capital consistently returns more than investing in the S&P 500.

Even though the capital providers and financial intermediaries are private, government can play a catalytic role in the development of these funding supply chains. The nation of Israel has been the most successful at attempting to replicate the Silicon Valley model. In 1993, the government announced a program called Yozma (meaning “initiative” in Hebrew), promising that the government would match any money raised by fund managers investing in Israeli startups. The nation’s annual venture capital investments increased 60 times from 1991-2000, moving from $58 million a year to $3.3 billion a year. By the turn of the century, 70% of Israel’s economic growth came from high-tech, venture-backed companies.

The Chinese government took similar initiative. 1991, the State Council authorized local governments to provide venture capital funds through special technology high-tech zone administrations and just one year later, there were 52 high-tech zones with 5,569 new technology ventures. By 2000, China had over 20,000 new ventures in high-tech zones. While China has a deserved reputation for overly-optimistic numbers, the point is that state policy has fostered innovation both inside and outside traditional innovation hubs.

### A Supply Chain of Capital Helps Ventures Scale Up

Scalable ventures rarely raise money just once. Instead, investment comes through “rounds” of funding that are accomplished in many stages. Investors have sets of expectations as to where a company should be at every stage and what constitutes good progress that will activate their consideration for investing in a round. If they agree to invest, investors have yet another set of expectations as to what should be achieved with the money being raised. Typically, capital rounds are planned to last 18-24 months. One could expect that roughly a year and a half would pass between each round, as it takes this long for companies to meet the expectations inherent for each raise. (Might want to add something about companies needing to constantly fundraise so that they don’t end up at the end of this time period having run out of money and not having the ability to raise more capital) Preparing for and meeting these sets of expectations imposed

---

**Table: Venture Capital Index Pooled Return Compared to Public Market Equivalent**

<table>
<thead>
<tr>
<th>Time Period from 2015</th>
<th>1-Year</th>
<th>3-Year</th>
<th>5-Year</th>
<th>10-Year</th>
<th>15-Year</th>
<th>20-Year</th>
<th>25-Year</th>
<th>30-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Rate of Return (IRR) of Cambridge Ass. US VC Index</td>
<td>22.82</td>
<td>20.78</td>
<td>17.69</td>
<td>10.98</td>
<td>2.89</td>
<td>33.72</td>
<td>24.35</td>
<td>18.09</td>
</tr>
</tbody>
</table>
by investors is what provides a framework for accountability, incentivizing each venture to appropriately focus on value to customers and solid processes for scaling up – all while staying capital efficient.

From the company’s point of view, a good analogy is the process of a ship going through a canal. In order to move from the lower reach into the lock, an infusion of water pushes the boat upwards and the boat must achieve a certain height to proceed. Similarly, a capital infusion pushes the company onward to achieve a set of milestones that entice investors to provide capital for further rounds of funding. The process is illustrated below.

![A Canal Analogy for the Funding Stream for Emerging Companies](image)

Capital rounds are categorized and labeled sequentially from the birth of a company onwards. While there are plenty of variations and exceptions, there is a general pattern of Pre-Seed, Seed, Series A, Series B, Series C, and so on until the company is acquired or goes public.

If the objective of the investment supply chain is to fuel and sustain all good ideas and visionary teams, the canal analogy gets troublesome. Most boats fall apart, and most gate operators are guarded and only open the gate for exceptional organizations. The system is unapologetically Darwinian compared to philanthropic and government processes. Generally, only a little under half of the companies that raise a round of funding do not meet the expectations that would allow them to raise a subsequent round of funding.

However, the emergent result is a flourishing funding environment for organizations that are fit to scale up. Venture capital, as an industry, has tripled in size since 2006 and in 2015 invested in 9,608 deals. The breakdown of those deals is as follows: 52% were angel or seed rounds, 30% were early stage, and 17% were late stage. Most of the increase in industry activity has been at the early stages, and now the number of annual angel and seed investments exceeds 4,500.
<table>
<thead>
<tr>
<th>Funding Round</th>
<th>Funder</th>
<th>Expectation Prior to Funding round</th>
<th>Goals for Next Funding Round</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Seed</strong></td>
<td>Accelerators, Angel Investors</td>
<td>Differentiated vision and value proposition, large opportunity, credible but incomplete team, credible and trusted set of informal advisors.</td>
<td>Minimum viable product, whole team, feedback from customers or learners, early signs of adoption.</td>
</tr>
<tr>
<td>~$100K-$500K gives founders time to focus.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Seed</strong></td>
<td>Seed Funds, MicroVC, Angel Investors</td>
<td>Demonstrable traction, ability to recruit exceptional people, signs of iteration speed, “syndicate” of interested and reputable investors and advisors, early signs of adoption.</td>
<td>Notable growth that curves upward, outstanding customer or learner feedback, recruit key team members, fast iteration speed, define and measure key performance indicators.</td>
</tr>
<tr>
<td>~$250K-$2M gives a small team time to iterate.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Series A</strong></td>
<td>Early Stage Venture Capital, Multi Stage Venture Capital, Venture Debt</td>
<td>Defined and measured key performance indicators, validated growth strategy, compelling growth trajectory, outstanding team members recruited, signs of a revenue model and business model, good competitive positioning and plan for defensibility.</td>
<td>Outstanding growth that curves upward, clarify and prove revenue model, measure and iterate on growth model, clarify business model, recruit functional leaders and managers across organization.</td>
</tr>
<tr>
<td>~2-10M gives team capacity to grow and improve product offering.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Series B</strong></td>
<td>Early Stage Venture Capital, Multi Stage Venture Capital</td>
<td>Outstanding growth trajectory, clarified business model that scales, profitably serves a single customer, outstanding operating teams that can scale quickly, path to market that allows continued growth.</td>
<td>Plan towards profitability, measure and iterate on business model, iteration on organizational model, lowering costs to grow customer base, exceptional execution speed outpaces competition</td>
</tr>
<tr>
<td>~6-20M gives organization fuel to grow and build a company.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Series C</strong></td>
<td>Late Stage Venture Capital, Multi Stage Venture Capital</td>
<td>Established market leadership, resonant brand and company, recruiting motivated and talented employees, organization that scales with low team and customer churn, escapes competition or leaves them behind.</td>
<td>Company can choose to be profitable or to invest in continued growth and has control over its destiny. Continued market leadership with increasing barriers for competition from incumbents and followers.</td>
</tr>
<tr>
<td>~10-60M gives company fuel to grow and iron out kinks.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Series D and Later</strong></td>
<td>Growth Capital, Multi Stage Venture Capital</td>
<td>Continued growth that meets or exceeds investor expectations for return. Has a clear path to exit through being acquired or going public.</td>
<td>Continued growth that exceeds investor expectations and attracts additional capital.</td>
</tr>
<tr>
<td>~big numbers give company fuel to continue scaling.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

©Michael Staton, Learn Capital, 2016
Figure 24: Global Allocations of Venture Capital

Figure 25: Number and Dollar Value of Venture Capital Investments, 2006-2015

Figure 26: Number of Venture Capital Firms and Dollars Raised, 2006-2015
Education technology now has its own supply chain, filled with diverse participants that are investing in new ideas, pilot projects, and organizations with the ambition to scale solutions to millions of learners. Edtech funding was less than $500 million dollars in 2010, but by 2015 the number had exceeded $3B USD. According to CB Insights, there are now 2,269 edtech startups globally that are funded by 2,356 investors.

At the earliest stage, entrepreneurial teams are assisted by a group of investors called accelerators, which focus on investing small amounts into small teams with good ideas. The most well-known accelerator is Y-Combinator, which has incubated companies like AirBnB, Dropbox, and Stripe. Y-Combinator recently acquired Imagine K-12, a specialized accelerator for education technology. Other edtech focused accelerators include StartEd and Learning Edge (New York), Emerge Education (London), LearnLaunch (Boston) and GSV Labs (Palo Alto, CA), as well as corporate venture accelerators like Intel and AT&T Aspire. Some general accelerator programs, such as 1776 and Village Capital, have dedicated edtech practices to capitalize on the surge of edtech startups in recent years.

When a startup matures and needs more funding, it then often approaches early-stage venture capital firms. Aside from Learn Capital, there other funds that specialize in education technology.
include Reach Capital, Rethink Education, Owl Ventures, and University Ventures. Learn Capital estimates that these firms manage just under $800M USD combined and have supported approximately 140 or more distinct companies as of May 2016. Other generalist venture capital firms have developed an education technology investment practice, including Kapor Capital, Felicis Ventures, GSV Capital and The Social+Capital Partnership that have invested in a significant number of edtech startups. The famous and longstanding venture capital firms Kleiner Perkins and Accel Partners have also been known to invest in the sector.

<table>
<thead>
<tr>
<th>US EdTech</th>
<th>Europe EdTech</th>
<th>Generalist</th>
<th>Emerging Market</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accelerators</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LearnLaunch, StartEd</td>
<td>Emerge EdTech</td>
<td>Y Combinator, 1776, Village</td>
<td>Startup Chile, Startup Brazil,</td>
</tr>
<tr>
<td>Learning Edge, ATT</td>
<td>Education</td>
<td>Capital</td>
<td>Startup Mexico,</td>
</tr>
<tr>
<td>Aspire, ASU Draper</td>
<td>(Oxford), Xedu</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Finland)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Early Stage Edtech</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn Capital,</td>
<td></td>
<td>Kapor Capital, Felicis</td>
<td>Gera Ventures (Brazil-US),</td>
</tr>
<tr>
<td>Reach Capital,</td>
<td></td>
<td></td>
<td>Fresco Capital (Asia),</td>
</tr>
<tr>
<td>Owl Ventures, Rethink</td>
<td></td>
<td></td>
<td>NXTP (LatAM), 500 Startups</td>
</tr>
<tr>
<td>Education,</td>
<td></td>
<td></td>
<td>(Global), NSI (SE Asia),</td>
</tr>
<tr>
<td>University Ventures</td>
<td></td>
<td></td>
<td>Sinovation (China),</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZhenFund (China)</td>
</tr>
</tbody>
</table>

After less than eight years of operation, Learn Capital has made investments in a portfolio exceeding 80 organizations that together reach an audience over 300 million learners. (Note, a single learner may use multiple services within the portfolio.) Learn Capital companies reach an average of just over 90,000 learners per employee, representing the extraordinary efficiency with which education technology can create new opportunities for learners.

**Edtech Investors Club**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kapor Capital</td>
<td>163</td>
<td>25%</td>
<td>$100K - $250K</td>
<td>Allovue, ClassDojo</td>
</tr>
<tr>
<td>Learn Capital</td>
<td>60</td>
<td>100%</td>
<td>N/A</td>
<td>AllSchool, BloomBoard</td>
</tr>
<tr>
<td>GSV Capital</td>
<td>50+</td>
<td>30%</td>
<td>$5M - $10M</td>
<td>Clever, Knewton</td>
</tr>
<tr>
<td>500 Startups</td>
<td>43</td>
<td>N/A</td>
<td>N/A</td>
<td>Remind, Ubbooly</td>
</tr>
<tr>
<td>NSVF “Seed” Fund</td>
<td>40+</td>
<td>100%</td>
<td>$150K</td>
<td>MathChat, edSpark Learning</td>
</tr>
<tr>
<td>Social + Capital</td>
<td>24</td>
<td>~15%</td>
<td>Series A ($3M - $5M)</td>
<td>Brilliant.org, InstaEDU</td>
</tr>
<tr>
<td>Rethink Education</td>
<td>22</td>
<td>100%</td>
<td>$5M - $10M</td>
<td>Engracia, Eliavation</td>
</tr>
<tr>
<td>Reach Capital</td>
<td>11</td>
<td>100%</td>
<td>$250K - $2M</td>
<td>Zeal, Tynker</td>
</tr>
<tr>
<td>Catamount Ventures*</td>
<td>11</td>
<td>50%</td>
<td>$2.5M</td>
<td>MasteryConnect, TenMarks</td>
</tr>
<tr>
<td>Owl Ventures</td>
<td>6</td>
<td>100%</td>
<td>$5M</td>
<td>DreamBox Learning, Newsela</td>
</tr>
</tbody>
</table>

*Sources: Kapor Capital, Learn Capital, GSV Capital, 500 Startups, Social + Capital Partnership, Rethink Education, Reach Capital, Owl Ventures

*Figure 29: Active Education Technology Investors, (EdSurge 2016)*

If organizations continue to be successful, they can then proceed to later stage funders. Currently, there is no late-stage funder dedicated solely to education technology. However,
generalist growth stage investors have shown an appetite to continue supporting the most fit ventures. Insight Venture Partners and Warburg Pincus, for instance, are known for their active edtech investment practices.

Thus, the supply chain of capital for education technology is now active and filled by intermediaries that must find a needed position in the ecosystem that supports early stage ventures that scale up. Once these intermediaries become established, they can reposition to fill future gaps in the supply chain of capital. For instance, Owl Ventures and Learn Capital have both stepped up to invest at the Series A and B stage since there was a gap in the funding environment. While Owl Ventures raised capital from philanthropic sources, including the Gates Foundation, Learn Capital was able to raise over $100 Million USD from entirely private sources.

The Small Cost of a Funding Supply Chain for Education Ventures

Though the funding supply chain is robust in the United States, it is extraordinarily low-cost compared to subsidies for the incumbent system. Federal and state subsidies for higher education in the US are estimated at $160B per year. The peak of edtech venture investments in 2015 amounted to $3B USD, representing just 2% of the amount used to subsidized current models. A rough costing of the US supply chain of funding for education ventures is detailed in the following, with ratios to GDP Per Capita, Population, Postsecondary Enrollments, and subsidies to illustrate a relative cost applicable to other nations.

<table>
<thead>
<tr>
<th>Costing Out a Supply Chain of Capital for Education Ventures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable Name</strong></td>
</tr>
<tr>
<td>Annual Cost Per Intermediary</td>
</tr>
<tr>
<td>Number of Intermediaries</td>
</tr>
<tr>
<td>Total Cost for All Intermediaries</td>
</tr>
<tr>
<td>% of Cost per Intermediary Type</td>
</tr>
<tr>
<td>Multiple on GDP Per Capita</td>
</tr>
<tr>
<td>Cost per Citizen</td>
</tr>
<tr>
<td>Cost per Citizen as % of GDP Per Capita</td>
</tr>
</tbody>
</table>
### Cost per Postsecondary Enrollment

<table>
<thead>
<tr>
<th></th>
<th>$2.18</th>
<th>$7.28</th>
<th>$24.27</th>
<th>$43.69</th>
<th>$87.38</th>
<th>$164.81</th>
</tr>
</thead>
</table>

### Cost per Postsecondary Enrollment as % of GDP Per Capita

<table>
<thead>
<tr>
<th></th>
<th>0.0041%</th>
<th>0.0137%</th>
<th>0.0458%</th>
<th>0.0824%</th>
<th>0.1647%</th>
<th>0.3107%</th>
</tr>
</thead>
</table>

### Cost as % of Government Subsidy

<table>
<thead>
<tr>
<th></th>
<th>0.0281%</th>
<th>0.0938%</th>
<th>0.3125%</th>
<th>0.5625%</th>
<th>1.1250%</th>
<th>2.1219%</th>
</tr>
</thead>
</table>

While all of the cost of the supply chain of private funding comes from private capital sources in the United States, other sources of capital are beginning to fill out a supply chain around the world. Of particular note is the rise of impact investors, who invest primarily to achieve social and philanthropic goals rather than to create a return. The impact investment trend is attracting Development Financial Institutions, Sovereign Wealth Funds, as well as forms of government funding. This funding is often paired with private, returns-focused capital and sometimes has creative structures in which impact investors take a greater financial risk or take a lower return in order to leverage an initial financial commitment by incenting larger amounts of private capital. These dynamics have been detailed in a report by the Parthenon Group commissioned by the World Innovation Summit for Education entitled *Driving Grades, Driving Growth: How Private Capital in Education is Increasing Access, Inspiring Innovation and Improving Outcomes*. A helpful chart from the report is included below.
Figure 30: Types of Capital in Education (Parthenon Group 2016)
11. Recommendations towards a Better Postsecondary Education System (Forthcoming)

In this report, we have reviewed the contrast between the incumbent model and innovative models, summarized a history of innovation in postsecondary education in the US, and outlined major frameworks for thinking about innovation (including introducing some of our own).

Manage the incumbent model more effectively

1. Invest in the energy and resources to measure things that are hard to measure.

Most thought leaders and decision makers in postsecondary education rely on data that is collected by the government. Leading education economists despair that there is a “dearth of rigorous research on postsecondary education in developing countries.” In the United States, data collection is operated by the National Center for Education Statistics. While a strong effort is immeasurably better than nothing, the data collected is primarily enrollment counts, financial aid, and graduation rates. In addition, the data is organized in ways that are even confusing to teams trained in their use. Data on student learning, teaching quality, costs of delivery, or other data does not exist on any meaningful scale or consistency. Initiatives to gather better data, especially on things that are difficult to measure, such as student satisfaction and impact on long-term career outcomes, would show promise since they would give thought leaders and decision makers better information from which to make decisions.

2. Measure outputs not inputs, fairly and equally applied to everyone.

The incumbent system that organically developed in the US and Western Europe has left a legacy of measuring inputs like enrollments, hours in class, and courses taken and passed. Incumbent institutions have been mostly defiant or elusive in attempts to measure student learning and personal development. Despite several initiatives, including the Collegiate Results Survey and the National Survey of Student Engagement, no attempt at measuring and benchmarking has been largely comprehensive across the diverse array of US postsecondary institutions.

3. Any subsidies should incentivize success, but incentives should be for leading indicators rather than lagging indicators.

Most subsidies in postsecondary education are direct budget subsidies to institutions or financial aid to students to pay upfront tuition. This means incentives drive two behaviors: to ask for more direct subsidy and enroll more students. There are no financial incentives to focus on success, and there is little common definition of success to begin with.

There has been a move towards incentivizing student graduations, but graduation is a lagging indicator of student success. Incentives should focus instead on student participation in learning, continued enrollment and persistence, and the effectiveness of instruction.

4. Require some transparency, and celebrate greater transparency.
Current frustrations with the incumbent model focus on the lack of accountability on issues that would be helpful in shaping policy and supporting learners. However, creating regulatory frameworks for accountability and enforcing them tends to be problematic in education. The authors of this paper believe transparency is a stronger tool that leads to accountability. For instance, very few incumbent institutions publish year-over-year retention, and almost none track or publish employment outcomes. Requiring some transparency and celebrating greater transparency would do much to catalyze stronger accountability. For instance, General Assembly has taken a large step in this direction, publishing their own transparent performance standards in “Measuring What Matters,” a report released in April 2016.

6. Create or curate content. Think Hub and Spoke Systems.

Much of the foundational learning in postsecondary education is canonical, and course content has the potential to be shared. Currently content experts hired for research teach these courses, so much work is redundant. To drive down costs and ensure quality, it would be wise to examine a few models in primary and secondary education in rural areas. Amazonas State Government’s Media Center (Amazonas) has a studio from which they create master lessons which are distributed through television and using the Internet. Teachers in rural areas work in cooperation with the media center and play the role of facilitator, coach, and tutor. The teacher does not need to be a content expert and is supported through great content and instructional materials.

In postsecondary, there are glimpses of this model. Arizona State University has partnered with edX and is using the edX platform to publish courses commonly taken during the first year of college. These courses include English Composition, College Algebra, Problem Solving, Macroeconomic Principles, and Western Civilization. Arizona State will provide course credit that will be accepted at most other four-year programs in the United States.

7. Embrace endowments, but tie endowments to students rather than to institutions.

In the United States, the top 100 university endowments total $373B dollars to support 2,322,439 enrolled students. Endowments are required to generate a subsidy to the institution of 5% per year, meaning these endowments generate an operating subsidy of nearly $19B to the 100 institutions blessed with an endowment, or around $8,024 USD per enrolled student per year.

Endowments in the United States are raised to support the institution, so this money is only available if students choose to go to one of these 100 institutions. In addition, it acts as an overarching operating subsidy rather than directly funding the learners.

Emerging markets have the ability to incentivize endowments that are set up to fund learners rather than institutions and empower learners to make choices that are right for them.

8. Empower institutions to unbundle themselves. In particular, decouple research from teaching and learning.

The only way to effectively undo the complexity creep of the incumbent model is to empower institutions to unbundle themselves. Teaching faculty should focus on instruction and be hired for their teaching ability, whereas research faculty should focus on research and be hired for their research productivity. Core curriculum courses should be streamlined and remedial
coursework should likely be outsourced to Next Generation Content and Programs. Graduate schools and professional programs should be separated and operate independently.

9. Fund and require leadership training at the governance level.

Colleges and universities are most often set up as independent organizations with a governing board in the US called a Board of Trustees. These board members are chosen for their access to financial resources and political clout rather than their expertise in postsecondary education. When independent postsecondary institutions struggle, they often suffer from a lack of competent leadership that is worsened by uninformed governing boards. If these organizations are to thrive as the world changes, these governing board members need access to training. The Association of Governing Boards, the American Association of Trustees, has yet to focus its program on innovation, so while it remains an area of interest, the trustees have not had specific training.

Prepare for a future beyond the incumbent model

1. Design a flexible regulatory process that adopts the learner perspective rather than an institutional classification, particularly for any accreditation system. Make time and space for innovators to innovate outside the regulatory system. Make sure it can quickly adapt to new types of models serving new learners.

The accreditation process in the United States is primarily concerned with a checklist of attributes that meet the standards of comparable institutions. As these classifications mean little from the perspective of the learner, institutions end up serving a diverse group of students that have different and often conflicting needs from the institution. No accreditation process examines the attributes or the success of the institution from the diverse points of view of the learner.

In the US, innovators delivering programs in postsecondary education are quickly threatened to comply with regulatory regimes of states, yet the regulations are designed to regulate the incumbent model of programs. This situation is both adversarial and expensive to innovators, as they have to consult with regulatory attorneys and end up in time-consuming document and form generation to demonstrate the value of their programs. Regardless of the efforts of innovators, the frame of reference of the regulators is informed by organizational and mental models that deeply set back what could be a creative and productive relationship between the state and innovation ecosystems.

2. Do not starve the incumbent model, but do not continue to invest in its development.

US financial challenges from 2009-12 created an atmosphere for states to cut budgets to the incumbent post-secondary system. This has led to radical increases in tuition, thus decreases in affordability. Starving incumbent institutions is certainly a move towards inequality and hurts both institutions doing good work and learners doing their best to avail themselves of opportunities.

In tandem, immense capital continues to go into the incumbent model in the US and more profoundly across the globe.

3. Allow incumbent institutions to change their organizational and service delivery model.
The operating environment of accreditation, shared governance, and financial subsidies create limitations on the ability for incumbent institutions to adapt by altering their model. While there are a number of leaders who would want to innovate if they could, the operating environment doesn’t allow them to do so.

4. Complexity tolerance, risk-taking and uncertain results need to be embraced.

The regulatory environment and public interest stifles the innovation or adoption of new models in which the outcome is initially unknown. Leaders of incumbent institutions feel great reputation risk in trying to be bold or trying something different. The media and government act as a status quo police, questioning new investments or new models and crying out.

5. Build a learning registry as an e-government initiative.

The greatest hesitation in embracing the new wave of consumer-focused online learning is the open question of how a credential will be interpreted, particularly in the workforce and for employment dynamics. New technologies are emerging called learning registries, and they are set up to act as an independent service that can verify, catalog, and demonstrate learning progress, understanding, and mastery. Some of these registries utilize Blockchain, which is more of a concept or model more than a single technology. Blockchain is a security methodology used in digital currencies to create redundant and secure records in many server locations. This kind of technology shows promise in learning by creating verified and stable records of learning that individuals and societies can rely on.

Seed the future.

1. Fund an open source movement.

Digital credentials, open education resources, personalized learning, longitudinal assessment data, and more will need standards, tools and technology in order to be unleashed. Many of the most instrumental tools for the Internet were created by individuals or open source organizations and non-profit standards bodies, and without those many conjecture that the Internet would be fully operated by private companies like Microsoft and Oracle.97

2. Embrace intermediaries for the supply chain of capital and financing.

Direct government funding leads to adverse selection (or selecting for the best applicants rather than the most fit organizations) and to funding and governance instability. Because government directions change with political headwinds, attention spans, and elections, following through from early stage through scaling up is a challenge. Electing to work with “fund managers” or financial intermediaries will assure a more appropriate funding supply chain and longer term governance and support structures.

3. Think cheap.

Enabling innovation is unfathomably cheap compared to funding the status quo. Annual subsidies to the incumbent postsecondary system in the United States exceeds $200B per year. Funding in education technology innovation is now $3B a year, with only around a third of that going into postsecondary technology ventures and an even smaller portion going to early-stage companies. Given the United States subsidizes the incumbent system at approaching $150B
per year, the amount of money going into new ventures is extremely small and represents a small cost for the R&D function that technology ventures play.

4. Develop an ecosystem of innovation.

Innovation requires an entire ecosystem rather than simply funding and startups. Attorneys, advisors, directors, investors, liquid hiring markets, and other elements are essential. Seeding an ecosystem only requires a sense of place, purpose, and consistent convening and events. 500 Startups is an example of an early stage accelerator and micro-fund manager that focuses on ecosystem development. While 500 Startups is based in San Francisco and Mountain View, CA, they now have accelerator programs and micro-funds in Thailand, Korea, and other locations around the world.

5. Create an environment that embraces and learns from failure.

In government and philanthropy, the increased social capital necessary to make decisions creates a cultural environment that is afraid of failure. In the funding of innovation, roughly 50% of investments lose capital, and a significant number of potential startups never get off the ground. However, risk taking is a structural attribute that makes the whole process work. FailCon is a conference where entrepreneurs speak openly about their failures. Founders Forum is a closed door, intimate meeting that allows founders to speak openly about their issues.

Prepare to manage the future.

1. Support personal and professional development demanded by the consumer with some oversight.

Singaporean residents now have up to $200 USD in credits to spend on professional development courses that will help them in their current roles or to advance their job prospects. The Mexican government now officially accepts Coursera signature track courses as a pathway to advance eligibility for pay increases in an employee’s current role. Governments can create subsidies, either through accounts with companies or with digital payment systems to enable individual citizens to choose the learning that’s right for them.

2. Set up a way to manage private corporate governance according to public expectations for integrity. (Maybe an E-Corporation).

Investors see the American C corporation as the standard for legal organizations. A corporation has many attributes that make it the most acceptable form of equity investing. However, the sole obligation of the board of directors and the executive team is to increase value (monetarily) for shareholders. Companies that serve learners around the world, particularly if they operate schools, have obligations that are greater in scope than increasing shareholder value. These organizations have many stakeholders and must ultimately prioritize serving learners, their families, and even wider circles – communities, municipalities, regions, populations, and nations.

An example of a structure that might work is the model of the Benefit Corporation (B Corp).

3. Incentivize private capital to work for the public good.
While it can be argued that any capital investment helps economic prosperity, a new breed of investors, called impact investors, seek to generate demonstrable social benefits alongside their financial returns. A 2014 report by the US National Advisory Board on Impact Investing suggested that in order for impact investing to reach its full potential, more intentional and vigorous partnerships need to be forged between public and private sector institutions. The Community Development Finance Institution (CDFI) Fund leverages $20 USD in private capital for every $1 USD invested by the government. 98

4. Have a process in place for government or philanthropic takeover for companies that get “too big to fail” or are ineffectively serving learners.

Australian Prime Minister Julia Gillard, while interviewed for this report, discussed a high-profile failure of a daycare chain while she was governing. Because this company served a significant number of families, the government had to step in and manage the asset sale and wind down to make sure that child care could still be accessed by the family customers. This serves as an examples as to how private capital and business can introduce innovation and fill gaps in service delivery, but also how government needs to have procedures in place when the market faces challenges to maintain the quality of service at scale over time.


18 Ibid.

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73 Craig, Ryan.


75 Pulit, Gonzalo. Communications with Learn Capital, June 2016.


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