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## **Waste Not the Learning Productivity Crisis: Transforming Educational Opportunity into Educational Assurance**

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*If we can learn in the cloud, why is education still the slowest form of learning?*  
— Anonymous student

*The medium is the message.*  
— Marshall McLuhan (1964)

*Education is the slowest form of learning.*  
— Anthony Schwartz (1964)

McLuhan's meme about the entwinement between human communication and its enabling technologies remains insightful, even after an Internet-mediated global community of intertwined minds, cultures, and economies subsumed his television-facilitated "global village." Virtual communities form ephemerally and more naturally from the bottom up than from the top down. This new human dynamic is virally

innervated by what the *technorati* call the “computing cloud,” where we engage content and each other via Google, YouTube, Facebook, free blog sites, and other “cloudware.” Were he here today, McLuhan might quip that “the cloud is the content” or that “the cloud is the community of communities.” He might have rapped, without political bias, that President Barack Obama’s campaign attracted a crowd in the cloud. Online self-service opportunities allowed citizens to interact with the campaign and each other, thus scaling the campaign’s “followership” and formatively reshaping its message. Magnetizing a crowd in the cloud trumped politicking-as-usual in both impact and efficiency.

Why, then, has the impact and efficiency of education not increased with its investments in information and communication technology (ICT)? In other sectors, ICT has been used to restructure business models to improve productivity and competitiveness while avoiding the perilous icebergs adrift in globalization’s changing seas. ICT has benefited the individual productivity of learners, instructors, researchers, and administrators, but education remains the “slowest form of learning” and an inefficient means to scale learning to meet modern needs. One reason is that education operates from the inside out – that is, more directed by historical service models than by the changing learning modalities and needs of students and the goals of today’s public and private investors. To justify public funding, education is now expected to design learning opportunities to the mutual benefit of the learner and the learning needs of a civilization beset by complex cause-and-effect interactions within and among ecosystem, economy, and social equity. Intellectual capital has never been in greater demand, and its “supply-chain” (the lifelong-learning pipeline) has never been leakier. This article frames today’s challenges to education from the outside in – that is, from a tough-love vantage that honors the import of education and presumes to represent an idealized but rational public-policy enterprise and informed public. Its goal is two-fold:

- Provoke strategic thinking from within education about its collective need to redesign service and financial models for *assured* access, *assured* outcomes, and *assured* efficiency on a macro scale that is beyond the scope of any one institution yet is also responsive to micro contexts
- Explain why and how ICT provides the only leverage available if education is to meet the modern world’s need for intellectual capital at a macro level

As globalization inexorably washes over inside-out organizations and capsizes many in its wake, education leaders – whose *raison d’être* usually derives from an outside-in commitment to the common good – must band together to transform ICT from an “inside-satisficing” cost to an investment yielding an outside-in measurably strategic return in both macro and micro contexts.

## ***Summarizing the Learning Productivity Crisis: Drivers and Remedies***

*The Times They Are a-Changin'.*

— Bob Dylan (1964)

*Ask not what your country can do for you – ask what you can do for your country.*

— U.S. President John Fitzgerald Kennedy (1961)

### **Are the Times a-Changin' in Education?**

Asked at an association meeting about the impact of the 2008 global recession on tertiary education, one college president conjured change beyond his control by replying, “Holy shift!” For President Candace Introcaso of La Roche College, economic volatility has been churning seas that have for several years been rising and falling under growing swells of well-intentioned policy and regulation. She urged her colleagues to envision their institutions becoming not *best in the world*, but *best for the world*. Her comments echoed the spirit of JFK’s inspirational inaugural admonition, while avoiding the internally centric analysis that policy-makers often attribute to education leaders. “Best for” also reflects the outside-in perspective presented throughout this article.

The “new economy” is increasing the visibility of and is expanding not only the economic iceberg that has been encroaching on comfortably navigable educational seas for several years, but also other icebergs involving, for example, student learning assessments and pipeline demographics. Education has deftly circumnavigated these expanding icebergs but has done so without charting and promoting a new, holistic navigation plan – that is, a new outcome-driven and quality-assured socioeconomic compact between the public and the education enterprise. For example, a lack of collective vision and collaboration within U.S. tertiary education may have accounted for the chaotic results of the reauthorization of the Higher Education Act in 2008 – more than 1,100 sections of visionless, seemingly random congressional mandates and regulations. The times arguably still need a-changin’ from inside education.

An irony of the global economy is that it is powered by rising levels of education, individual and collective opportunity, and economic productivity, all the while requiring even greater levels of educational attainment to address a myriad of sustainability problems created through its accelerating feedback loop of economic competition and disruption. Policy-makers around the world accordingly are proceeding, intentionally or not, as though education is too important and too slow in its current costly, artisan format to be left entirely to education insiders.

Regulatory paternalism paradoxically is a policy quest for *less regulation* — that is, for a more open, expansionary education marketplace that, like the eBay marketplace, is regulated largely through internally operated trust infrastructure and mechanisms. Policy-makers want competitive options for how credentialed learning opportunities are found, trusted, delivered, accountably assured, and afforded by governments and the people they represent. They envision an education marketplace that is at least as society-centric, learner-centric, and learning-centric as the current market is provider-centric. Before reacting to such policy paternalism, education leaders should reflect, from outside in, on the obligations they incur from tertiary education's ascending global importance.

## **The Brains Race and Its Implications for Leaders and Stewards of Tertiary Education**

*Be ashamed to die until you have won some victory for humanity.*

— Horace Mann, Antioch University's first president, to the graduating class of 1859

Education leaders live Mann's outside-in advice by helping the institutions they serve deliver "victories for humanity." During the 150 years since Mann's exhortation, however, victories for humanity have accumulated (in the form of research, invention, and interdisciplinary knowledge) to the point that everything and everyone are connected to everything and everyone else. The resulting complexities of global interconnectedness now have the ecosystem, economy, and social equity all hanging intertwined in a delicate balance between global sustainability and crisis. Education and the intellectual capital it creates and sustainably refreshes have never been more important to the modern world and a more fruitful investment! Intellectual capital appreciates in value at each stage of the lifelong learning pipeline. In every modern geopolitical context, tertiary education has become a priority, if not *the* priority, according to a recent UNESCO communiqué (UNESCO 2009). In the United States, for example, the *New York Times* columnist David Brooks has synthesized recent research to suggest why the country's historical "35-year advantage on most of Europe" in educational attainment, which "boosted productivity and growth," has been rapidly deteriorating since the 1970s, with the result that today's "skills slowdown is the biggest issue facing the country" (Brooks 2008; Goldin and Katz 2008; Heckman 2008). The core learning outcomes of education in the United States have not kept pace with the educational needs of an economy increasingly driven by the scientific and technological advances that owe partially and ironically to the pure and applied research conducted in tertiary education.

Nations are indeed jostling for competitive socioeconomic position in a new form of arms race — a "*brains race*" for competitive national positioning in the global economy and long-term national social and economic security. Increasing the demand for, and

the delivery capacity of, tertiary education has become a policy priority, especially in science, technology, engineering, and mathematics (STEM). With this good news about the priority importance of education also come volatile policy tensions. Reflecting a policy position that the brains race is too important to be led and managed solely by educators, the socioeconomic compact between the public and the education enterprise is unraveling in degrees or, pun intended, in the pressing need for more of them.

The brains race is geopolitically universal in the modern world but is arguably less pressing for a select few institutions than for all others. In the United States, for example, relatively few private and public tertiary institutions draw a significant percentage of annual operating expenses from endowments and other private sources. These “well endowed” institutions are known for the top-tier academic researchers and the academically accomplished students that they attract and nurture. Their prestige brands and their current practices may remain unaffected by the brains race. In any case, most other institutions have reputations that will rise and fall with their responsiveness to and accountability for the public-policy agendas that are driving the brains race.

From a policy perspective, institutions emerging from the brains race with “winning” reputations will be able to account for measurably improved, “benchmarkable,” affordable educational outcomes. They will have “won” by redesigning learning opportunities and processes for (1) improved credentialing rates, (2) increased capacity for and greater convenience of access, (3) reduced per-credential expenditures, and (4) improved public accountability. Such accomplishments are counter-intuitive within the culture of education and its current “business model” based on credit hours and FTEs. For example, instructor-to-student ratios are reliable direct proxies for per-credit and per-FTE expenditures, but they are not reliable direct proxies for measurable academic outcomes—even though typically assumed by educators to be so (Ewell 2008). An FTE, after all, is an “input” not an “output.” Healthier revenues should follow from healthier educational outcomes, not the converse.

Education leaders need to think strategically about leading and managing by outcomes, rather than by the traditional input measures and the revenues that follow such inputs. In addition to providing fiduciary oversight, governing boards need to think strategically while advising and consenting on complex issues involving strategic financing and academic restructuring. “Following the money,” after all, leads to teaching and learning expenditures and begs difficult questions about the alignment between measurable academic mission obligations and the expense and efficacy of the academic strategies deployed to meet those obligations. These are sensitive questions for educators and, therefore, for the leaders and boards now urgently guiding their institutions/systems toward the truest embrace of mission and the highest levels of mission fulfillment, all within volatile but practical financial realities.

Education leaders need to think strategically about the implications of globalization for education. The brains race, after all, is a result of globalization and the interconnectedness of people, cultures, and economies. With globalization came innovative business models and increased productivity, all enabled by ICT. Indeed, it's the other way around. With advances in technology came the ICT-enabled productivity strategies and innovative business models that have characterized globalization. Technology-enabled innovations below the surface of the globalization iceberg have battered, if not sunk, venerable business models in most sectors of the economy – consider, for example, the newspaper business in the United States. Meanwhile, the credit-hour/FTE foundation of education's business model remains largely unchanged and unexamined from the inside. Instead, many tertiary education leaders have reacted to globalization by establishing operations, physical or virtual, in foreign countries, while also recruiting more foreign students to a traditional "main campus." Such activities, however, are only the visible tip of a globalization iceberg that needs to be more deeply understood by education leaders.

Many governing boards are blessed with members who have business backgrounds and are familiar with the sea-changing processes of globalization. They understand that ICT (in a business context) provides leverage for redesigning service models and business models to be leaner, more nimble, more productive, and more competitive. They know that overall cost containment can be counterproductive when compared with reductions in unit-cost structures resulting from productivity initiatives. They know that the high-touch/high-tech balance point for service delivery is achieved by using ICT as the lever for increasing productivity through online self-service while deploying high-touch on an as-needed basis to individualize critical customer interactions with the goal of improving customer success and satisfaction. Today's banks, for example, provide not only productivity-increasing online (asynchronous) self-service but also individualized high-touch, as-needed services via corporate centers, branch banks, and a host of technology-mediated service centers.

This article explains the counterpart high-touch/high-tech roles in education – that is, it explains how ICT can provide leverage for measurably improving the socioeconomic outcomes of education while simultaneously improving its unit-cost structures to bring private and public investments in the education enterprise into affordable balance as the brains race accelerates to new levels of competition and scale. Education leaders and governing boards need to reflect collectively from the outside in – from the perspective of the socioeconomic challenges that are driving the brains race. This article presents such an outside-in perspective on the education enterprise, with an emphasis on tertiary education. Main themes are interspersed with highlighted sections titled "Outside-In Question Box," a device intended to provoke strategic thinking and discussion about outside-in forces that are acting today in ways that are influencing the future of education.

## Outside-In Question Box 1

1. What should be the role, if any, of your institution in the brains race?
2. How and with what results are various revenue streams being apportioned to quantifiable academic goals in your institution/system?
3. Which academic restructuring strategies can rebalance the private and public portions of those revenues for *mutually sustainable* affordability?
4. Is your institution focused on overall cost containment or on increasing institutional productivity with its byproduct of reduced unit costs – per-credential costs, for example?
5. Have you thought strategically about and discussed the future of tertiary education from outside in – about tertiary education’s socioeconomic compact with the public, its effectiveness in meeting public expectations and mission obligations to the public, its “business” or service model(s) and how they affect both public and private affordability, and how these “big themes” translate into the context of your institution/system?
6. Have you discussed globalization and its relationship to ICT-enabled innovation and program and service redesigns aimed at improving productivity? If so, what are the implications for tertiary education and, especially, for your institution/system?

## A Four-Point Learning Productivity Agenda

Before outlining the “learning productivity crisis” in more detail, a basic outside-in list of learning-related outcomes can be formulated as a “learning productivity agenda” featuring (1) a macro-level geopolitically universal learning goal based on the brains race, (2) a micro-level learner-success factor that contributes to, but does not substitute for, the learning goal, (3) an operating-cost factor to enable the achievement of the learning goal at macro scale, and (4) a trust factor to assure the quality of education at a basic, common level in ways that, while culturally challenging inside education, are nevertheless inherently sensible from outside in. That the goal of the education enterprise is – or should be – learning is the outside-in justification for referring to “learning productivity” rather than to “productivity,” which might be interpreted from the inside out to refer only to internal business and administrative functions and their costs. The phrase “learning productivity” was used some years ago in an academic report (Johnstone 1993).

The *learning productivity agenda* is the simultaneous need to

1. *improve economic and civic security* by scaling and managing the lifelong learning pipeline to increase the adult proportion of tertiary credential holders;
2. *increase credential attainment rates* by increasing annual ratios of credentials granted to total FTE students – or to total headcount enrollments;
3. *reduce per-credential “production” costs* by decreasing the annual ratio of total Education and Related (E&R) Expenses (see below) to total credentials granted; and
4. *validate and account for learning* by selectively using independent, constructivist, normative assessments to account for the effectiveness of the articulation between secondary and tertiary education and to account for the effectiveness of tertiary education in both its general education (learning-to-learn) and professional/workforce missions.

## **Aligning Learning Productivity with Accountability, Accessibility, and Affordability**

Since early in the 21st century, outside-in pressures on the education enterprise in the United States have been expressed largely through three “A” words: accountability, accessibility, and affordability. For example, a recent report proposes a “model state higher education accountability system” (Aldeman and Cary 2008). Some recent articles even focus on the role of ICT in addressing the three-A agenda (Graves 2007), and there is at least one public blog dedicated to tracking the three-A and learning productivity agendas (Graves, *The Learning Cloud*). To connect the three-A words to the learning productivity agenda, we can first focus on accountability and accessibility and then parse them as follows:

### **Accountability**

- *Program Accountability*: Respond rapidly to and account for economic development, workforce, and civic learning needs with appropriate credentialing programs
- *Learning Accountability*: Measure and openly report selected learning outcomes in ways that permit normative comparisons geopolitically and among peer institutions
- *Expense Accountability*: Report per-student Education and Related (E&R) Expenses on a program basis in terms of net tuition and “other” revenue categories (see below)



## Accessibility

- *Affordability of Access*: Reduce or stabilize inflationary increases in average net tuition (to keep tertiary education affordable for all learners)
- *Convenience of Access*: Offer learners convenient options for earning a credential – options that minimize requirements for real-time interaction
- *Capacity for Access*: Manage enrollment capacity in response to demand

The check marks (√) in the matrix that follows indicate the overlapping relationships between the outside-in outcome-oriented goals of the learning productivity agenda and the accountability obligations and accessibility strategies of the three-A lexicon. The most obvious relationship is the essential equivalence of learning accountability and accounting for the validity of credentials.

### *Learning Productivity versus Accountability and Accessibility*

	Accountability			Accessibility		
	program accountability	learning accountability	expense accountability	affordability of access	convenience of access	capacity for access
<b>Improve economic and civic security</b>	√			√	√	√
<b>Increase credential attainment rates</b>	√	√				
<b>Reduce per-credential production costs</b>			√	√	√	
<b>Validate and account for learning</b>	√	√				

Unlike the six-part three-A agenda, the learning productivity agenda makes clear the need in education and in government for collective, macro-level action. To “improve economic and civic security” is, after all, a goal that ultimately cannot be sustainably achieved by any single education provider or single government acting solely through self-interest. That is why there is a compelling need for collective action to assure education – as described in detail through the concept of an “Education Assurance Commons” (see below).

Meanwhile, a broader outline of the complexities involved in learning productivity will justify in more detail the four-point learning productivity agenda, its claimed crisis dimensions, and its linkages to the broadening global discussion about accountability, accessibility, and affordability. The outline that follows will not explicitly cite the need to “validate and account for learning” – the fourth point in the four-point learning productivity agenda. A degree mill can meet the other three goals of learning productivity, after all, and so an independent assessment of quality (demonstrated,

normative learning outcomes at some level) is important and is also a reasonable outside-in policy expectation.

## **Wanted: Leadership for Resolving a Learning Productivity Crisis**

Education leaders now have to think strategically, from an external policy perspective, about the lifelong learning pipeline, its cultural and economic demographics, and the necessary role of globalization and its ICT stalking horse in sustaining tertiary education as the wellspring of continuing victories for humanity. The starting point is to identify the imperatives and influencing factors that surround education today in every modern geopolitical context. The outline below is followed in the next section by case studies to illustrate leadership and strategies that, in significant part, were ICT-enabled and increased learning productivity.

### **1. Recognize that tertiary learning has become a non-negotiable priority in the modern world.**

The brains race is in full swing – and for good reason. The future depends on simultaneously balancing the three globally interdependent variables of *ecosystem*, *economy*, and *equity* to ensure the future sustainability of each. Every modern nation has embraced education as both (1) a competitive edge for national economic and civic security and, paradoxically, (2) the enabler of the international, cross-cultural collaborations required to resolve the *three global “E” crises* for the common good of civilization. The catchphrase to “think globally and act locally” could be more accurately framed as an exhortation to “act locally while collaborating globally” – through the globally coordinated, standards-based digital information and communication system.

### **2. Meet priority public-policy demands for increasing the proportion of adult populations holding tertiary credentials.**

In the United States, for example, President Obama has called for increasing the proportion of the adult population holding a tertiary credential from 39 percent today to 60 percent in 2020. This goal will require compounded annual growth of at least 5 percent in the proportion of adults holding a tertiary credential. Meanwhile, the bachelor’s degree completion rate in the United States has slipped to 25th among the 26 nations profiled by the Organisation for Economic Co-operation and Development (<http://www.oecd.org/home/>) in 2008 – only Italy ranked lower. President Obama’s goal is financially and academically ambitious to say the least. Indeed, a recent paper from the Association of Public and Land-Grant Universities finds the goal too ambitious but goes on to analyze a variation of the president’s goal as realistic (McPherson and Shulenburg 2009). Such goals are also less a question of meeting demand than of increasing demand for tertiary education, especially in the STEM disciplines.

But many learners (of all ages) cannot, or prefer not to, participate in credentialing programs that have extensive requirements for real-time interactions – face-to-face or otherwise. President Obama’s bodacious goal thus will require increased access to credentialing programs that are both optimized for high-tech, asynchronous online self-service and complemented by as-needed, individualized, high-touch responses to students’ queries for assistance. Such *flex programs and services* not only increase *convenience of access* but also improve *affordability of access* by eliminating or reducing a student’s expense of taking time off from job or family or relocating or commuting on a regular basis to a campus.

### **3. Increase tertiary credentialing rates.**

Increasing credentialing rates is a necessary, but not sufficient, strategy for increasing the proportion of the adult population holding a tertiary credential at the rate implied, for example, by President Obama’s aggressive target. Both the leaky lifelong learning pipeline and its demographics have to be considered. More holistic thinking pulls all of these variables together into the imperative immediately below.

### **4. Repair the leaks at every level of the lifelong learning pipeline, especially at the secondary level, while simultaneously expanding its tertiary volume and meeting the academic and financial needs of first-generation, underprepared, needy learners who demographically account for an increasing proportion of the tertiary pipeline.**

While population growth rates vary from place to place, demographic increases in diversity are nearly universal. Increasing the proportion of the adult population holding a tertiary credential will require redesigning *enrollment management strategies* – from recruiting strategies to student-success strategies – in order to realign the demographics of the student body more closely with overall diversity trends along dimensions of race, ethnicity, culture, national origin, educational preparation, age, and income. Whatever the variations on the dimensions of increasing diversity, the results in educational terms are an increasing proportion of prospective students at the tertiary level who are first-generation, underprepared, and needy.

### **5. Reduce or stabilize per-credential expenses.**

A recent cost/revenue analysis from the Delta Cost Project based on national U.S. data from 2002 to 2006 reveals that per-credential expenses are endangering the affordability of access from the perspective of both the private and the public revenue sources that support tertiary education in the United States. More generally, the education enterprise cannot cover its expenses by relying too heavily on either public or private revenues without compromising, respectively, public financial support and/or private affordability. In light of the increasing proportion of needy students in the pipeline, the economic path to the overall goal of the brains race is to reduce or stabilize per-credential expenses. Even when combined with overall reductions in per-credential expenses, the aggressive growth rates reflected in President Obama’s goals may not be achievable within the current FTE/credit-hour business model. Just as health care in the

United States, for example, has expanded to economic-crisis dimensions relative to the overall economy, so too the education enterprise in the United States and elsewhere may face a business-model (service-model) crisis by “consuming” a proportion of the overall economy that is increasing to the point of unsustainability. The resulting need to contain per-credential expenses in the process of scaling accountably effective learning through a pipeline increasingly weighted by underprepared, needy learners presents a productivity dynamic—indeed, a *learning productivity crisis*! Learning productivity may not appear a priori to involve technology. Recent history, however, confirms the connection. ICT-enabled process redesigns and innovations have fueled globalization and its new levels of competitiveness and productivity.

**6. Improve and ensure learning productivity at scale through the strategic leverage of ICT.**

- a. *Develop a “culture of performance”*—based on a “culture of evidence” that creates, tracks, reports, and acts on performance metrics through ICT-enabled performance analytics and normative, transparent reporting. ICT is the only available leverage for creating a transparent culture of performance at the scale foreseen by the brains race.
- b. *Recognize that learning productivity is a strategic leadership issue for C-level officers*—who must not only “talk the talk” but also “walk the talk” by supporting and managing the intra- and inter-organizational rivalries and collaborations required to practice and accomplish what is “talked.” Performance improvement and learning productivity goals can be supported, but not “owned,” by the ICT organization.
- c. *Apply three primary ICT-enabled redesign strategies*—universal-curriculum redesign, flex program/service redesign, and external sourcing/partnering redesign—which have been proven to improve learning productivity. In various combinations they can, at scale, improve productivity across the education enterprise by acting “locally” and collaborating “globally.”

Item 6 and its ICT-related points are covered later, in the education-related details of globalization and its relationship to ICT. But first, some examples of the strategic use of ICT in education should help illuminate the learning productivity agenda.

***Profiles in Productivity:  
Examples of ICT-Enabled Improvements in Learning Productivity***

A few examples will illustrate various reasons and strategies for responding to the learning productivity crisis. Some leaders, governing boards, and policy bodies a few years ago foresaw, in their contexts, the need to increase the proportion of tertiary credential holders and responded with ICT-enabled innovations and redesigns pointing the way forward. Others moved forward for different reasons, perhaps less concerned about the brains race and more concerned about financial pressures and other pressures

related to outside-in accountability, accessibility, and affordability expectations. Still others were staking out new business models designed to serve underserved populations and unmet economic needs. Even without knowledge of the taxonomy used here to describe the learning productivity crisis, the institutional and system efforts outlined and described below depart from the traditional strategy of depending on random acts of progress and productivity. They instead offer timely glimpses into how tertiary education can strategically use the leverage of ICT to improve upon selected aspects of learning productivity. Each example is accompanied by a matrix implying in broad terms which of the three strategies contributed to which of the four imperatives of the learning productivity agenda.

## Tennessee Board of Regents

TBR	ICT-Enabled Strategies for Innovating/Redesigning/Restructuring Programs and Services		
	external sourcing/partnering redesign	flex program/service redesign	universal-curriculum redesign
Improve economic and civic security	√	√	√
Increase credential attainment rates	√	√	√
Reduce per-credential production costs	√	√	√
Validate and account for learning			

State financial support for public tertiary education in Tennessee has been declining for over a decade. During the same time, policy pressure to improve accountability, accessibility, and affordability has also been increasing. Meanwhile, the Tennessee Board of Regents (TBR), the TBR executive leadership staff, and the public TBR constituent universities (6), community colleges (13), and technology centers (26) have been managing this tightening vise of mounting financial and policy pressures not by reducing the scope of the TBR access mission but by systemically improving learning productivity. The Regents have guided and assisted the TBR executive staff to ensure (1) that resources are allocated to productivity initiatives, even as state funding has declined on an overall per-FTE basis, and (2) that economies of scale are achieved through system-wide, inter-institutional planning, purchasing, and academic programming.

The TBR comprehensive productivity strategy includes an academic audit process and an “Academic Leadership Institute” to ensure that major productivity initiatives are (1) based on mission performance metrics aligned with accreditation quality requirements and the state’s education needs, and (2) planned and managed within a culture of performance that values not only traditional campus autonomy but also the leverage of

system governance and system-wide collaboration. During the past decade, three major productivity initiatives have relied on the ICT-enabled strategies of flex program/service redesign, external sourcing/partnering redesign, and universal-curriculum redesign.

The first ICT-enabled learning productivity initiative started at the turn of the 21st century in response to the state's competitive economic need to increase the proportion of its adult population holding a tertiary credential. The result was the Regents Online Degree Program (RODP), a set of flex (online, asynchronous) degree offerings aimed at increasing both the college-going rate and the percentage of adults who return to college to complete a tertiary credential. To ensure that any RODP program is a collaborative offering that is "sharable" among the TBR institutions and their enrollees, RODP business policies apportion RODP course revenues among the RODP system office and the (potentially) two campuses involved, one serving as a learner's "home" campus and the other as a campus enrolling the learner in an RODP course offering. The RODP demonstrates system-wide consistency in student services, a well-articulated learning experience, and standardized common curricula where the rationale for inter-institutional standardization and transfer of credit is most compelling. The RODP course and program offerings also mitigate a number of perennial issues facing the individual TBR institutions—for example, course and classroom inventory and capacity and instructor availability. During the multiyear start-up phase, the TBR turned to a company that is now part of SunGard Higher Education to externally source academic program development consulting services and 365x24 ICT support for the RODP learners and instructors. Today, the TBR externally sources flex tutoring services from SMARTHINKING on behalf of the RODP and other programs.

Not only are too many first-year TBR students requiring developmental work, but the cost of "college-readiness" remediation has been estimated at \$25 million on a statewide basis. The TBR urged its executive staff and the TBR constituent institutions to collaborate in redressing the remediation issue with a major ICT-enabled initiative designed both to boost student success and to reduce remediation costs—another productivity imperative, one that further strengthens the successful RODP productivity initiative. Supported by a grant from the Fund for the Improvement of Post-Secondary Education, the TBR faculty and staff have partnered with the Education Commission of the States and the National Center for Academic Transformation (NCAT, <http://www.theNCAT.org>). As a matter of policy and in the interest of efficiency, remedial instruction has been shifted system-wide solely into the TBR community colleges. The TBR redesign team is applying the ICT-enabled universal-curriculum redesign strategy in the developmental curriculum to (1) increase student engagement, (2) provide prompt feedback to students, (3) offer high-touch individualized instruction and assistance on an as-needed basis, and (4) modularize instruction in order to get students into credit courses as soon as they are individually ready. (*Note:* The NCAT seminal high-enrollment "course redesign" methodology is the genesis for what is

called herein the “universal-curriculum redesign strategy.”) A pilot effort in mathematics remediation at Cleveland State Community College has already been awarded the 2009 Bellweather Award for Innovation and, at the request of the TBR, is being replicated across the TBR system. Preliminary analyses of these various efforts demonstrate that new TBR policies and ICT-enabled strategies are both improving learning outcomes and reducing the per-student cost of remediation, while also speeding students’ time-to-enrollment in credit coursework.

The RODP model that has drawn the TBR community colleges and public universities into closer collaboration on behalf of for-credit access/success and system-wide efficiencies has been adapted to noncredit continuing education and also to workforce development programs offered through the TBR Technology Centers. The combined “enterprise” is now known as the Regents Online Campus Collaborative. ROCC innovations in the area of workforce development include Technology Foundations, an online-based individualized course of study designed to inculcate the basic skills identified by industry as the foundation for success in the workforce: reading, writing, quantitative, and information searching/filtering fluencies. Complementing the Technology Foundations course is an opportunity to earn a National Career Readiness Certificate to enhance other workforce credentials and experiences by certifying the student as “work ready.” The TBR has insisted that the Technology Centers, like the universities and community colleges, adhere to standard curricula to the extent possible and to the learner centricity characterized by the convenience of access to flex programs and services. Programs are delivered, to the extent possible, in a high-tech, asynchronous, online, self-service modality but are complemented by real-time or nearly real-time access to high-touch individualized assistance when needed by the learner or when dictated by pedagogy.

Seeded by the exceeded-expectation successes of the RODP in the early 2000s, the ROCC now has a headcount approaching 10,000 (yielding course enrollments of more than 15,000), including many who would not be in college had not the TBR insisted on using the leverage of ICT to address pressing productivity issues on a system-wide level on behalf of public tertiary education in Tennessee. The success of the cumulative, integrative ROCC model was recognized with a Platinum award in the 2008 IMS Global Learning Consortium’s Learning Impact Awards Program.

## The California State University

CSU	ICT-Enabled Strategies for Innovating/Redesigning/Restructuring Programs and Services		
	external sourcing/partnering redesign	flex program/service redesign	universal-curriculum redesign
Improve economic and civic security	√	√	
Increase credential attainment rates	√	√	
Reduce per-credential production costs	√	√	
Validate and account for learning	√		

The California State University, the largest public university system in the United States, faces an unparalleled challenge to meet the tertiary needs of a “majority-minority” state. The CSU does an exemplary job of continuing to ensure that applications for admission, offers of admission, and enrollment of its first-time freshman class reflect the proportion of students by race and ethnicity of California public high school graduates who complete the fifteen college-preparation classes required by both the CSU and the University of California. Nevertheless, the CSU is acutely aware of the incredibly high number of students who drop out of K-12 and who therefore never earn the opportunity to advance to postsecondary universities.

Recognizing the high dropout rate, and in an effort to close the achievement gap, the CSU has worked to ensure that growing proportions of Hispanic, African-American, American Indian, and Asian Pacific Islander students receive the academic preparation they need in order not only to graduate from high school but also to apply to, enroll in, and graduate from college. To achieve that outcome, the CSU expanded its outreach and student academic-preparation programs to provide information and academic support to California’s diverse K-12 population. Academic outreach programs target students who are disadvantaged educationally and economically, who are enrolled in public schools that have low college-going rates, and who need assistance in strengthening basic skills in math and English. These programs provide academic support services that raise the aspirations and improve the academic performance of students, advise students about courses needed to meet admission requirements, help students acquire the English and mathematics skills needed to succeed in college, provide instructional programs for students requiring academic support before they matriculate at a CSU campus, and provide retention services to students after they enroll in the CSU. Many of these services are delivered partially online.

Charles Miller, the chairman of the Secretary of Education’s Commission on the Future of Higher Education (aka “the Spellings Commission”), identified the CSU as having implemented one of the best national models of how higher education and K-14 can



collaborate to help expand access to underserved students and to help students prepare academically for the rigors of college by expanding academic outreach to underserved communities and providing an early warning signal to students about how well they are acquiring English and mathematics skills.

The CSU has forged successful relationships with Hispanic and African-American students and parents through local communities and churches. Parents of college-age children now better understand how to motivate and help prepare their children academically and financially for admission to the CSU. Partnering with community leaders and the state's K-12 system, administrators are targeting low-income and minority students and putting higher education within their reach. The chancellor and campus presidents visit the African-American churches in Los Angeles, San Francisco Bay, San Diego, and California's Inland Empire. An informational "How to Get to College" poster – available in English, Spanish, Vietnamese, Korean, and Chinese – provides step-by-step advice on how students and parents can begin getting ready for college as early as the sixth grade.

To avoid duplicate costs to the state and to increase retention and graduation rates, the CSU has partnered with the state's public school system to include a bank of CSU-prepared math, English, and writing assessment items in a statewide (required) test known as the Early Assessment Program (EAP), which is administered to all 11th-grade students. The EAP is designed to test students' proficiency in mathematics and English and to reduce the likelihood that students will have to take remedial classes once they enter college. Students accordingly learn, at the end of the 11th grade, whether they are on track in the acquisition of the English and math skills that they will need to succeed in college. Those who are not prepared receive advice about classes and programs they can take in the 12th grade to improve their skills. Some of these classes and programs are delivered in an online flex format. Through an ICT-enabled collaboration between the CSU faculty and schoolteachers, these underprepared learners have online access to learning materials and tutorial help during their final year in secondary school. As a result, the CSU is experiencing an increase in Hispanic and African-American enrollments and a decrease in the proportion of first-year students requiring remediation.

Finally, in 2003 the CSU Board of Trustees adopted a three-part initiative designed to improve student services for undergraduates. In addition to the EAP, the Trustees adopted a system-wide initiative to help students graduate, as well as set out a clear path for lower-division transfer students from community colleges. These initiatives remain a priority for the CSU, particularly since many of its freshmen are from traditionally underrepresented communities. Many CSU freshmen are also the first in their family to attend college. The CSU has made the success of these students a system-wide goal, with the overall goal of increasing students' graduation rates and reducing the time take to graduate. These initiatives include programs dedicated to enhancing

undergraduate success toward a degree with augmented undergraduate degree advising, student learning centers, tutoring, and study skills programs, as well as additional resources to work directly with community colleges on transferring students. Again, these efforts depend, in part, on the convenience and accessibility of online learning/advising resources and online communications.

The CSU Trustees have supported and advised Chancellor Charles Reed throughout the process of sustaining an enrollment demographic that reflects that of the state, increasing the college-going rate and preparedness of the least-prepared and neediest high school students, and improving the success rate of all students.

## Antioch University

Antioch	ICT-Enabled Strategies for Innovating/Redesigning/Restructuring Programs and Services		
	external sourcing/partnering redesign	flex program/service redesign	Universal-curriculum redesign
Improve economic and civic security		√	
Increase credential attainment rates		√	
Reduce per-credential production costs	√	√	
Validate and account for learning	√		

Antioch University owes its origin to the historic liberal arts college established in 1852 as Antioch College. Following its development of numerous graduate campuses across the nation in the mid-1960s through the 1970s, Antioch College in 1978 changed its name to Antioch University. Today the university “physically” encompasses five adult-oriented graduate campuses in Los Angeles and Santa Barbara, California; Seattle, Washington; Keene, New Hampshire; and Yellow Springs, Ohio. There is, however, more to the story – much more!

The Antioch University Board of Governors made the emotionally difficult but financially responsible decision in 2007 to suspend the operations of Antioch College in 2008. In 2009, the board and the Antioch College Continuation Corporation (ACCC) unanimously approved and culminated a joint agreement that allowed the university to transfer the college campus (and endowment) to the ACCC for the purpose of creating an independent college in Yellow Springs, Ohio.

The Antioch University Board is now governing the university to evolve as a national, multi-campus, private (independent) nonprofit *system*. Board leadership has been required not only to chart a path through the financial realities that afflicted the college

but also to help the university's five rather autonomous graduate campuses coalesce into a unified system to take advantage of the academic and financial leverage that a system offers – leverage that can be amplified through ICT-enabled academic and administrative redesign strategies. To ensure timely, local leadership attention to the campuses and the local community needs they serve, the Board of Governors recently created five subordinate local boards of trustees, one per campus, to help select presidents and monitor programmatic directions and fiscal resources.

In the late 1990s, well before suspending the operations of the college, the university tapped its system leverage by introducing an innovative program independent of any campus. Using the ICT-enabled flex program/service redesign strategy, the university developed a “courseless” and “placeless” Ph.D. program in Leadership and Change. This flex program has successfully demonstrated that academic and financial success need not be hostage to a business model based solely on courses, credit hours, and FTEs. The program produces a high number of graduates per headcount and is economically efficient, with 70 percent of its subscription-based revenue going directly to instruction. Anchored in the values of Antioch's academic and service mission, the program encourages learner reflection and peer collaboration through ICT-enabled and periodic face-to-face learning – quarterly residencies of two to four days. It is cohort-based yet allows for self-pacing and boasts excellent student and faculty satisfaction scores. Exceptional retention and graduation rates of 75 percent exceed national doctoral programs averages, which are 50 percent or less. The U.S. Department of Education attested to the program's success in its recent report “Evaluation of Evidence-Based Practice in Online Learning.” A key factor in the success of this now-mature innovation was the board's unwavering support for the chancellor and the program's “entrepreneurial” academic leader during program development and enrollment ramp-up.

The university's five campuses are intentionally small – approximately 1,000-plus students – with 85 percent of these students enrolled in graduate professional programs. With input from faculty, students, and the board, the university is now deciding which of its masters' programs can best be served by university-wide doctorates rather than by a proliferation of expensively small doctoral programs at each campus. Extending the ICT-leverage demonstrated by the seminal Leadership and Change program, a new university-wide flex Ed.D. will target professionals who engage in education for social change, including international students and, especially, graduates from the MA in Education programs at Antioch's five campuses. Similarly, a university-wide flex DBA program in sustainability will complement the varied masters' degrees in environment and sustainability extant across all the campuses.

The university is also evolving a Virtual Commons for students and faculty from all campus- and non-campus-based programs in order to increase productivity not only in academic programming but also in administrative and student support services. For

example, a Virtual Commons Library is already accessible to all Antiochians and is allowing each campus to increase the quality of its library holdings and services through joint purchases, shared software, and digital archives. The Virtual Commons will also incorporate tutorial labs in ESL, math, writing, and foreign languages for all students. Indeed, using the ICT-enabled universal curriculum strategy, the Virtual Commons has the potential to increase collaboration and financial savings system-wide by delivering a quality-designed cluster of flex (online, asynchronous) courses common to the varied curricula of all or most campuses.

In recognition of the importance of learning productivity to the future sustainability, the university is using some of the data elements and annualized metrics promoted by the Delta Cost Project. For example, the ratio of total Education and Related (E&R) Expenses to total student headcount provides one measure of educational unit costs. Another is the ratio of total E&R Expenses to degrees granted. The ratio of degrees granted to total headcount provides a metric for degree production rates. Using such ratios to make comparisons across university campuses and programs and externally with peer institutions, the chancellor and the Board of Governors can analyze trends and can establish and monitor academic and financial target goals.

The university has also invested in a system-wide student outcomes project to identify consistent system-wide learning-outcome metrics for public consumption: job advancement, passing rates on state or professional licensure, scholarship, additional certifications acquired, continuing education achievements, and community service. The compilation of such data not only will allow individual campuses to herald their outstanding alumni but also will provide substantial data to establish the university's national presence and contributions.

Even before suspending the operation of Antioch College, the university's board supported and protected the development of the innovative flex Ph.D. in Leadership and Change. In working through the challenges presented by the college, the board's commitment to the Antioch *system* and to further ICT-enabled innovation has grown stronger. With purposeful support from the Board of Governors and its campus-based boards of trustees, Chancellor Tullisse (Toni) Murdock is leading the university toward a future in which ICT-enabled innovation and improved productivity will be the norm. This course of action is exactly what the board expects of the chancellor in shaping Antioch's unique and evolving chapter in the U.S. history of tertiary education. Indeed, the future bodes well for governance that links finance to metrics at the system and campus levels to reflect and achieve Antioch's strategic mission goal to help secure and sustain "victory for humanity."

## Immaculata University

Immaculata	ICT-Enabled Strategies for Innovating/Redesigning/Restructuring Programs and Services		
	external sourcing/partnering redesign	flex program/service redesign	universal-curriculum redesign
Improve economic and civic security	√	√	
Increase credential attainment rates	√	√	
Reduce per-credential production costs	√	√	
Validate and account for learning			

Located near Philadelphia, Immaculata University is a Catholic, comprehensive institution serving students of all ages. With the residential campus situated in a region that is home to 85 institutions of higher education, competition for enrollment is intense. While retaining its undergraduate liberal arts core, the university has improved its financial position by meeting the adult learning needs in the Philadelphia area, often through accelerated learning (ACCEL) programs delivered totally or in part using the latest web-based technologies.

Although members of the Immaculata Board of Trustees (BOT) do approve significant purchases of technology, they typically are not involved in the decision-making aspects of the university's technology needs. Recommendations for purchases are provided to the BOT by the executive administration and include associated costs and justification for the purchases. In approving such technology purchases, because of their fiduciary responsibility, trustees typically ask questions relating to cost, need, what improvements will be made to operations, how the new technology will improve service to students, faculty, and staff, and how long it will take to implement the new technology.

In 1998, Immaculata University externally sourced its on-site ICT leadership, management, and expertise to improve ICT services and enhance the coordination and leverage of administrative and academic computing functions. All ICT services were consolidated into one unit, a 365x24 help desk was provided for all students enrolled in web-based and web-enhanced courses, and Immaculata's ERP (enterprise resource planning) and LMS (learning management system) applications were "virtualized" on servers in the partner company's Internet Data Center. Having its applications hosted off-site is estimated to save the university \$295,000 during the first four years of operation.

In 2008, Immaculata began implementing a new LMS. During the first year of the project, the institution was able to maintain its projected 30 percent increase in

enrollment in totally online classes, generating more than \$3.4 million in tuition revenue. An additional 260 web-enhanced courses were supported, involving more than 4,680 students. More than 350 full- and part-time faculty and staff were trained in using the new LMS, thereby increasing the number of instructors using the new system by 10 percent.

The institution, with its partner company's assistance, was able to renegotiate vendor contracts, providing anticipated savings exceeding \$1.5 million over the next six years. During the first project year, the university was also able to secure \$40,000 in grants and external funding. Immaculata was awarded the 2009 SunGard Higher Education Award for Institutional Performance for its achievement in leveraging its technology for strategic purposes and for its successful migration to the new LMS and the resulting, scalable enrollments it is generating.

### **Rasmussen College Inc. / Deltak edu and Partner Client Institutions**

Rasmussen / Deltak	ICT-Enabled Strategies for Innovating/Redesigning/Restructuring Programs and Services		
	external sourcing/partnering redesign	flex program/service redesign	universal-curriculum redesign
Improve economic and civic security	√	√	
Increase credential attainment rates	√	√	
Reduce per-credential production costs	√	√	
Validate and account for learning			

Rasmussen College Inc. was formed in 2004 as a privately held company to combine Rasmussen College (founded in 1900 by Walter Rasmussen) with Deltak edu, an established online education organization. Today the overall organization is a premier provider of online educational experiences delivering bachelor's, master's, doctoral, and associate's degree programs through its network of seventeen campuses and partnerships with leading universities. Rasmussen serves more than 15,000 students in fifty states and five countries through its Rasmussen College and Deltak edu divisions. Deltak edu is an operating unit of the parent company and is separate from the operations of Rasmussen College. Multiple colleges and universities externally source services from Deltak (under a business-process outsourcing arrangement) for curriculum development, marketing services, recruiting and admissions operations, and ongoing student-care and technical support services for selected online master's and doctoral programs. Deltak's external client partners include Gonzaga University, the University of Scranton, Creighton University, Utica College, the Chicago School of Professional Psychology, and Saint Joseph's University. Deltak's collaborative business

model sets Rasmussen apart from most other tertiary education providers. Deltak's startup and continuing programmatic support are provided risk-free to its partner tertiary client institutions in return for a negotiated share of enrollment revenues from the resulting online (flex) offerings. This "flat-world" external-sourcing business model appeals to institutions that are constrained by a lack of capital and by the risk aversion that comes with being tuition-dependent. The success of the model demonstrates how for-profit and nonprofit institutions can come together on mutually beneficially grounds. Saint Joseph's University provides a good partnership example.

Historically strong in the private (independent) university sector in Philadelphia, Saint Joseph's University found itself challenged in the early 2000s by selected peer competitors' entrepreneurial forays into and aggressive resource commitments to online (flex) programs designed to serve adult students. Saint Joseph's University responded through a grant, received shortly after 9/11, to develop online training for first responders through an Emergency Responders Distance Learning Center (ERDLC). Using its internal course design and development capabilities, the university developed several online certificate programs related to homeland security, crisis management, and other emergency-response related programs, as well as a set of fully online degree programs that included an Online Accelerated Teacher Certification program. Saint Joseph's University thus established the internal capability to design and build online programs. Meaningful enrollment and revenue growth nevertheless failed to materialize from these efforts after several years in the marketplace.

In 2008, Saint Joseph's University's Erivan K. Haub School of Business, which is AACSB accredited and well respected in the Northeast, decided to expand its Master of Decisions and System Science program into the online environment, with the objective of reaching a growing market of prospective students for online flex programs. The university again was challenged to find a student market for the program, and ultimately it was connected to Deltak through its fellow Jesuit institution Gonzaga University. Saint Joseph's University and its board determined that a partnership with Deltak would reduce risk and would, with high probability, ensure the long-term success of the new business program and other online programs.

As suggested by Deltak, the partners first worked together to give the Decision Systems and Sciences program a more marketable and relevant name: Master's in Business Intelligence. Deltak then developed a marketing strategy to generate media interest and alert potential students to the online program. Armed with the first fully online MS in Business Intelligence, Saint Joseph's University chose The Data Warehousing Institute (TDWI) Conference as the most appropriate forum for the launch. TDWI's mission is to foster a community of learning where business and IT technical professionals come together to gain knowledge and skills, network with peers, and advance their careers. Understanding that there would be an engaged and qualified audience at the conference, Deltak secured and staffed a booth for Saint Joseph's University to

announce the launch of the new program. The conference produced great interest and generated a significant number of qualified inquiries. Deltak also took advantage of its presence at the conference to engage and educate the media on the launch of the online Master's in Business Intelligence program by setting up editorial interviews with several influential media outlets in attendance, including *DM Review*, *B-Eye Network*, and *Business Intelligence*. The interviews resulted in several articles, as well as a monthly column on the *B-Eye Network* website for the program's faculty chair.

The increased visibility generated through the TDWI conference, combined with Deltak's online marketing methods, led to a successful launch of the Master's in Business Intelligence program. Almost immediately, enrollment in the online program surpassed that of its campus-based counterpart. The new marketing strategies and efforts have further paid off by generating enrollments from markets that were previously inaccessible to the university, while also significantly increasing the diversity of its student body. At present, Saint Joseph's partnership with Deltak accounts for several hundred students enrolled in six fully online master's and six graduate certificate programs in teacher education, business, and criminal justice.

## Western Governors University

WGU	ICT-Enabled Strategies for Innovating/Redesigning/Restructuring Programs and Services		
	external sourcing/partnering redesign	flex program/service redesign	universal-curriculum redesign
Improve economic and civic security	√	√	
Increase credential attainment rates	√	√	
Reduce per-credential production costs		√	
Validate and account for learning	√		

Western Governors University (WGU) was created in 1997 by nineteen western governors with the goal of using technology to create a new model of higher education that would improve the productivity of higher education. "Productivity," in this sense, means increasing the measure of educational attainment per dollar of expenditure and therefore relates both to learner productivity and to operational or institutional productivity – learning productivity. WGU's two central innovations are (1) its focus on competency-based education or, in other words, on measuring actual learning rather than learners' time, and (2) its use of technology as the primary means of instruction, rather than as the means to distribute classroom instruction, as is the case with most online learning today. The founding governors set the mission and goals for the



institution and then appointed an independent board of trustees to assist the university in achieving its purpose.

Perhaps the characteristic that most differentiates WGU from other institutions is its institutional accountability for learner productivity. For example, time-to-graduation is a compelling metric for learner productivity. On average, WGU students graduate with a bachelor's degree in 31 months, compared with 60 months nationally. However, this time-to-graduation result is not achieved by compromising educational standards. In fact, because students must demonstrate mastery of every competency at the equivalent of a "B" grade or better on each assessment, WGU graduates meet a higher standard than the "C" average required of graduates from other institutions.

Key to various measures of learning productivity is the university's system of competency-based education, in which students are awarded degrees by demonstrating what they know and can do, rather than accumulating credit hours or clock hours. Simply stated, the WGU educational model is based on (1) competencies developed with industry experts (ensuring workforce-relevant degrees), (2) self-service instruction that eliminates the need to spend "seat time" learning material that may already be familiar to the student, and (3) both objective and performance-based assessments of learner competencies. Technology-enabled self-service instruction allows all learning to be individualized and self-paced. Students spend time learning only what they do not already understand at the mastery level, and they learn at their own rates.

Today WGU has more than 15,000 students and continues to grow at over 30 percent annually. Most significantly, in terms of institutional productivity for a private, nonprofit university, WGU is self-sustaining on tuition of under \$6,000 per year for most programs. More strikingly, annual tuition at WGU has increased by a total of only \$200 in the last four years, demonstrating that operational productivity is still increasing. This institutional productivity is the result of using technology innovatively.

Whereas other institutions use technology to supplement and/or deliver classroom instruction, WGU uses technology as the actual means of instruction. In fact, WGU does not develop or teach any of its own courses; instead, the WGU faculty identify the best existing courses and acquire the rights to use them with WGU students. The primary role of the full-time WGU faculty member is to mentor students—to guide them, answer their questions, lead discussions among and with them, and monitor and encourage their progress. Test development, delivery, and grading are handled separately by an assessment department. This disaggregation of mentoring and testing supports specialization, efficiency, and the independent validity of testing results.

Technology is also used throughout WGU's business operations to increase efficiency, which translates into lower-cost education for students. Most university employees work from home via a computer and a telephone. Technology allows for transparent

operations from anywhere and also provides productivity measures for all employees. The university markets to students via the Internet, and enrollment processes are largely automated. WGU uses student and mentor web portals, the SAS data system for institutional research, and Banner technology to support student records and services. A customer relationship management (CRM) system will soon link together all WGU departments efficiently and effectively with the students they serve.

The WGU Board of Trustees is responsible for appointing the president, overseeing and approving university finances and budgets, guiding major strategic thinking, and regularly monitoring institutional and learning productivity. The board serves for three-year terms that are staggered so that one-third of the board is elected each year. There is a concerted effort to appoint board members who have experience in areas key to WGU operations. At any time, two sitting governors (one Republican and one Democrat) represent the now twenty member-state governors who support the WGU. Other board members provide higher education experience and/or industry experience in one or more of the four degree areas offered by WGU: information technology, teacher education, health professions, and business. The board meets three times a year – generally once on the East Coast, once on the West Coast, and once in conjunction with a graduation ceremony in Salt Lake City (WGU headquarters). One meeting is devoted almost entirely to long-term strategy and another to reviewing short-term strategy and the university budget. In addition to the Board of Trustees, WGU also has a National Advisory Board (NAB) of twenty key corporate partners who contribute funding and technology to the institution. The NAB meets with the Board of Trustees to help set strategy and provide guidance and direction for the university.

To demonstrate the success of its competency-based learning model, WGU has developed and sustained a culture of performance by carefully measuring and tracking key metrics. In particular, the Board of Trustees measures institutional productivity by revenue per employee, number of students per employee, the marketing cost for each new student, and the cost to a student for a degree program. The board also holds the university accountable for learner and learning productivity on a variety of measures – including student retention, the percentage of students making satisfactory academic progress, student satisfaction, graduation rates, time to graduation, and both graduate and employer satisfaction – most of which are measured on a monthly basis. These key metrics allow WGU and its Board of Trustees to plan future strategies based on outcomes rather than traditional input measures.

## Outside-In Question Box 2

1. Does the outside-in learning productivity agenda translate, in context, to issues and goals facing your institution? If so, would learning productivity be similarly formulated in your context?

2. Did you recognize similarities and possibilities for your institution in any of the profiles in productivity sketched above?
3. How is ICT providing leverage for high-priority, strategic, measurable goals (outcomes)?
4. If it is not providing this leverage, then is ICT at least a tactical, inside-satisficing cost at your institution? Do you need help balancing the cost of ICT with the levels of faculty and student satisfaction provided by ICT?

## ***Education Is a Paradoxical Priority—Both a Solution and a Problem***

*Freedom's just another word for nothin' left to lose.*

— Kris Kristofferson (late 1960s)

Most college-educated people, including most political leaders and policy-makers, believe education is the key to resolving the major crises facing modern civilization, including the eternal tension between the powerful and the powerless. What is not well understood, however, is the paradox that education today can be both a “solution” (based on the strategic leverage of ICT) and also a crisis-level problem (if the leverage of ICT is not captured at institutional and inter-institutional scale to improve the productivity of the educational enterprise). Several lines of inquiry support this ambiguity about the priority of education.

## **The Complexity of Connectedness**

Everything is connected to everything else, and the resulting complexities imperil the sustainability of modern civilization. For example, four macro-level “E” crises — ecosystem, economy, equity, and education — occupy the attention of informed public debate around the world and, in the United States, have been both emphasized and interconnected in President Obama’s speeches and stimulus/budget packages.

*Ecosystem:* Every micro-ecosystem is connected to every other in the global macro-ecosystem. The phrase “climate change” has replaced the more threatening “global warming” in the political lexicon. National surveys (in the United States) nevertheless reveal that college-educated people align with today’s scientific near-unanimity that the “hockey-stick” global warming curve is a trend. Whether or not it is a long-term trend, most educated people expect government not to bet against human activity as a contributor to the global warming trend. They expect government to mitigate human-causation risks with science-informed policies and investments in education and

research and to take on ecosystem issues related not only to global warming but also to water rights, agriculture, toxic wastes, etc.

*Economy:* In the global macro-economy, every modern geopolitical micro-economy is connected to every other via the global Internet of private and public networks. The resulting immediacy of access to financial information and self-service transactions recently revealed an imperiling global downside. As the health of the U.S. economy deteriorated sharply in 2008, the infection spread to other economies, resulting in a global downward spiral as the virtual global financial feedback system turned bad news into worse news on a 365x24 basis. Declining trust in the U.S. economy spread virally and was amplified throughout the global virtual market of complex financial instruments and frictionless transactions.

*Equity:* The modern world has the capacity to make unprecedented opportunities available to individual option, but globally coordinated “rules of the road” are required to permit the universal individual exercise of options for pursuing equal opportunity and the happiness and security that it can bring to individuals and nations. This paradox, which pits the private good against the common good, is captured (in U.S. terms) in the political philosophy that all people are created equal and free to pursue happiness on a competitive playing field – one that requires a rule of law to ensure fair play. With rights come responsibilities – or, in the words of the songwriter Kris Kristofferson, “freedom’s just another word for nothin’ left to lose.” Too much social equity can lead to irresponsibility and anarchy and, yes, to bad times when markets are too free or to inequity when law grants already powerful corporations and governments more rights than individuals. Too little social equity often results from various forms of autocracy or statism and leads to poverty and even revolution but, yes, under “benevolent” governments, may also lead to improved economic conditions for the governed. The perversely inverse relationship between equity and inequity – that too much of one can lead to the other – makes neither a desirable absolute. In spite of ongoing social equity crises springing from human inhumanity, the arrow of history points favorably toward political philosophies and practices that favor the social equity that depends so much on education, especially on tertiary education, in the modern world.

*Education:* Education’s claim on priority is that it is the basis for learning how everything and everyone are interconnected and how any resulting complexities and disputes can be mitigated. The preceding three interconnected “E” crises arise from increasing complexity and connectedness in nature, in the human condition, and through digital technologies. The need to mitigate and manage these crises is increasing worldwide demand for intellectual capital, which is derived today primarily from the global, collective education enterprise. Education is *both* a private good and a common good. In all modern contexts, education is now the primary vehicle for practicing the principle of social equity (by enabling equal opportunity) and for ensuring collective

socioeconomic security and ensuring against its collapse. Tertiary education and continuing education, moreover, have become the necessary means to pursue *ongoing* individual opportunity, the *greatest* geopolitical economic advantage, and the *most solid* foundation for long-term socioeconomic security – thus, the brains race. In any context in which, for example, a richness of natural resources or an external global demand for unskilled labor cannot sustain long-term economic advantage, tertiary-level skills are in high demand, especially in STEM. Most modern governments accordingly recognize that both the private good and the common socioeconomic good depend on universally accessible individual educational opportunity and focused government investments at all levels of education. Simply stated, more people worldwide require more education over their lifetimes in order to secure socioeconomic security for themselves, their families, their employers, their governments, and our civilization. The current education enterprise of randomly connected investments, organizations, and processes, however, is struggling to meet the increasing demand for intellectual capital. Education, as a critical subsystem of modern civilization, is thus challenged in its capacity, scalability, and affordability, even as it continues at subscale to advance the knowledge and the expertise required to mitigate and manage civilization’s three other “E” crises.

Educational opportunity is not the end game. The learning productivity agenda implies that (1) education be marketed to create demand for learning credentials targeting specific civic and economic security needs, present and future, (2) education capacity, access, and pricing be managed according to such needs, and (3) student success in such credentialing programs be ensured to the extent possible. The education marketplace, today driven by an inside-out supply of educational opportunities, will have to become more responsive in meeting outside-in demand for assured education. In short, the education marketplace needs to be more a market than a club.

## **Want Free Education? Then Free Education!**

The repeated phrase “free education” in the above heading is intended to convey two different issues. The first asks whether education should be free – that is, a publicly funded entitlement. The second asserts that the path toward free education is first to free education from various externalities and internalities that constrain it. Education is already an entitlement in many geopolitical contexts, but not in all. Even tertiary education has been a near-entitlement administered at a central ministerial level in many nations, but the public affordability of that socioeconomic value proposition is unraveling rapidly.

In the United States, where public tertiary education is largely funded state by state, many states have attempted to make education at all levels as free as practicable. The North Carolina constitution, for example, provides “by taxation and otherwise for a general and uniform system of free public schools” and further mandates that “the

benefits of The University of North Carolina and other public institutions of higher education, as far as practicable, be extended to the people of the State free of expense.” The devil is in the detail of merging the phrases “as far as practicable” and “free of expense.” For example, public colleges and universities, including those in North Carolina, are arguing for increased per-student state subsidies while policy-makers, drowning in steep per-capita declines in tax revenues, are reducing per-student subsidies and asking the statewide public tertiary education enterprise to produce more credentials at lower per-credential expense to the state and its citizens. The service-delivery model underpinning today’s educational enterprise was not predicated on the need to scale educational opportunity to the levels required to compete geopolitically in the hyper-competitive global economy and its attendant brains race, and that is why education can enable solutions to civilization’s crises while it also moves toward a state of crisis itself.

## **Into the Learning Cloud**

The process of increasing learning productivity in the education enterprise is the path toward a freer (more open) expansionary education marketplace with competitive options for how accountably credentialed learning opportunities are found, accessed, delivered, quality assured, and afforded privately and publicly as the means to meet the complex, interdependent crises of ecosystem, economy, and equity challenging the sustainability of civilization in the 21st century. A more productive, open education marketplace will better balance public and private investments in education to make organized learning as free as practicable to all of its investors and beneficiaries. The time is right to understand why and how the education enterprise should participate in globalization and use the leverage of ICT, especially of the cloud, to restructure its business and access models in order to evolve an open-market learning cloud to help increase and meet the demand for lifelong learning.

### ***The Conflation of Globalization, Innovation, Productivity, and Technology***

*You can be on the right track and still be run over.*

— Will Rogers

New technologies always present new opportunities and challenges. At first, the opportunities are not well understood in the context of current artifacts, behaviors, and organizational and service models. Technologies accordingly are bolted onto existing practices and processes. Later, typically after dizzying levels of adoption, the maturing technology challenges us with the recognition of what we should have foreseen and

done differently. A brief historical perspective on a not-so-new technology will illustrate this hindsight concept.

## A Brief History of Technology

Consider the following encapsulated and whimsically scripted 100-plus-year history of today's combustion-engine automobile:

*Kay:* A horseless carriage? But I love my horse and carriage!

*Ken:* Put your horse in the back seat of the horseless carriage, and let's go!

*Kay:* Go where?

*Ken:* Oh! OK, I'll build some streets. Meet me at noon tomorrow at Hollywood and Vine.

*Kay:* Why is the air here in L.A. so brown at noon?

*Ken:* Carbon, I'm told. But please, board this tofu-powered carbon-free train, and let's go!

*Kay:* But I thought you planned to drive us.

*Ken:* Yes, but I can't afford the gas! Plus, don't want to risk arrest by the carbon troopers.

Fast-forward to the introduction of the IBM PC circa 1981. A few years later, in 1994, a study by the National Research Council revealed that the new individual productivity platform—now, by the way, no longer manufactured by IBM—had not yet improved productivity in the service economy (National Research Council 1994). It had, however, catalyzed new consumer offerings that would not otherwise be viable: word processors, spreadsheets, etc. A few years later, a number of new reports confirmed that integrated ICT had begun to drive productivity in the service economy. Along the way, the Internet became the road for those who drive consumer computers and other smart devices to connect to other people and digital information resources. Venerable “ways of doing business”—business models—were soon eviscerated, damaged, or commoditized. *Encyclopedia Britannica* capsized in the wake of Google (even before Wikipedia was introduced). New services with fundamentally new underlying business models proliferated, some successfully and some not. ICT was on its way to becoming the accelerator of productivity on a massive scale—the phenomenon of globalization! Then the global economy tanked, after the “smartest guys” in the financial-services room binged on the opportunities for chicanery inherent in largely unregulated nano-second access to digital financial information and transactions and demonstrated their aversion to risk aversion.

A readable, popular account of the globalization phenomenon is Thomas Friedman's book *The World Is Flat* (Friedman 2007). Friedman recognizes that globalization is the result of the competitive quest for productivity improvements and business survival. He extracts from case studies the eight underlying ICT-enabled external sourcing (and partnering) strategies that have driven productivity and, thus, globalization: *in-sourcing*, *out-sourcing*, *open-sourcing*, *off-shoring*, *supply-chaining*, *work-flowing*, *in-forming*, and *steroid-ing*. Friedman's examples are fast-forward updates on a much earlier, 20th-century theory of the "firm," a theory that could have predicted many of the basic features of globalization—if only foresight could have first predicted the development of silicon-based transistors, microprocessors, and the Internet.

Writing in the 1930s about the balance between internal sourcing and external sourcing, Ronald Coase (1991 Nobel Laureate in Economics) described "hidden transaction costs" in rationalizing why companies may not externally source some functions that would be logical candidates for improving overall success while limiting growth in the employee base (Coase 1937). Not sourcing externally has a clear downside in the potential loss of core focus and the absence of best-of-breed external expertise in noncore functions. Organizations tend to become overly bureaucratic and inwardly focused as they divert attention from their core product/service offerings (arising from core expertise) in order to develop and manage internally the vertical functions required to enable and support the success of core product/service offerings.

Consider, for example, tertiary education, where core expertise resides in a learned intellectual capital base. In a civilization in dire need of instilling tertiary-level learning and learning skills in an increasing proportion of the global population, how should the world's intellectual capital base be organized for maximum leverage? A deeper dig uncovers two further questions: (1) What is the best way to organize and manage the skills required to expand, integrate, disseminate, and preserve knowledge? (2) What is the best way to provide the trust function of credentialing knowledge acquisition by learners—from apprentice learners to the guild-level learners who will replenish the intellectual capital base at the core of tertiary education? These two questions have gone largely unasked for years but deserve timely consideration as the learning productivity crisis begins to wash over the current tertiary education enterprise based on classrooms, credit hours, libraries, internally conferred credentials, and so on. Even if the core business model for tertiary education remains in its current state—a sure bet in the medium term—the business model could benefit from more mundane (outside-the-core) external sourcing and partnering opportunities, such as those represented by cafeterias, bookstores, facilities and grounds management, marketing, recruiting, admissions, registrar functions, enrollment management, financial aid, institutional research, grants management, central ICT or some of its functions, and many other functional areas.



The Internet preceded the web, but the web is itself an Internet-enabled innovation that daily spawns new services and business models and enables the redesign of others. This is indeed an age of accelerated change in the service economy and its underlying business models, except in the health care and education sectors. The governance and service models for the education enterprise are characterized, at best, by randomly interconnected interests, investments, organizations, and processes – not only around the world but also, and too often, even within a single state in the United States. The cradle-to-grave lifelong learning pipeline is not well positioned to increase the proportion of the population holding tertiary credentials. To make matters worse, the pipeline is leaky and not seamlessly connected at its various age and attainment junctures. The pipeline is both a cause and an effect of the learning productivity crisis. Where does ICT fit into this picture? Everywhere, unless there is something wrong with engaged learning among an expanding group of learners, all enabled via affordable high-tech/high-touch strategies that were heretofore unimaginable.

There is little consensus for change among education insiders. Education has been on the right track for a long time but may soon be “run over” by the accelerating train of globalization. It’s time to get education right to ensure that globalization is running on the right track. We owe it to the future.

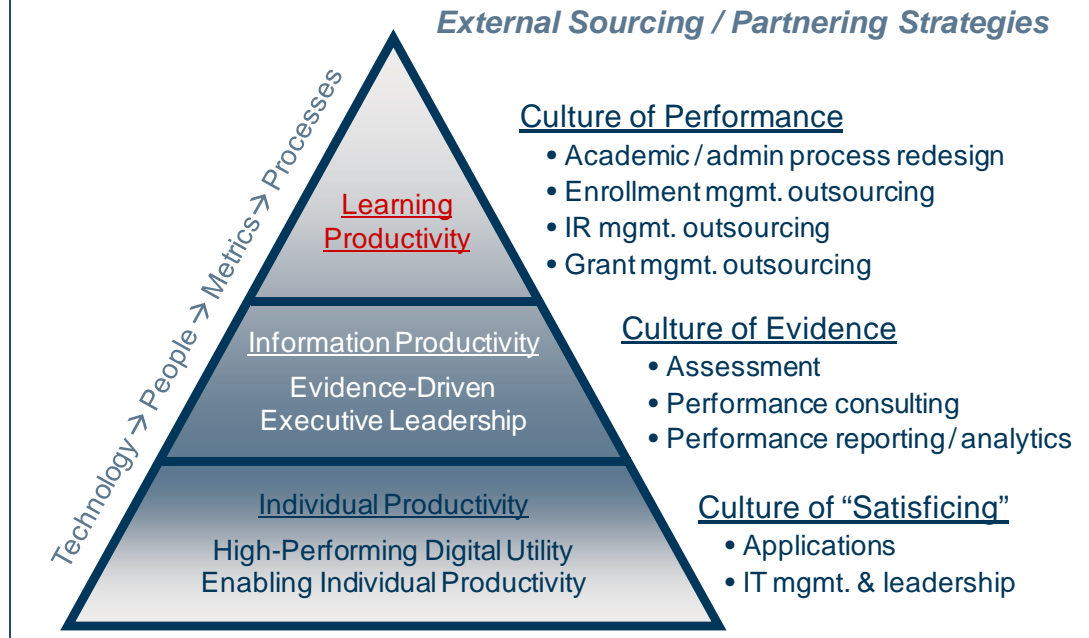
## **The “Strategicness” of ICT in Education**

ICT is a necessary expense in education, but it seldom takes on the characteristics of a strategic investment. ICT becomes a strategic investment only when education leaders risk their traditional professional currency by leading an effort to tap ICT’s proven leverage for increasing learning productivity. Measurably improving performance at scale in the most strategic areas of the education enterprise, including its expense structures, requires selectively forgoing some of the traditionally scheduled face-to-face interactions that are too often neither engaging nor efficient. ICT enables efficient and conveniently accessible high-tech online (asynchronous) self-service learning and learner support, but the social nature of learning argues also for providing as-needed, individualized, high-touch assistance as conveniently and efficiently as possible – though not necessarily face-to-face.

For the most part, ICT remains today what Herbert Simon (1978 Nobel Laureate in Economics) called a “satisficing” expense, one that in tertiary education, for example, is necessary to the satisfaction and everyday activities of the faculty and the students but that is not yet strategic to the enterprise. The taxonomy of ICT-enabled productivity has three tiers in the education enterprise. The first tier “satisfices” instructors and students; the next two, more strategic tiers require cultural changes that may be disquieting rather than satisficing.

1. *Individual productivity:* Education leaders understand the role of ICT in the individual productivity of students, teachers, professors, staff members, alums, board members, and so on. Of course, ICT is ever changing and so too are the productivity tools available to individual option – including Epsilen, Facebook, Second Life, Twitter, and other tools in the cloud. Improving everyday individual productivity, academic and otherwise, is nevertheless a well-established ICT-enabled goal reflected in baseline application and infrastructure investments and added-value professional-development services and student-satisfaction services.
2. *Information productivity:* Education leaders recognize the need to improve access to and the accuracy of enterprise information as a key to creating a culture of evidence and accountability. They know that cultural resistance typically stymies the effective use of new reporting and analytics systems, and only sporadically have they been able to synchronize culture and ICT-enabled business-intelligence tools to analyze, synthesize, and act on the educational models and processes that affect learning productivity. This latter process has been called “action analytics,” which combines transparent, accurate accountability reporting with predictive modeling and ICT-enabled interventions to improve outcomes (Norris et al. 2008).
3. *Learning productivity:* Education leaders seldom reflect on the ramifications for education of the productivity drivers inherent in globalization – an analogy in which ICT-enabled business intelligence, process redesign, and innovation have proven to be the primary toolsets available to improve productivity and competitiveness at scale. Pressures on education chief executives to improve upon and account for learning productivity are mounting, but too few connect the dots and proceed to relieve the pressures using ICT’s enabling role in increasing productivity.

# Culture and Productivity



One of the challenges in finding a strategic role for ICT in education is to move beyond the mindset that the educational use of ICT is about “putting everything online” in order to spend less on instructors and staff. Instead, the educational use ICT is about the flex concept – about balancing high-tech (asynchronous) self-service with as-needed high-touch, individualized assistance at the convenience of the learner. The endgame is to increase the convenience of access where there is demand while ensuring appropriate learning outcomes at more favorable per-credential costs.

## Outside-In Question Box 3

1. Where is your institution in the above three-point hierarchy of ICT productivity types?
2. Do you use and have access to key operational and longitudinal performance indicators to guide and track your institution’s highest-priority strategic objectives?
3. Is your ICT organization well led and managed? Have its service costs been benchmarked? Do you track its role in supporting learning productivity?

## High-Touch and High-Tech Are Not Antithetical, Even in the Cloud

Credentialed education will continue to be a high-touch enterprise. Education exists, after all, not only to credential learning but also because most apprentice learners cannot learn and cannot learn to learn without engaging with mentors and other learners. Many learners find it especially difficult to connect theory to practice and to connect the dots between the branches of knowledge—even when the world’s histories, cultures, and knowledge repositories can be “Googled” on demand for study and assistance. A colleague, Jim Noblitt, observed that sending learners to the Web to learn to learn without structured help is akin to locking them alone in the library to become self-educated. Learning is both a solitary and an integrative, high-touch activity! High-touch and high-tech need not be antithetical, however, and the success of the 2008 Obama campaign strategy illustrates the point and, by analogy, challenges traditional thinking about how to create and scale learning communities that draw not only on the energy and wisdom of a crowd of learners but also on the teachings of a “master.”

President Obama and his campaign team have utilized the latest collaboration and social networking tools, data-tracking tools, and trend discovery and analysis tools to

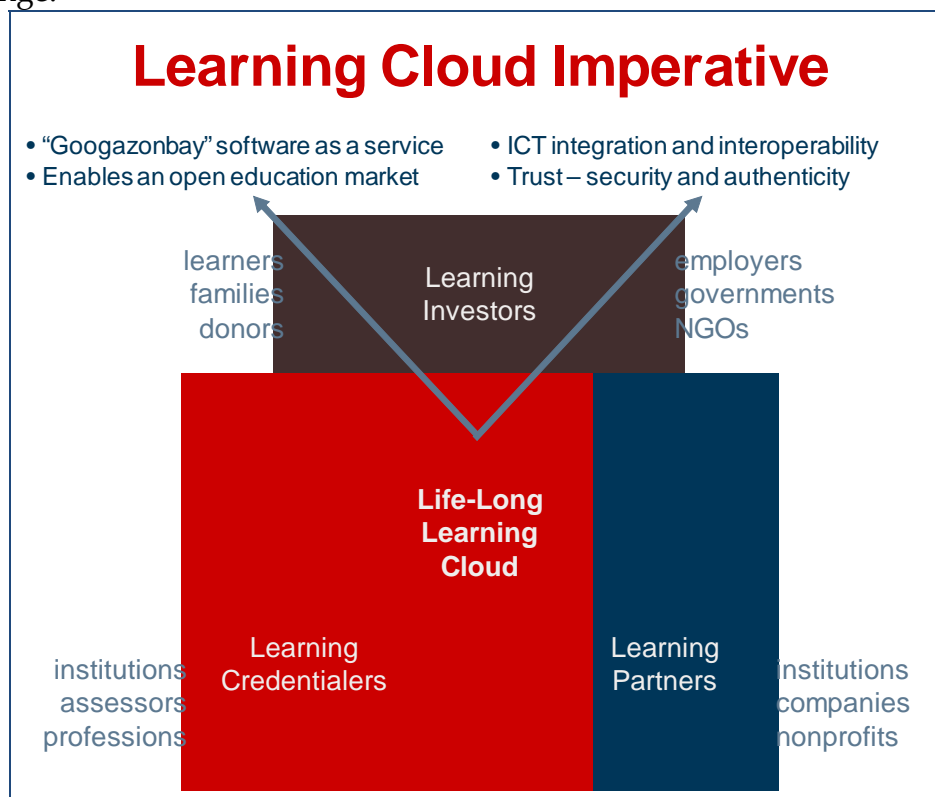
- mobilize an engaging, fluid dialogue about national policy and the nation’s future, both in the United States and abroad,
- inform and listen to the electorate, and
- continue (now as part of his governance model) to mobilize and involve “ordinary people” in support of the policies and politics of his administration.

The campaign’s “business model” depended on the scalability and efficiencies inherent in the “cloud”—the web-accessible mesh of individuals and organizations, all functioning virtually through nodes on the Internet network of networks to offer “software-as-a-service” applications and the convenient communication and transactional opportunities they enable. In the opt-in/opt-out cloud, basic human communications and resource exchanges can become, by design, broadly and mutually affordable—by optimizing for high-tech self-service that is backed up by high-touch, nearly on-demand assistance from the “wisdom of the crowd” of participating collaborators.

Those who use Google, Amazon, eBay, Facebook, Twitter, or YouTube have been in the cloud. Google’s search function is free and is provided by ICT investments that are not made and managed by you or your organization. Google “lives” in the cloud. Amazon is a “big-box” consumer marketplace in the cloud. After one convenient online

transaction with Amazon, further communication about products that might interest the buyer is inevitable – and usually welcomed. Education would also do well to intervene with a learner based on what is already known about the learner’s educational interests and progress to date. Education would further do well to understand how seamlessly buyers and sellers find each other in eBay’s open market in the cloud, a marketplace that operates with little regulation other than eBay’s virtual trust mechanism, which ostracizes dishonesty equally on each side of the buyer-seller equation. Social networking applications Facebook and Twitter provide a private, virtual place in the cloud to stay in (high) touch with an invited circle of adaptively or natively high-tech friends.

Indeed, the cloud has become both the content and the global community of virtual communities among digital natives and digital “immigrants.” Just as “team Obama” is using the cloud as leverage for enabling engaged citizenship at scale, so should “team education” learn to use the cloud as leverage for engaged learning at scale. Team education also could be “working the cloud” at this moment of economic uncertainty to earn the active involvement of the myriad constituencies whose critical support for tertiary education has decreased, for several years now, as tuitions have waxed and performance has waned. Let’s build a *learning cloud* to attract and support a *learning crowd*! Perhaps learning productivity should be the modern world’s next Peace Corp-like challenge.



## ***ICT-Enabled Strategies for Increasing Learning Productivity***

Over the past ten to fifteen years, three ICT-enabled strategies for improving learning productivity have emerged. Applied in context and in various combinations, they can help the tertiary education enterprise resolve the learning productivity crisis.

### **External Sourcing/Partnering Strategy**

*Focus internally on unique academic program strengths and source or partner externally for other functions in order to improve quality, nimbleness, and capacity while simultaneously reducing unit costs (e.g., per-FTE costs).*

Friedman identifies eight “flattening forces” that derive from using ICT to redesign organizational structures, service processes, and business models (Friedman 2007). His labels for these productivity-increasing, ICT-enabled external sourcing and partnering models are listed below, along with examples to illustrate the possibilities in tertiary education:

- *Out-sourcing* – as in externally sourcing a 365x24 technical help desk or online “coaching” service for all students or cloud-sourcing student e-mail from Google
- *In-sourcing* – as in externally sourcing a cabinet-level leader to be responsible for internal planning and decision-making processes in a key functional area requiring state-of-the-art knowledge and experience, such as enrollment management or central ICT, where an externally sourced expert CIO can serve as a cabinet member and lead and manage central ICT staffing and service delivery
- *Work-flowing* – as in using ICT to redesign, streamline, and track the work-flow processes involved in institutional performance reporting and analytics, enrollment management, institutional grant proposal and management, or financial aid
- *Supply-chaining* – as in externally sourcing marketing and student recruitment
- *Open-sourcing* – as in participating in an open-learning collaborative or as in joining a community-sourced application software collaborative while also externally sourcing the application’s ongoing support
- *Off-shoring* – as in contracting for the online delivery via “off-shore” adjuncts of teaching or tutoring services in baseline mathematics and other STEM introductory content areas

- *In-forming* – as in encouraging the use of search engines for research and in externally sourcing online informational and learning resources (content, courses, programs, benchmarking data, etc.) from external partners for the benefit of the institution and its students
- *Steroid-ing* – as in migrating as many institutional services and alerts as possible to the student-owned mobile devices that, à la McLuhan, have become part of the latest generation’s communication and behavioral modalities

## **Flex Program/Service Redesign Strategy**

*Use ICT to optimize high-tech online asynchronous self-service learning in credentialing programs and learner-support services while also providing as-needed, individualized high-touch expert student-service and learning assistance, whether face-to-face or through toll-free or ICT-mediated centers.*

Many would refer to this *flex redesign strategy* in terms of “online” or “distance” programs and services. Others might find the terms “blended” or “hybrid” implied by the description of the strategy. All of these familiar labels, however, are somewhat misleading. Distance certainly can be a barrier to access, but programs and services requiring inflexibly scheduled real-time human interactions are often a formidable barrier to access, even when distance is not. Flex programs and services not only can increase the *convenience of access* to education but also can improve the *affordability of access* for learners by eliminating or reducing the expense of taking time off from a job or a family or from relocating or commuting on a regular basis to a campus. When applied to credential programs and their necessary student support services, the flex strategy succeeds by honoring three core premises.

1. *Convenience matters!* All students today expect a blend of high-tech and high-touch instruction and support services. Optimizing for anytime (asynchronous) self-service, however, not only provides the convenience factor valued by all students but extends it as far as the individual student’s learning and comfort levels permit, thereby substantially redirecting traditional contact-hour labor to high-touch individualized interactions on an as-needed basis. The individually optimized complementarities of high-tech self-service and high-touch assistance set “flex” programming apart from “blended” and “hybrid” programming and make flex programs attractive to students for whom the convenience of access to education is paramount to their circumstances or preferences. Individualized (high-touch) services can include a 365x24 technical help desk and a number of other toll-free services, along with business-hours or office-hours walk-in support and various forms of individualized synchronous and nearly synchronous online support. “Flex” is the concept of meeting all of these high-touch needs while still

2. *Instructors and discussions matter!* Few students can learn without guidance from content experts (faculty members and other instructors). That's why institutions invest in a faculty, rather than investing only in a library and sending all students to the library, virtual or physical, to "self-acquire" their education. Students also need the services of librarians, advisors, and others who help with the learning specifics at hand. The goal is an integrative learning and student-service context in which formal learning can be situated, in part, to promote social learning through give-and-take discussions. That goal can be accomplished through flex programming, as well as through traditional programming, and should be central to the flex redesign strategy.
3. *Market needs and preferences matter!* Public institutions typically have mission obligations not only to support educational access as a societal and individual good but also to help meet various economic and workforce/professional educational goals established by charter or policy (e.g., program accountability). Private institutions, in contrast, are relatively free to select the various credentialing and geographical markets in which they compete. To the extent to which they are tuition-dependent, both private and public institutions should offer programs on the realistic basis of research into the program-delivery characteristics preferred by specific markets. Such research often points to the need or preference for flex programming. With that in mind, one strategy is to plan as though all student services and selected credential programs must be delivered entirely online (asynchronously) to students who cannot come to campus or otherwise participate in regularly scheduled real-time interactions. The program can then be tailored to accommodate any necessary high-touch instruction and/or any less-stringent delivery preferences that do not dictate the need for a totally online experience. For example, the quarterly residencies cited in the Antioch University profile in productivity are both an occasional inconvenience and a cost factor for students, but that has not hampered the success of the program. Even traditional residential, coming-of-age tertiary education may soon have to be delivered within the convenience characteristics of flex programming to achieve market success among students who prefer to communicate and learn in the cloud.



## Universal-Curriculum Redesign Strategy

*Use ICT to redesign selected high-enrollment courses for both measurably improved learning and reduced per-credit costs – by following the course redesign strategies and models pioneered by the National Center for Academic Transformation (NCAT) and its client partners.*

“Universal curriculum” refers to any cluster of high-enrollment courses critical to the productivity of almost all tertiary (or secondary) education providers. The courses in such clusters are (1) taught universally (by almost all institutions), and (2) attract high enrollments because they either are required by a credentialing program or are popular electives within such a program. In U.S. tertiary education, such courses can include high-enrollment general education courses, developmental courses, introductory courses in accounting and marketing in the business curriculum, and similarly required courses in other popular professional or workforce majors such as nursing, journalism, and education. Clusters of such courses present significant capacity, enrollment management, and operating expense issues that can diminish or enhance overall learning productivity. To identify and redesign universal-curriculum course clusters, proceed as follows:

1. Start with the relevant course catalog (i.e., the overall catalog or a more specific, high-enrollment program catalog) and list all courses in descending order of their enrollments (aggregated across all course sections).
2. Pause when the list’s accumulating enrollment count first totals in the range of 40–50 percent of all enrollments.
3. Notice that the resulting list features a handful of courses – likely in the range of twenty to thirty courses, in the case of the overall course catalog. Such courses, for example, are taught universally in almost all tertiary programs across the United States and elsewhere.
4. Analyze and prioritize these courses for their possible impacts on student success. For example, identify courses with negative impact on retention and credentialing rates. Adjust the list to ensure that a significant subtotal of pertinent total enrollments is accounted for in the cluster of courses selected for redesign.
5. Use the ICT-enabled strategies pioneered by the NCAT to redesign (with administrative and teacher/professor involvement) a single version of each of the highest-priority courses. The purpose of each such redesign is a measurable improvement in learning outcomes accompanied by a reduction in per-enrollment expenses.
6. After piloting and adjusting a new, single version of each course, replace all of its previous versions/sections with the new course.

*Those who make a distinction between education and entertainment don't know the first thing about either.*

— Marshall McLuhan

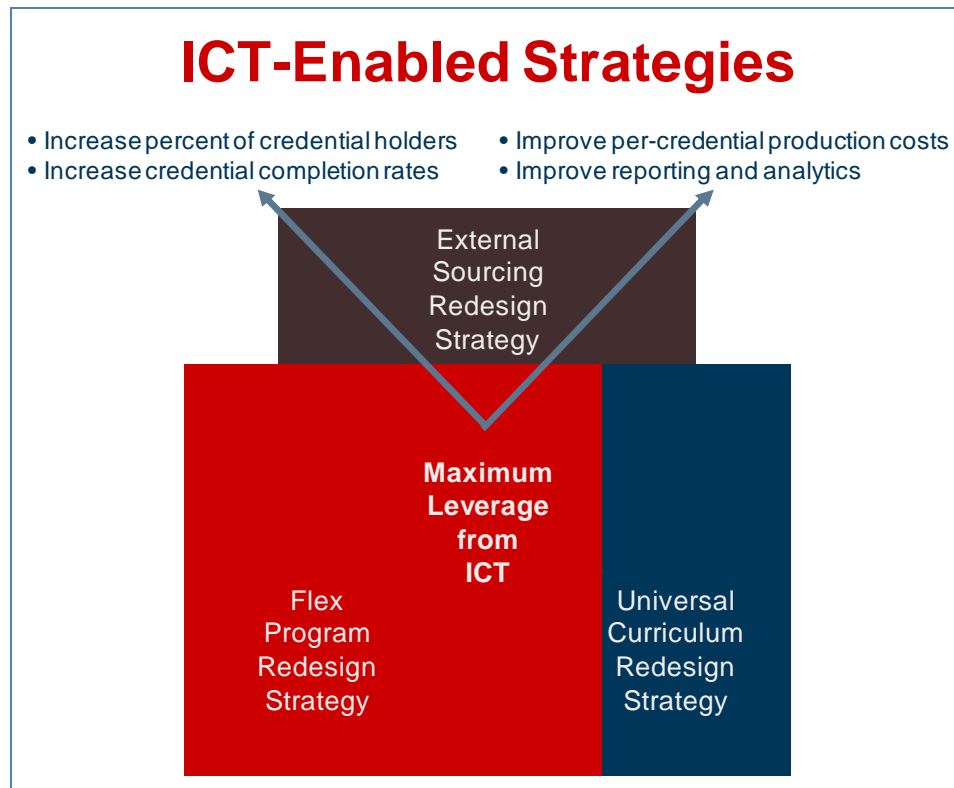
McLuhan surely meant that effective education, like effective entertainment, stimulates interest and engages the mind. Engaging, active learning is at the center of the NCAT's course-redesign models for improving learning and financial outcomes. Over the past seven years, dozens of colleges and universities in the United States have worked with support from the NCAT to demonstrate conclusively that the ICT-enabled redesign of faculty labor can be focused on student engagement and the measurable improvement of student learning, not only to improve student learning and student and faculty satisfaction but also to reduce per-enrollment direct instructional and instructional support costs. In an initial multiyear demonstration project, thirty institutions selected and redesigned one high-enrollment course per institution; collectively, they achieved an average 38 percent offset in enrollment expenses in the thirty courses. That average offset can translate into potential annual per-enrollment operating expense offsets of up to 10 percent when a meaningful cluster of high-enrollment courses are systemically redesigned. The NCAT course-redesign strategy and its results can be further amplified when multiple campuses work together.

Although the universal-curriculum redesign strategy and its results are counterintuitive to the traditional academic mindset that associates quality increases with decreases in the student-to-instructor ratio, its results are undeniable. The time is right to focus the NCAT blend of high-tech and high-touch on universal curricula – in the United States, specifically on the general-education cluster of the twenty to thirty highest-enrollment introductory courses in the basic fluencies and content areas that are central to the mission goals of access and student success. A number of institutions are also applying the universal-curriculum redesign strategy to high-enrollment professional and workforce courses and to developmental courses (in support of retention and graduation).

The following section, on assessment, will reveal how independent, normative assessments that address the goals of general education can be deployed to fortify already excellent results from the universal-curriculum redesign strategy. The converse – that the results of such assessments can be improved by the universal-curriculum redesign strategy – is already clear from the above discussion.

Various combinations of the three overlapping technology-enabled redesign strategies can be used to greatest effect in the United States in statewide collaborative efforts by systems and other consortia. Indeed, unless these strategies are incorporated into the eleven “Making Opportunity Affordable” statewide planning efforts supported by the Lumina Foundation for Education, the MOA “movement” is not likely to reach meaningful productivity goals (<http://www.makingopportunityaffordable.org/>). That's not to say that other efforts, such as statewide policy audits and changes, will not

also be essential to success. In any case, the “MOA Process” is the closest U.S. cousin to Europe's Bologna Process, and the Lumina Foundation and the eleven MOA states it is supporting deserve gratitude for their investments of time and resources in the future of tertiary education in the United States.



#### Outside-In Question Box 4

1. Is your institution engaged in external sourcing or partnering? If so, how do you measure the success of the effort(s)?
2. Does your institution have flex credentialing programs? Are they successful? If not, why not?
3. Has your institution applied universal-curriculum redesign to any of its high-enrollment courses? If so, with what results?

## ***The Assessment Iceberg: Because Learning Is Difficult to Assess, Assess No Learning?***

The iceberg metaphor is only a device for flagging the difficulties created over the past five to ten years as the socioeconomic compact between the public and the education enterprise unraveled under the combined pressures of (1) increased demand for education to ensure economic security and competitiveness and (2) globalization processes that have increased productivity in almost all economic sectors—education and health care being glaring exceptions. The icebergs discussed in this and subsequent sections are independent of geopolitical context but are documented in U.S. terms in the belief that similar documentation is available in other geopolitical contexts. Notice that much of the documentation signals that a new social compact between the public and the education enterprise is already in the making—certainly in the United States.

Here “assessment” refers to *summative* (after the fact) assessments of student learning outcomes. There is certainly a place for *formative* assessments, which tend to focus on teaching, learning, and support processes to identify those process improvements having the potential to improve student-success outcomes. Indeed, perhaps the longest-standing and most successful formative assessment project in U.S. tertiary education is conducted under the aegis of the Council of Independent Colleges (CIC). Since 2005, more than thirty CIC member institutions have participated in the CIC/CLA Consortium and are using the CLA (Collegiate Learning Assessment) to assess “value-added” learning and, more importantly, to learn more about the cognitive growth of their students (Ekman 2008). The Consortium “has demonstrated through practice that the CLA (as an independent, direct assessment of student learning) is an appropriate means to assess an institution’s value-added contribution to learning over the course of a student’s undergraduate education.” Two other formative assessment opportunities are in broad use in the United States as survey processes, not for directly assessing student learning but for indirectly gauging student engagement: the National Survey of Student Engagement (<http://nsse.iub.edu>) and the Community College Survey of Student Engagement (<http://www.ccsse.org>).

Back to summative assessments and what is *not* happening. The report “New Leadership for Student Learning and Accountability” advises U.S. tertiary education on learning assessment principles as follows:

*Each college and university (and major divisions, schools, and programs within them) should develop ambitious, specific, and clearly stated goals for student learning appropriate to its mission, resources, tradition, student body, and community setting.... While these educational goals will vary from institution to institution, they should include the enrichment of both individual lives and our democratic society as a whole through the study*

*of science, social science, the humanities, and the arts. By setting clear and ambitious goals, each institution can determine and communicate how it can best contribute to the realization of the potential of all its students (AAC&U/CHEA 2008).*

The AAC&U/CHEA principles are fine as far as they go, but they appear to be closed to the possibility that there are a few universal learning domains in which external (independent) summative assessments are possible and desirable in the interest of peer benchmarking and transparent public reporting. Both the National Commission on Accountability in Higher Education and Secretary Spellings' Commission on the Future of Higher Education called for outcomes accountability (SHEEO 2005, Spellings 2006). The recently created National Institute for Learning Outcomes Assessment (NILOA) speaks to the need within the U.S. tertiary education community to address learning outcome assessment *and* learning accountability reporting (<http://www.learningoutcomeassessment.org/index.html>). NILOA nevertheless offers no clear indication that it will encourage public benchmarking based on independent, constructivist, normative assessments. In contrast, budding public learning accountability efforts are described in some detail in *Ready to Assemble: A Model State Higher Education Accountability System* (Aldeman and Cary 2008). Some of these efforts are emanating from the states and others from presidential associations, such as U-CAN, developed by the National Association of Independent Colleges and Universities (<http://www.ucan-network.org/>), and the Voluntary System of Accountability (VSA, <http://www.voluntarysystem.org/>) and its *College Portrait* jointly developed by the Association of Public and Land-grant Universities and the American Association of State Colleges and Universities. The VSA, in particular, includes the institution-centric strategy of statistically sampling first-year and last-year students for "value-added learning." That strategy appears to typify the current trajectory in the United States on independently assessing basic fluencies and critical thinking skills. These budding learning accountability initiatives in the tertiary education community in the United States are developing in spite of the prevailing inside-out academic perspective on benchmarking learning, which is best captured by the idea that because not all learning can be assessed, no learning should be assessed and benchmarked. In contrast, a "satisficing" outside-in strategy for assessing and benchmarking selected learning competencies is outlined below.

### **Outside-In Assessments: Learning-Centric, Learner-Centric, and Society-Centric**

At a policy level in the United States, the summative assessment issue is not whether institutions should retain autonomy over their myriad degree offerings and overall operations, but whether there is a limited, inter-institutional academic mission domain in which a common strategy for improving upon and accounting for student learning could be broadly adopted across most institutions. In other words, are there important but limited domains of universal academic programming in which institutional

autonomy should be voluntarily trumped (within specified limits) by the common good, all in the interest of enterprise accountability and reporting on key indicators of student success? Yes – in three domains, two of which intersect the universal learning domain called “general education” in the United States.

The general education that helps prepare learners to enroll in a disciplinary or professional program is an obvious target for collectively applying a flexible strategy to improve upon and publicly account for learning outcomes in a way that permits peer institutional comparisons and that benefits students. Almost all colleges and universities, after all, share a mission-priority commitment to the goals of general education and typically proclaim to:

- instill basic fluencies (communication skills) and critical thinking skills as habits of mind and as the basis for lifelong learning, informed citizenship, and personal fulfillment, and
- demand a pattern of required and elective general education courses, both to cultivate basic fluencies and critical thinking skills directly and also to practice them in disciplinary courses that form the foundation for further vocational and avocational learning (addressing the arts, humanities, physical/biological sciences, social/behavioral sciences, the professions, and the workplace).

In this universal context for a “general education,” it is reasonable from an outside-in longitudinal perspective to expect secondary and tertiary education to transition together toward a holistic assessment strategy that is more learning-centric, learner-centric, and society-centric than institution-centric. Several basic principles form the foundation for such a strategy:

1. *Decouple some part of general education testing from teachers and institutions.* Learners will learn to embrace required opportunities to assess their “general learning” at various stages of learning accomplishment and learning maturity, provided that such assessments are developed and scored independent of specific teaching institutions and teachers and are available for a lifetime to the learner to share in a normative context with employers and others, solely at the learner’s option and all via an e-learning portfolio under the control of the learner.
2. *Move away from multiple-choice assessments.* Ensure that independent assessments of general learning require learners to construct and expose a meaningful proportion of their “answers” – to the extent possible – through competency-based interrogatories. Such work, along with an overall assessment “score,” should be available to the learner’s e-portfolio via a verifiably authenticated process.
3. *Support the institutions that support required independent assessments.* Any shift from institution-centric assessment strategies to learner- and society-centric assessment

strategies is certain to be culturally controversial in the education enterprise. From an outside-in policy perspective, however, it is a desirable shift in the context of the geopolitical brains race, a shift already recommended, for example, in the Spellings Report in the United States (Spellings 2006). Public funding for such a shift could easily be justified on the basis of providing support for those institutions and systems willing to act voluntarily on the ideas that follow in the next three subsections. The public funding idea is described further in the “Proposing an Education Assurance Commons” section below.

4. *Respect the autonomy of teaching and grading.* Within prevailing practices, policies, and course-centric learning provision models, do nothing initially to abridge any current rights held by instructors to teach and assign grades in a course.

### **Learner-Centric External Assessments of Basic Fluencies and Critical Thinking Skills**

The process described below is equally institution-centric *and* learner-centric. It requires all credential-seeking tertiary students to complete at least one nationally normative independent assessment and gives them lifetime access to the result(s) to be shared, solely at their discretion, with employers and others.

Externally developed and scored assessment suites of basic fluencies and critical thinking skills are available today. CAAP (from the ACT), CLA (from the Council for Aid to Education), GRE (from the ETS), and MAPP (from the ETS) are U.S. tertiary examples, some with secondary-level counterparts. Most have or could have the additional virtue of not relying solely on multiple-choice responses and instead requiring students to construct and expose some of their work.

With these or similar assessments in mind, any institution could

1. select one broadly normative independent assessment of basic fluencies and critical thinking skills;
2. require every credential-seeking student, as a condition of earning a credential, to complete the assessment at some appropriate point in the path-to-credential;
3. require (or not) for the credential a “passing” score determined at institutional discretion;
4. provide the authenticated score to the student through a secure mechanism, preferably provided by the external assessment provider in a manner that can be authenticated via the student’s e-portfolio over a lifetime;
5. make it possible, at a student’s discretion, to situate the score within any supported institutional or broader demographic groupings for the purpose of selectively sharing the results with family, employers, and others; and

6. benchmark (publicly) institutional mean and median percentile indicators (or other indicators) of basic fluencies and critical thinking skills against average peer-group counterpart indicators selected from the pool of all other institutions using the same assessment or other assessments that have been correlated to the selected assessment via concordance studies (see *Concordance Study*).

The line of thought outlined above, while an anathema in traditional academic circles, suggests only that institutions voluntarily take collective action on external (independent) assessments and then benchmark the common basic fluencies and critical thinking skills that their curricula are designed to habituate as the foundation for lifelong learning. These basic fluencies and critical thinking skills are typically proclaimed to be necessary to informed citizenship – the basis for blending the individual “pursuit of happiness” with the individual and societal pursuit of civic and economic security and economic competitiveness.

### **Learner-Centric External Assessments of Nearly Universal Content**

At the heart of general education and professional/workforce education at the tertiary level is the general education curriculum almost universally offered in the United States and elsewhere. General education courses are often taught in multiple sections or large lecture halls from syllabi evidencing nearly identical content coverage and learning objectives. Any tertiary institution could proceed, as in the universal-curriculum redesign strategy, to identify the most important cluster of these courses in terms of subtotal enrollment percentage and retention issues. The institutional next steps are outlined below:

1. Select a group of external (independent) assessments to represent core general education objectives keyed to the selected courses and/or to admissions requirements.
  - a. Select a suite of these assessments – each assessment to require as much student-constructed-and-demonstrated work as is practical, in lieu of relying solely on multiple-choice responses. The assessments might be selected from, for example, a representative sample of the ACT’s various competency-based subject-matter assessments, the College Board’s AP exams, or similar assessment suites provided by other organizations.
  - b. Require each credential-seeking student to select and complete a small number of assessments (perhaps three or four) from the above suite and capture the results in institutional records.



- c. Substitute (or not) these assessments and scores for the traditional final exam that they individually represent. Instructors could continue to assign course letter grades to their students and have the freedom to use or to ignore the results of the independent assessments as they deem appropriate to the grading methodologies they have adopted within institutional policy.
2. Provide an electronically secure and authenticated record of the external assessment results to each student involved. These nationally recognized independent learning assessment scores or percentile rankings could “follow” students (to represent a substantive slice of their secondary-to-postsecondary general education experience) in their private lifelong learning e-portfolios. Students could share (or not) their private data with employers, family, and others as they see fit.
3. Collaborate on the process outlined above, where applicable, to extend it to a system (or consortium) level and downward into secondary-level school systems (whenever a course has a secondary-level counterpart course and assessment).
  - a. System/consortium institutions could independently specify, for each assessed universal course, the minimum score or percentile for which credit will be awarded to an entering or transfer student. As an additional courtesy to students, that minimum could be translated into transfer-credit minimums for other independent instruments assessing approximately the same content—an undertaking along the lines recently announced by two leading assessment providers (see *Concordance Study*). This limited transfer-of-credit transparency would alleviate much of today’s clamor for more comprehensive transfer-of-credit protocols. Universal courses, after all, are the courses for which credit transfer arguably should be transparent, though at a level determined and openly published by the individual institutional member of a system or consortium.
  - b. Secondary and tertiary partners could use the same assessments at different levels of educational maturity and even share their counterpart courses, sometimes taught by tertiary instructors to secondary students and vice versa. The resulting bridge between the two sectors, while not universally traversable, would have some broad and useful scaffolding for correcting current misalignments between secondary and tertiary education.
    - i. Secondary and tertiary institutions would have a small, manageable set of aggregate mean and median scores and percentile ratings to compare with counterpart metrics on a peer basis.

- ii. They could establish common longitudinal learning accountability data elements at the student-record level across a considerable expanse of the secondary-to-tertiary student experience.
- iii. They could include (or not) a student's score or percentile ranking (and the counterpart internal and peer average metrics) alongside the corresponding universal course in the student's e-portfolio transcript.
- iv. They could accept (transparently) inter-sector and inter-institutional credit transfer and consider team teaching to increase collective enrollment capacity in the single, redesigned course.

By systemically collaborating on the incorporation of external assessments and the redesign of universal courses, tertiary and secondary systems in and across states and nations could improve and account for learning in a way that has significance from a policy perspective while also improving statewide and national learning productivity and benchmarkable accountability. Indeed, the American Diploma Project (<http://www.achieve.org>) and the Data Quality Campaign (<http://www.dataqualitycampaign.org/>) have mounted encouraging initiatives from within the secondary-education sector in the United States to establish curriculum standards at the college-preparatory level and longitudinal data principles and standards for creating a more effective bridge between secondary and tertiary education).

## **Low-Hanging Fruit: Assessments of Professional and Workforce Readiness**

Many professional and workforce careers are gated by assessments external to the tertiary institutions that “prepare” their practitioners. Examples of these assessments include bar exams in the United States, Cisco's worldwide certification programs, and various certifications for health-care professionals and educators. Tertiary institutions should, and often do, track and publicly report the aggregated results from these gating assessments of the students they credentialed in pertinent professional and workforce programs.

Learning outcomes in other credentialing programs, such as a baccalaureate degree in history, are probably best left to the disciplinary or professional faculties that are responsible for such programs in each institution.

## Outside-In Question Box 5

1. Is your institution/system a participant in the Voluntary System of Accountability or any other inside-out voluntary effort to address learning accountability via independent assessments?
2. Is your institution/system positioned to engage the debate that would be raised by the outside-in independent-assessment concepts advocated above?

### ***The Pipeline Iceberg: The Demographic “Otherhood” and Other Issues of Scale***

In the process of defining learning productivity, policy expectations were expressed as a requirement to increase the proportion of tertiary credential holders in adult populations. Such increases, however, are dependent on the flow of learners into tertiary education and, so, are dependent on the lifelong learning pipeline, from pre-puberty to a post-tertiary retirement age.

Population growth rates vary, but diversity is increasing in most geopolitical demographic profiles. Recruiting and admission strategies in tertiary education are already in various stages of embracing diversity and its many dimensions of “otherness” – dimensions that are replacing “sameness” and leading to the redesign of enrollment-management strategies within the core academic service models that determine learner success as well as operating costs and, thus, pricing strategies. This new tertiary “otherhood” academically and financially translates into first-generation, underprepared, needy learners, and it is fast replacing the historical “majorityhood” of tertiary education demographics – however “majority” had been defined in the past. Education must not only manage educational capacity to meet unmet employer demand – for credentialed nurses, teachers, and STEM professionals, for example – but also help create demand among students of all ages in the pipeline for credentials in these same areas. The latter is a marketing challenge. Pipeline issues are interconnected and complex!

Facing increasing geopolitical economic competition, policy-makers are projecting the workforce proportions of tertiary credentials required for competitiveness. Their projections reflect labor and workforce statistics but invariably are influenced by global, comparative data from the Organisation for Economic Co-operation and Development (<http://www.oecd.org/home/>). OECD data reveal, for example, that the United States has fallen behind other nations. The United States has fallen to 10th place in the percentage of tertiary-educated adults ages 25 to 34 – not an acceptable position in U.S. policy terms. The reaction has been swift. For example, the Lumina Foundation's “big

goal” is to increase the percentage of Americans with high-quality, two- or four-year college degrees and credentials from 39 percent to 60 percent by 2025, an increase of 23 million graduates above current rates

([http://www.luminafoundation.org/our\\_work/our\\_goal.html](http://www.luminafoundation.org/our_work/our_goal.html)). Another report, *Coming to Our Senses: Education and the American Future*, from a commission of education leaders sponsored by the College Board, seeks to ensure that “by the year 2025 fully 55 percent of young Americans (age 25–34) are completing their schooling with a community college degree or higher” (Kirwan 2008). As noted earlier, President Obama’s related goal is the most ambitious of all: to increase the current 39 percent of tertiary credential holders in the 25–64 U.S. age group to 60 percent by 2020.

A simple computation will bring the pipeline iceberg into fuller view by revealing some of its implications from beneath the water’s surface. Assume, for example, a steady-state proportion of adults in the U.S. 25–64 age group over the next fifteen years – a simplifying but conservative assumption. Increasing the tertiary credential-holding proportion from its current 39 percent to 60 percent would require compounded annual growth rates of about 3 percent and 5 percent over fifteen and ten years, respectively. Can such ambitious increases be achieved and, if so, how? This is a pipeline question with clear implications, not only for improving current tertiary credentialing rates but also for fixing the lifelong learning pipeline leaks that constrain the flow of learners into tertiary education – for example, secondary dropout rates and secondary-to-tertiary enrollment rates. The 25+ age group of adults is also part of the pipeline flow into tertiary education and is a critical component. According to the U.S. Department of Education, National Center for Education Statistics “Fast Facts,” adults age 25+ will account for 38 percent of all enrollments in degree-granting tertiary institutions in 2010 (“Fast Facts”). The aforementioned report from the College Board offers a comprehensive analysis of pipeline issues, along with recommendations for resolving them (Kirwan 2008).

The primary-to-secondary-to-tertiary pipeline in STEM fields can be, and has been, modeled by a group of Raytheon engineers employing Forrester’s system dynamics approach. The model was developed under the aegis of the Business Higher Education Forum (<http://www.bhef.com>) with the intention of better understanding the STEM pipeline in its various dimensions in the United States. The model has since been refined to yield broader insights into college readiness and to help identify subsequent success factors for STEM-ready college students – those with both high interest in STEM and high proficiency in math. Raytheon has “gifted” the model to BHEF. In return, BHEF has made the model available as an open-source tool by forming an open collaboratory: the STEM Research and Modeling Network (<http://www.stemnetwork.org/>). Not only does the SRMN make the Raytheon model freely available to those who want to use and/or refine it (for now, users must first register with Google Groups), but the SRMN also hopes to stimulate similar modeling and simulation efforts on a broader basis through open collaboration within an

inclusive community of educators, researchers, and policy-makers. The SRMN model can expediently test adjustments to the current STEM education business/service model and may ultimately become malleable enough to test alternative education business models more broadly. Even in its current form, the model can incorporate enough financial variables so that what-if interventions and changes in traditional secondary-to-tertiary STEM pipeline practices can have an at-what-cost dimension. Over time, an evolving model might help determine whether the current education service/business model permits sustainable, affordable solutions to today's comprehensive set of education problems.

## ***The Economic Iceberg: Collisions in the Tertiary Education Economy***

### **Public Revenues**

Mostly ignored before the economic meltdown, but now recognized as a near certainty, is that public funding for higher education on a per-student basis will be under heavy downward pressure for the foreseeable future. Indeed, public funding may move from a per-student (per-FTE) basis to a per-credential basis, a trend that is in the nascent stage and that would be a natural consequence of the trends reported here. Consider some of the evidence, past and projected, for trends in per-student public funding.

*State and local public subsidies:* Even as the meltdown accelerates higher education's state funding problems, those problems have been transparently in the making for several years. For example, the State Higher Education Executive Officers published a report in 2006 noting that the national average of inflation-adjusted per-FTE state subsidies for public institutions had reached a twenty-five-year low in 2005 (Lingenfelter 2006). The National Center for Public Policy and Higher Education also issued a report in 2006 projecting that by 2013, every state will be suffering a structural shortfall in tax revenues, which will not be sufficient to cover ongoing financial obligations (mandates) – such as Medicaid, K-12, and prisons – while also maintaining inflation-adjusted levels of then-current spending on other priorities, such as higher education (Jones 2006). The 2013 projection now appears to be coming to fruition early – possibly in 2010. Local tax support, which applies to numerous community colleges, is similarly stressed and likely only to deteriorate for the foreseeable future.

*Federal subsidies:* The Pell Grant program, tuition tax credits, and a few other less-significant federal programs provide important financial subsidies to higher education and its neediest and middle-class students. These programs, however, are stressed. The stresses on Pell Grants, for example, are two-fold: (1) the cap on individual grants has not kept pace with spiraling tuition increases for some years now; and (2) the supply (the number of students being served by the program) does not meet the need-based

demand (from students eligible for the program). After lobbying by higher education through the American Council on Education and a number of sector-specific presidential associations, these issues have been addressed in the congressional response to President Obama's "stimulus proposal." Stimulus funding will also help states offset reductions in their public allocations to higher education – reductions forced by the economic downturn and by statutory requirements to balance budgets. Increased federal funding, however, is not likely to offset the continuing long-term deterioration of state per-FTE funding. For example, even the proposal to "mandate" and increase the cap on Pell Grants will still leave gaps in funding for the neediest students.

*Student loans:* Though student loans are not public revenues to higher education, many are guaranteed by the federal government (from public funds). More important, student loans are a major component of net-tuition revenues for many schools. Several recent reports have noted considerable consolidation in the student-loan market but have nevertheless claimed that there is no shortage of credit in the market. Qualifying for that credit and maintaining the resources necessary to repay it are the main issues facing students and their families and, therefore, also facing colleges and universities. No patterns have yet emerged, but schools, especially those that are tuition-dependent, fear that credit may become unavailable or unaffordable to their neediest recruits and also eventually unaffordable to some enrolled students whose financial circumstances are deteriorating in the new economy. Further exacerbating the loan problem for students and their schools is an average debt load of approximately \$23,000 carried by borrowing students upon completing a baccalaureate credential (College Board 2008).

## **Endowments**

Two recent survey-based reports reveal that educational endowment investments began a downward spiral in the 2008 fiscal year and accelerated downward in the first half of 2009 (Commonfund 2009, NACUBO 2009). Some highlights include the following:

1. *FY 2009 (July 1, 2008–June 30, 2009):* The average loss in endowment values during the first six months of FY 2009 was over 20 percent. While suffering significant losses at this point, the 60 or so "well-endowed" schools are faring better on a percentage basis than the thousands of other schools.
2. *FY 2008 (July 1, 2007–June 30, 2008):* Suffering was real, but not as bad as in the first six months of FY 2009. Indeed, many of the schools having endowment values among the top 20 experienced gains during FY 2008. Schools with endowment assets of greater than \$1 billion averaged investment returns of 0.6 percent. Those

with endowments below \$50 million had the largest losses: -4.3 percent on average.

3. *The rich get relatively richer:* One long-standing disparity is persisting. On average, the larger the endowment, the greater is the percentage return – or the smaller is the percentage decline.
4. *Managing the ups and downs:* Many institutions draw annual earnings from their endowments based on a “trailing” average of returns – averaged over some number (four, for example) of immediately preceding years. This practice will help those institutions weather continuing financial storms.
5. *Pity the tuition-dependent private nonprofits:* The tuition discounting practices of tuition-dependent independent colleges are imperiled. These institutions have meager endowment earnings relative to their annual operating expenses. Their recruiting, by choice or not, is increasingly weighted toward first-generation, underprepared, needy students, and they accordingly rely heavily on tuition discounting. They often have to draw on modest endowment earnings and wealthier students’ tuition payments to discount needier students’ tuition rates and even to discount tuition for non-needy, academically well-prepared students in the form of “merit scholarships” in order to raise institutional profiles in periodicals such as the *U.S. News & World Report* and its annual college rankings. Tuition-dependent independent schools are more at the mercy of the still-evolving economic difficulties than many other institutions.
6. *It’s tough for some publics as well:* Non-flagship public universities and public community colleges are not unlike tuition-dependent independent institutions in that (1) enrollments may be weighted toward first-generation, underprepared, needy students and (2) endowment earnings are meager. They differ from tuition-dependent independents, however, in that they are less deeply into the “merit-scholarship” business and they are more dependent on state (and local) public subsidies – even in states, such as North Carolina, that subsidize their private, as well public, institutions. Instead, they have increased tuitions to cover more of their expenses, as the next section will reveal.

## Revenues, Expenses, and Tuitions

A recent, excellent report from Jane Wellman and her associates at the Delta Project on Postsecondary Education Costs, Productivity, and Accountability (<http://www.deltacostproject.org/>) clarifies the sources of higher education revenues and identifies how revenues are expended in various categories of annual operating expenses (Wellman 2009). The report deserves careful analysis. It confirms what many already knew – or thought they knew – and offers valuable insights at this moment of extreme financial distress for tertiary education.

The report is based on an analysis of the latest U.S. Integrated Postsecondary Education Data System (IPEDS) – up to FY 2006 with an emphasis on the five-year period from 2002 through 2006 and some references back to 1995 data (<http://nces.ed.gov/IPEDS/>). While the data are slightly dated, the trends generally point to and correlate with today's context. The report uses two familiar annual operating expense categories: *Total Operating Expenses* (including auxiliaries) and *Education and General (E&G) Expenses*, which are total operating expenses less auxiliary expenses. The report focuses heavily, however, on a third category of spending: *Education and Related (E&R) Expenses*, which are pulled from IPEDS to estimate as accurately as possible the full cost of educating students – by subtracting from E&G Expenses the portion that can be attributed to sponsored research and public service. Another way to describe E&R Expenses is that it includes all direct expenses for instruction and student services, while also including a fairly apportioned share of administration, facilities (including infrastructure), and maintenance support. For-profit institutions are not included in the analysis, even though they are, along with public community colleges, fastest-growing in terms of compounded annual enrollment growth rates. The analysis is sliced and diced by six sectors. Key highlights from the report include the following:

1. *Enrollment headcounts*: The six sectors, in descending order of headcount enrollments, are as follows: the public community college sector; the public research sector; the public master's sector; the private master's sector; the private research sector; and the private bachelor's sector.
2. *Spending on instruction*: Ordering the sectors in descending order of average per-FTE E&R Expenses affects the above order dramatically. The public/private difference is revealed in the following table:

Descending Numerical Order	
Enrollment Headcounts	Average Per-FTE E&R Expenses
Public community college sector	Private research sector
Public research sector	Private bachelor's sector
Public master's sector	Private master's sector
Private master's sector	Public research sector
Private research sector	Public master's sector
Private bachelor's sector	Public community college sector

3. *First highlight*: Public community colleges enrolled more students (~ 6 million) in 2006 than did any other sector but had the lowest average per-FTE E&R Expenses, at \$9,184. More generally, the three public-sector groups collectively serve the vast



majority of students in the nation but rank below all of the three private-sector groups in average per-FTE E&R Expenses.

4. *Growth in tuition dependence:* In 2006 dollars, the trend in each of the sectors over the period 2002–2006 was increased dependence on net tuition as a source of revenue growth.
5. *Expenses and net tuitions rose in tandem in private institutions:* E&R Expenses rose over the five-year period in all three private sectors. Net tuition rose roughly proportionately to cover a percentage of E&R Expenses, though that percentage varies dramatically across the three private sectors. In the private research sector, that proportion was at 56 percent in 2006. Excluding the well-endowed private research sector schools, which enroll about a million students, the bottom-line analysis pointed to degrees of tuition dependence (among the other private nonprofits) that required net tuition to cover 60–85 percent of E&R Expenses in 2006.
6. *Expense shifting in the public institutions:* The proportion of E&R Expenses borne by net tuition in the three public sectors increased over the five year period of analysis, while total E&R Expenses remained relatively stable. The proportion of E&R Expenses going directly to instruction declined a bit in the same period. The sound-bite result has been that students are increasingly “paying more for less” – with their net tuition covering an increasing proportion of E&R Expenses while their institutions expend less on instruction. This trend was most exaggerated in the public research sector.
7. *Variations by state:* E&R Expenses and students’ shares (net tuition) of E&R Expenses in the three public sectors varied enormously from state to state. For example, average E&R Expenses in 2006 in the public research sector ranged from more than \$20,000 per FTE in Minnesota, Pennsylvania, and Connecticut to a bit under \$9,000 in Montana. Subsidies supporting these same expenses in proportion to the total E&R Expenses varied from a low of 17 percent (of approximately \$18,300 in E&R Expenses) in Vermont to highs of 89 percent (of approximately \$12,700 in E&R Expenses) in Puerto Rico and 76 percent (of approximately \$18,200 in E&R Expense) in Alaska. The national averages are about \$14,100 in E&R Expenses subsidized at 49 percent. (Public research universities are, well, more public in Alaska than in Vermont.) These variations are part of the reason that the recent reauthorization of the Higher Education Act includes provisions for holding states’ “feet to the fire” in terms of the consistency of state subsidies to higher education.
8. *Tricky questions:* Variations in the state-by-state data (sampled above) raise interesting questions and comparisons. For example, should Montana’s two research universities be proud of average per-FTE E&R Expenses in the \$9,000 range (subsidized at a 26 percent rate)? State policy-makers likely would be proud,

9. *Outcomes (credentials)*: The report acknowledges that many community college students are more interested in completing 60 credits of academic work than in getting a two-year associate's degree. (The word "credential" has been used throughout this article to capture the "completion" concept while clearly including "degree" in its meaning.) Completion and credential accordingly use both degrees and completions as key outcomes. This difference, which makes a difference in community colleges, makes hardly any difference in any of the four-year sectors and thereby levels the comparison of two- and four-year playing fields when using completions. In 2006, completions as a percentage of FTEs in the three public sectors range from 23 to 25 percent, with the research sector at the top and the master's sector at the bottom. The private research and private master's sectors were at 32 and 31 percent, respectively, while the private bachelor's sector was at 24 percent.
10. *The costs of completions*: E&R Expenses per completion are also reported, with the private research and private bachelor's sectors logging, respectively, the highest and next-highest spending rates. Indeed, the spending rates per completion follow the order of spending noted in item 2 above, as is to be expected.
11. *More on the costs of completions*: Follow-on reports from the Delta Cost Project offer five different methodologies for determining the cost of a four-year degree in the United States (Johnson 2009) and also offer more detailed possibilities for framing overall learning productivity in the United States (Kelly 2009).

### ***Proposing an Education Assurance Commons***

To paraphrase a commentary by John Ciardi on National Public Radio: "Where you enroll and whom you meet in college is more important than what you learn." Ciardi's quip still holds water for those who prefer, qualify for, and can afford a "best-in-the-world" education. But our shared future is about learning and about learning to learn, not the prestige of institutions. This outside-in principle better frames the brains race and the need to scale the education enterprise to meet modern demands for intellectual capital. The current educational system of randomly connected investments, organizations, and processes is failing at the macro level, even if it is humming along in some micro contexts. Worse, in the United States and perhaps in other nations, the larger society is partly to blame. For example, enrollment demand has not materialized

in some critical sectors of the U.S. education marketplace — such as STEM education, where demand for graduates in some fields goes unmet. Education for the growing proportion of needy students in the pipeline not only must be made available as free of fees as is practicable but also must be marketed and delivered around verified socioeconomic demands for education. Education needs to be marketed to new parents in order to mitigate class and cultural barriers that significantly inhibit educational success within large demographic groupings. (See CSU's profile in productivity, above.)

## Education Assurance

Access to educational opportunity by those who understand its importance and can afford its traditional access models is no longer enough. Educational opportunity is no longer an end goal. It is necessary, but it is not sufficient for meeting modern educational needs. Learning has become a common-good necessity — a keystone in the sustainability of civilization.

Educational opportunity accordingly needs to be subsumed by what Roberts T. Jones calls “educational assurance” (Jones 2009). Micro and macro scalability and sustainability goals for education combine with socioeconomic demographic trends to argue not only for ensuring stable (predictable) government funding conditionally granted to individual learners for access, but also for ensuring (1) independently verifiable longitudinal “readiness to learn at the next stage” from all government-subsidized learners, and (2) accountability for learning productivity from all the institutions that accept learners’ earned government grants. The education enterprise and its external “investors” — learners, parents, employers, education philanthropies, education NGOs, and governments — would benefit by creating an independent commons that works to *assure not only affordable access to education but also the quality and scale of its measurable institutional outcomes and learner profiles*.

For now, let's call this commons the Education Assurance Commons (EAC). Think of it as one day operating at the global level, while today forming by piloting micro commons where scale is less foreboding. The instantiation of any such commons should be governed not by governments, private interests, or the education enterprise. As with the Internet and the web, the commons should operate as a compact that is operationally enabled by a loosely coupled governance structure representing the common interests of all involved parties.

In awarding the 2009 Nobel Prize in Economics to Elinor Ostrom of Indiana University, the Royal Swedish Academy of Sciences applauded “her analysis of economic governance, especially the commons,” and also announced:

Elinor Ostrom has challenged the conventional wisdom that common property is poorly managed and should be either regulated by central authorities or privatized. . . . She observes that resource users frequently develop sophisticated mechanisms for decision-making and rule enforcement to handle conflicts of interest, and she characterizes the rules that promote successful outcomes.

Though education is not “common property” in the form of the sundry natural resources studied by Ostrom, her analysis and award give credence to the arguments herein for improving collaboration between education and its diverse external stakeholder “investors.” Indeed, the overall argument has been that education is but one among several globally interlocking keystones in the foundation of the greatest commons of all: a sustainable civilization.

Any EAC initiative should balance rights and responsibilities between the education enterprise and the education investors – including learners and governments. Government funding, perhaps supplemented by philanthropy, would be the main EAC leverage point for starting an EAC initiative. Governments, after all, are currently subsidizing education. Some are doing so more predictably or generously than others, but all are increasingly demanding more accountability for educational outcomes. The leverage of government funding would be used in any EAC construct to

- improve readiness for and commitment to education (through predictable government grants made directly to learners who earn them over time – earned entitlements via summative, longitudinal assessments of “readiness to learn at the next stage”), and
- require those education providers that accept learners’ government grants to (1) administer enrolled learners’ participation in periodic “readiness to learn at the next stage” independent summative assessments from a pool of such assessments and (2) account institutionally in a peer context for the learning productivity goals described earlier.

In short, the spirit of the EAC idea is to hold governments accountable for predictable funding for education via grants to learners who longitudinally earn them, while improving accountability from both those learners and their education providers yet only minimally affecting the governance and educational practices of education providers.

## Framework Assumptions for Developing an Education Assurance Commons

An EAC would promote and govern participation among multiple education stakeholders – learners, governments, education credential providers, learning assessment providers, employers, education support organizations (charitable and for-profit) – in a voluntary compact designed to identify their mutual interests in expanding the capacity for, and access to, learning opportunities that are accountable and affordable to all the participating parties. The following assumptions are at the heart of the EAC concept:

1. Tertiary-level education and the learning it fosters are critical to the sustainability of civilization.
2. Most modern governments have an interest in investing in education for reasons of competitive advancement and civic and economic security.
3. Socioeconomic demographics dictate that learning opportunities be marketed and provided as free as is practicable to expand the percentage of needy individuals in the education pipeline.
4. The utility and the affordability of education to governments and individuals depend in part on repairing the leaks in the education pipeline to improve student success rates and to reduce the per-credential-granted expense of providing educational opportunities.
5. ICT must be used strategically by the education enterprise to improve learning productivity at the scale required for civic and economic security.
6. ICT can also be used by education providers and governments to track and report on a small set of learning productivity metrics and student learning outcome profiles responsive to governments' informational needs and providers' accountability obligations within peer mission groupings.
7. Learning productivity metrics cannot be absolute, one-size-fits-all but can be selected from a limited list of comparative groupings reflecting different missions and governmental contexts.
8. Future and extant suites of independent summative student learning assessments can be selected by peer groups of education providers around the world to be administered to reflect longitudinal educational attainment levels reflecting a learner's basic communication fluencies and critical thinking skills in terms of readiness to pursue further education. A similar process for independently assessing core knowledge in the sciences, social sciences, and humanities might follow.

## Possible Core Objectives for an EAC Compact

Education cannot be free, but in return for commitments to quality assurance from participating educational institutions and learners, each group can be affordably supported by governments around the world in the interest of resolving the deeply interconnected ecological and socioeconomic sustainability issues described earlier. Some countries have long funded tertiary education centrally for qualified students but can no longer afford “free” education at the scale implied by the brains race and the demographics of the education pipeline. They are changing their funding models. In the United States, where education is partially subsidized by states and communities, directly funding the learner (from federal and/or state sources) to acquire educational services is a familiar, if incomplete story. Georgia’s tertiary HOPE Scholarship program is but one of several variations on the theme and, like several others, is based on merit that has not been independently assessed. Tertiary-level federal Pell Grants, on the other hand, are based on need and may soon become a predictable source of permanent funding. Meanwhile, all states continue to subsidize public tertiary education providers directly, even the states that also directly subsidize students. There have been proposals in the United States in the past to replace government subsidies directed to education organizations with government subsidies directed to students. As unimaginable as this might appear in practical political terms, it is nevertheless instructive to speculate about some of the scaffolding from which the concept could be further developed in the context of increasing learning productivity throughout the education pipeline. Although the EAC is an international, politically borderless concept, focusing its core intent within the United States will permit the description of one possible configuration of core-like features.

Imagine a tri-partite EAC compact between the public (represented by governments), the individual (represented by the individual’s legal guardian prior to “legal” age), and the education providers willing or obliged to participate. Further imagine a “to-be-earned-entitlement” for the nascent learner – an entitlement structured to ensure ongoing access to education, as free as practicable, through at least the tertiary baccalaureate level, perhaps conditioned on need or perhaps not. Keeping the earlier recommendations on assessment in mind, imagine that the learner must begin to earn the entitlement by regular, periodic participation in common, independent, longitudinal learning assessments that are constructivist and normative in gauging educational progress toward enrolling in and earning a tertiary credential. Imagine also that the learner’s tertiary baccalaureate-level entitlement is further conditioned by a no-remediation-required performance on the final secondary-level or tertiary associates-level assessment and by subsequent participation in the tertiary baccalaureate-level common assessment process.

The devil is clearly in the details, but an EAC compact along the lines imagined above could accomplish the following:

1. *Incent parents and their children to embrace effective educational philosophies and practices for life.* The compact would clarify for parents – and eventually for their children – the bright socioeconomic implications of preparing children from birth for success at the tertiary level and beyond, as well as the painful financial implications of failing to do so.
2. *Bring more focus on how national government funds are allocated to education.* U.S. federal funding for tertiary education, for example, might
  - a. guarantee Pell Grants as a financial core for the EAC's to-be-earned education assurance entitlement, perhaps based on need or perhaps not;
  - b. bankroll the EAC's longitudinal assessment process; and
  - c. provide each participating learner (guardian) free access (fully subsidized) to an individually selected and customizable lifelong learning environment (in the learning cloud) minimally providing software-as-a-service access to
    - i. information about the advantages of education and the EAC compact that is ensuring education in return for the commitment of the learner (or guardian) to the terms of the compact,
    - ii. placeholders for activating the free (subsidized) privacy-secured participation of the learner in the longitudinal series of learning assessments required to earn the compact's entitlement,
    - iii. free learning resources appropriate to the learner's level of learning achievements and objectives,
    - iv. privacy-secured lifelong access to an individually customizable learning portfolio function *under the control of the learner* (or the learner's guardian), making it possible for learners, at their discretion, to share securely encrypted, selective EAC common assessment results and other learning results that have been authenticated by an EAC education or assessment provider, and
    - v. access to other learning and assessment resources as part of an enrolled-student experience – resources such as the SAS Curriculum Pathways (<http://www.sascurriculumpathways.com>), free to education providers and their instructors and students.
3. *Bring more focus to how regional funds are allocated to education.* States and communities in the United States could participate in the EAC and allocate predictable per-learner entitlements to their population based on a combination of factors important in specific regional contexts: need-versus-merit entitlements, economic development, professional and workforce needs, demographic diversity profiles, and so on.

4. *Require participating education providers to select a subset of provider outcome metrics (within EAC options) to establish their EAC learning productivity profiles.* These metrics would be selected from core EAC grouped options for (a) provider metrics, such as credentialing rates and per-credential production expenses, and (b) student-body common learning assessment profiles, such as percentile profiles of aggregated student-body performance on EAC longitudinal learner assessments. These could be supplemented by additional metrics and information under the complete control of the provider.
5. *Encourage participating education providers to compete in terms that are learner- and learning-centric.* The EAC compact would incent learners to take more responsibility for their own success and, through the EAC process for provider outcome reporting, learn more about their options for choosing a provider.
6. *Permit access by participating governments and education providers to the privacy-secured longitudinal results of the EAC student learning assessment process and the provider credentialing results for every participating learner.* Educational data would persist with the student, and students would control access to their individual data. They would grant the right to their participating education providers and to their participating governments to identify, for statistical cross-tabulation purposes only, their individual achievements – not their individual identities – from their multiple education providers/credentialers and from all EAC assessment results.

A learning portfolio is among the functions in the learner's lifelong learning environment envisioned above. Most of today's e-portfolio applications, however, are licensed by education providers in a premise-based model for the use of their students, instructors, administrators, and other stakeholders. Such use of e-portfolio software tends to be provider-centric. In contrast, new cloud-based environments can permit portfolio functions that are controlled separately but simultaneously by students, instructors, and institutions. These are integrated but distinct and distinctly controlled "containers" for data elements that should "belong" to the student as evidence of learning achievements but that, when claimed by the student to be externally validated evidence of learning, should require authentication from an education or assessment provider. Such a model can support the mobility of learners and their learning credentials and also the reasonable requests by governments for longitudinal data that tracks learners' progress in the aggregate through a lifetime of learning. Epsilon, for example, is educational "cloudware" that includes a learning portfolio function potentially as learner-centric, instructor-centric, and government-research-centric as it is education-provider-centric.



## **Implementing an EAC in the Learning Cloud: Two Critical Interoperability Functions**

The EAC concept will strike most people as “blue-sky” and unrealistic. Fair enough! Twenty years ago, however, who would have predicted the existence and success of today’s growing global consumer market based in the cloud, powered by Amazon, eBay, and others, and enabled by instantaneous access to buyer-seller information, transactional capacities, and new transparent trust mechanisms that work at least as well as traditional ones? Who would not have scoffed, during the dawn of the Internet, at a claim that in approximately twenty years, a U.S. presidential campaign would virally achieve the reach of Obama’s “cloud campaign” in 2007–8? The cloud and its influence on how we know what we know and how we communicate with whom we communicate are factors that make the EAC concept less naïve than it may appear. The time is right to consider how the cloud and its evolutionary ICT-enabled successors should be tapped to help the world meet the learning productivity challenge.

The EAC is about drawing expertise from and building trust among the various constituencies that would benefit from a more open, effective, and efficient worldwide marketplace for education-based learning focused on learners and their learning outcomes in the context of the civic and socioeconomic common good. The EAC is about interoperability among the educational opportunities and processes that should work in unison to the shared benefit of individual learners, their families, their governments, their employers, their education providers, and all of the commercial and noncommercial organizations that are vested in supporting the education enterprise. Without such interoperability, the education marketplace will continue to be characterized almost solely by inside-out educational opportunity and will lack an open-market foundation based on a quality-assurance trust equation between education providers and non-provider investors in learning. Extant examples of EAC-like organizations provide food for thought.

The abiding principle of acting locally while collaborating globally implies that most of the learning productivity agenda will be advanced locally. Learning productivity, however, is so dependent on scale and common, assessable, practical standards that a top-down framework is needed to guide local activities. The problem with a top-down approach is that it appears to be under the total control of a top organization. To think beyond that narrow interpretation and move away from the blue-sky nature of the EAC, consider the nature and role of the Internet Engineering Task Force (IETF, <http://www.ietf.org/>) and the World Wide Web Consortium (W3C, <http://www.w3.org/>). Both of these top-level organizations are global in nature and work to establish consensus standards and to ensure interoperability: IETF for the network-of-networks transport medium known as the Internet; and W3C for the web’s presentation/content/application/data-exchange/transaction medium. Both are “charitable” governance-oriented organizations focused on navigating the various

proprietary interests (nonprofit and for-profit) required to advance different aspects of the common ICT good. They are controlled neither by government nor by business. They rely on informed, volunteer expertise for their “engineering,” their demonstrations of interoperability, and their interoperability conformance work. They depend on verifiable successes and earned trust to sustain interoperability standards, along with their own operations and effectiveness – a model that could ultimately enable the success of a benevolent EAC.

Two additional organizations having many of the characteristics of the IETF and the W3C are needed to move the EAC concept from blue-sky brainstorming to the level of governance and educational interoperability required to advance learning productivity at scale. Because increases in productivity are so dependent on ICT, one organization is about ICT interoperability in the interest of scalability, education-provider productivity, and the mobility of learners, learning records, and the evidence of what learners have learned. The other organization is about the aforementioned common education-provider metrics and student learning outcome assessments that, though not one-size-fits-all, can serve as practical proxies in many mission and geopolitical contexts for the returns on investments in learning to students, governments, employers, and education providers. The two organizations might be labeled for the moment and described as follows:

1. *Education Technology Assurance Consortium*: The ETAC would be responsible for ICT interoperability standards and standards compliance testing among the myriad of digital applications, processes, resources, records, and artifacts associated with education and learning. Interoperability standards for the technologies used in education and learning help to (a) increase participation and competition in the educational ICT marketplace, (b) improve the sharing of resources and records among all participants in any education assurance process and, thus, improve the mobility of learners’ longitudinal path through the education market, (c) decrease the ICT investments required of education providers, and (d) improve any education provider’s learning productivity – and, ultimately, the productivity of the education enterprise. An existing candidate for this ICT interoperability standards organization is the IMS Global Learning Consortium (<http://imglobal.org/>). (Disclaimer: The author is on the Board of IMS.) There are other standards organizations that can and should contribute to the role represented here by the placeholder ETAC: Advanced Distributed Learning (ADL, <http://www.adlnet.org>); the Postsecondary Electronic Standards Council (PESC, <http://www.pesc.org>); and the SIF Association (<http://www.sifinfo.org>). IMS, however, is the largest, most comprehensive standards body for the education enterprise and the technologies it uses. IMS is also an organization with a clear focus on both creating and conformance-testing ICT interoperability standards for educational applications relevant to the lifelong learning experience.

2. *Education Accountability Assurance Consortium*: The EAAC would be responsible for developing and managing processes for identifying and promoting the following:
  - a. *Education-provider enterprise accountability metrics*: a collection of practical, summative-level learning productivity metrics that could be grouped by provider mission and geopolitical context for adoption by large-enough peer groupings of education providers to enable meaningful, openly reported peer comparisons and longitudinal trend analyses. There may be extant candidates for this function. For example, the OECD performs a similar function on an international basis; a national example is the U.S. Department of Education's National Center for Education Statistics. What is needed, however, is government participation without the political entanglements of a governmental organization. Beyond that, a first goal is not to set absolute metrics and standards, but to foster and manage collaborative efforts to define common definitions (one or more) for metrics – such as “tertiary credentialing rate” – that should have broad, if not universal, usage in comparative statistical contexts. The Data Quality Campaign in the United States is establishing criteria for data.
  - b. *Independent learning outcomes accountability options*: information about assessment organizations offering student learning outcome assessments at progressive levels of learning maturity in broadly applicable “learning-to-learn” domains such as basic communication fluencies, critical thinking skills, core introductory content in the arts, humanities, and the biological, physical, and social sciences, and high-demand workforce skills. These are organizations such as the American Council on Education (ACE, <http://www.acenet.edu>), ACT (<http://www.act.org>), the Council for Aid to Education (CAE, <http://www.cae.org>), the Educational Testing Service (ETS, <http://www.ets.org>) and a host of others, some specific to a nation and others more international in their reach. Critical information about these assessments would include their statistical reach, procedural soundness, and normative practices, along with concordance tables, where available, among competing assessments purporting similar goals. (This is not to imply that there are or should be standards of learning that are commonly shared around the world – only that there are high-enrollment common domains of learning in which students can be reasonably assessed with extant and future summative learning instruments in order to develop aggregate student learning profiles, as discussed above.) There may already be candidates for providing information about the reach and methodologies of the summative learning assessments that are currently and broadly applicable.

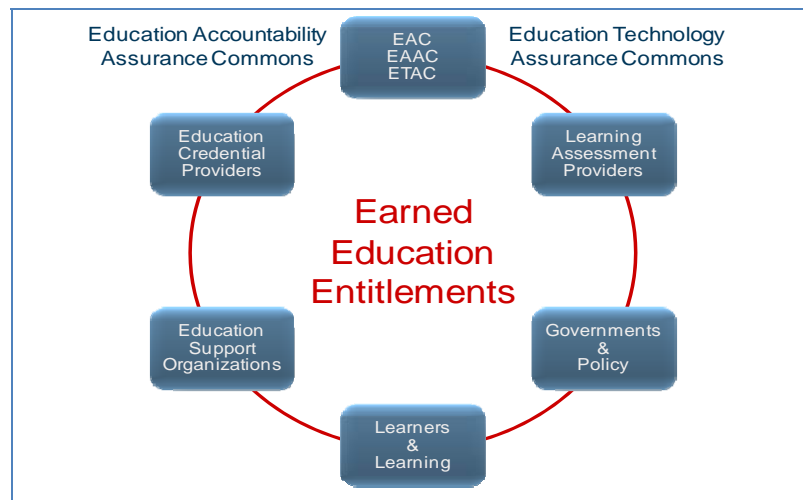
The EAAC intent is to give education providers and the public (governments) a means to trust, inform, and support each other – a goal that the Council for Higher Education Accreditation (CHEA) has tried to accomplish for tertiary education in the United States and beyond but that it may not be able to achieve as long as it is governed by education providers as a “national advocate and institutional voice for *self-regulation* of academic quality through accreditation” (<http://www.chea.org>). By adopting the minimally invasive EAC-participation requirements to administer periodic independent assessments of learner readiness for further learning and to account for a few peer-comparative learning productivity metrics, the CHEA might convince the federal government that all other aspects of the accreditation process should remain independent of government influence.

A remarkably prescient 2007 report from the New Commission on the Skills of the American Workforce called for a technology-enabled restructuring of the “business model” for the public-school system in the United States (Knapp 2007). There has been some progress toward the report’s goals, which are closely aligned with the learning productivity agenda promoted here. An EAC could speed that good work. The report’s call for “Board Examinations” is consistent with the EAAC envisioned here and could play a major role in the EAC’s work – and vice versa.

## **Seeding an EAC-Like Effort**

The EAC, the EAAC, and the ETAC could be interconnected in a variety of models, including one in which the EAC serves as a “parent” organization. More important than pursuing the EAC conceptual definition further, however, is to recognize that seed funding is often required to refine the formulation of and pilot seemingly blue-sky efforts to change entrenched “systems.” The education enterprise is nothing if not an entrenched system, one described earlier through the flippant thought that policy-makers find education too important today to leave entirely in the hands of educators. In the United States, after all, the heated debate about pressing health care issues owes, in no small part, to policy-makers who for too long left health care dominantly in the hands of the health-care enterprise: private insurers, pharmaceutical companies, hospitals, and physicians. The EAC may be blue-sky, but only if there is no need for education leaders to work as equals with, not against, government leaders and other education-invested stakeholders in order to improve learning productivity.

The Bill and Melinda Gates Foundation and the Lumina Foundation for Education, along with a few others, might judge the learning productivity crisis important enough to provide multi-year start-up support for engaging education providers, governments, employers, and interested education-support companies and charitable organizations in a common-good, EAC-like effort to move beyond the current impasses that block large-scale learning productivity movements and improvements.



## Conclusion

The “new economy” appears to be driving a degree of willingness within the education enterprise to consider changes that have been heretofore promoted externally but broadly resisted internally. Such willingness may be only a strategy for staying a step ahead of the public-policy posse that controls so many of education’s critical revenue flows. Indeed, a colleague commented that the bailout of U.S. automobile companies – the “big three” in Detroit – came to mind when she first learned of requests from U.S. tertiary education to participate in the federal “stimulus package.” Are recent pleas to participate in the “stimulus package” evidence of inside-out tone-deafness in the education enterprise, which for some time has been facing external pressures to restructure fundamental academic practices to serve more students at more affordable tuition rates and to improve credentialing rates? Probably not, for there have been recent restructuring calls from within, perhaps signaling the beginning of a retreat from “doing more only for more” toward an embrace, even if of necessity, of learning how to “do more for less” in order to earn broader and deeper policy and public support.

Such restructuring from within an inside-out culture that is not shy about challenging, even censuring, change-management leadership will require the support of governing boards. A member of the Nevada System of Higher Education Board of Regents accordingly suggested in the *Chronicle of Higher Education*: “Colleges must face reality and recognize opportunity in the economic downturn” (Knecht 2009). Also in the *Chronicle*, another opinion leader argued: “It’s time to improve academic, not just administrative, productivity” (Massy 2009). The profiles in productivity described

above and the eleven “Making Opportunity Affordable” states previously referenced provide concrete evidence of change from within.

Boards and education executives are accustomed to examining financial data, and they should examine the summary data from the Delta Cost Project in the United States, which for all three of the project’s public sectors are available on a state-by-state basis in some detail (<http://www.deltacostproject.org/data/state/index.asp>). Indeed, expenditures and the sources of revenue to cover them vary widely from state to state. Engaged in a trend to cover an expanding proportion of E&R Expenses from net-tuition revenues, public-sector institutions are threatening the affordability of access for students and families on the lower rungs of the U.S. economic ladder. That affordability squeeze, in turn, is increasing public-policy pressure on institutions to reduce average per-credential E&R Expenses – even as they simultaneously address workforce and credential attainment-rate issues. Public-sector education leaders in each state therefore should compare their states’ data to data from other states to help determine where not to probe and where to probe – and with what attitude and mindset in terms of the learning productivity crisis and their states’ revenues and revenue allocations to education.

Unlike public institutions, independent (private) institutions in the United States have no a priori obligation to improve the competitiveness of the workforce. Most, however, are committed to this and other common-good goals. Indeed, they already boast credential attainment rates higher, on average, than those of public institutions. Improving the proportion of the adult population holding a credential is, moreover, an opportunity for revenue growth in independent institutions. That opportunity is to meet market demands in the workforce and professions while enrolling students in convenient, flex-redesigned programs to increase profit margins through capital-expense avoidance and new, frugal but effective pedagogies, thereby reducing per-credential expenses to tame spiraling net-tuition increases.

The education enterprise may find a traditional inside-out “best-in-the-world” vision of quality ironically debilitating if, along the way, the educated public abandons its faith that tertiary education is the major component of a solution to civilization’s sustainability crises of ecosystem, economy, and equity. The time is right for the education enterprise to pursue “best-for-the-world” strategies enabled by the strategic use of ICT to improve learning productivity by serving more students more effectively, while simultaneously creating a privately and publicly affordable, stable financial model for learning – and securing education’s future as an affordable first-priority imperative for students, families, donors, employers, and governments.

The emerging learning cloud is making unprecedented learning productivity tools available to individual option, while paradoxically requiring top-down coordinated ICT-enabled academic restructuring strategies and performance reporting standards to



improve learning productivity at enterprise scale. The cloud nevertheless promises the greatest leverage from ICT for the foreseeable technical future. All around the modern world, a learning crowd is gathering in the learning cloud with dreams of collaboratively winning “victories for humanity.” Success will require that voters, policy-makers, governing boards, and education leaders purposefully collaborate to avoid both unnecessarily paternal policy regulation and the chaos of random acts of productivity. An Education Assurance Commons, as outlined above, could help all education providers (within their mission constraints, opportunities, and geopolitical contexts) to contribute to global learning imperatives through integrative technical and educational interoperability standards that enable a more open, global learning commons while also increasing outside-in trust in the education enterprise.

In conclusion, there are two more observations to wrap around the concept of the Education Assurance Commons as it might be practiced in the United States. First, the difference between public and independent (private) education providers would largely disappear in states that adopted the EAC model by directly funding in-state students (to supplement federal EAC funding), rather than the “public” education providers in the state. Second, the federal tax code could be used to fund learners’ EAC-like earned entitlements. Eliminate the federal tax deduction for bearing and/or raising children, and use the resulting increase in tax revenues to fund the earned entitlements. Both the nation and the families who commit to helping their children start early to prepare for a life of learning would benefit.

*Note:* This article will be updated on a regular basis in the future. See <[http://institutionalperformance.typepad.com/WHG/Waste\\_Not\\_the\\_Learning\\_Productivity\\_Crisis.pdf](http://institutionalperformance.typepad.com/WHG/Waste_Not_the_Learning_Productivity_Crisis.pdf)>.

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