The Promise and Perils of Innovation

Competitive Challenges to the Traditional Higher Education Model

Road Map for Discussion

1 **A Battle on Two Fronts**

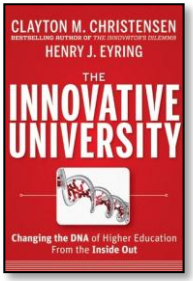
2 **New Business Models**: Disruptive Competition and Incumbent Innovation

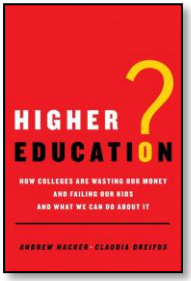
3 **Appendix:** Risk Analysis

Disruption Fatigue

Who Knew that Innovation Could Sound So Familiar?

Required Reading at Board Meetings and Planning Retreats





The Conventional Litany of the Broken University Business Model

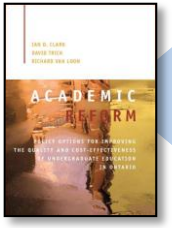
- Uncontrolled cost increases
- Graduates lack critical skills
- Resistance to pedagogical innovation
- Irrelevant scholarship
- Tenure protects faculty from accountability
- Undergraduate tuition subsidizing faculty research
- Traditional universities captive to the prestige arms race—real change will come from radical, low-cost models

"The Status Quo Is Unsustainable"

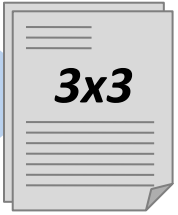
The Case for Government-Led Reform in Ontario

A Consistent Message Emerges

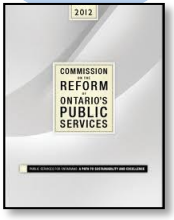
- Refocus incentives on teaching
- Expand online course offerings
- Create three-year degrees
- Operate year-round
- Tie funding to outcome metrics
- Simplify credit transfer across colleges and universities



Academic Reform
Policy Options for Improving the Quality and Cost-Effectiveness of Undergraduate Education in Ontario
(October 2011)



3 Cubed
PSE Institutions as Centres of Creativity, Competency, and Citizenship Equipped for the 21st Century
(Leaked February 2012)



Commission on the Reform of Ontario's Public Services
(February 2012)

The Incumbent's Dilemma

Certain Downside, Speculative Upside for Exiting Prestige Arms Race

Clayton Christensen in a Nutshell:

"Be More Like BYU Idaho"

- End tenure
- Dismantle departments
- Refocus research on pedagogy
- Switch to fully online degrees
- Enroll the marginally qualified
- Reduce number of programs
- Scale back merit-based aid
- Cut back big-time sports

I'm Certainly Not Going First

"I understand that as an organization we could be a lot more efficient. But if I tried to make some of the changes that are being recommended, the accreditors would be all over me, I'd have a faculty revolt, and pretty quickly, I'd be out of a job."

Provost
Public Research University

Source: Education Advisory Board interviews and analysis.

Opening the Floodgates

Sebastian Thrun's Massive Open Online Course (MOOC) Goes Viral

Two Fashionable Brands

Celebrity Faculty

Dr. Sebastian Thrun
Stanford Professor

+

Cutting-Edge Corporation

Google

+

One Hot Global Topic

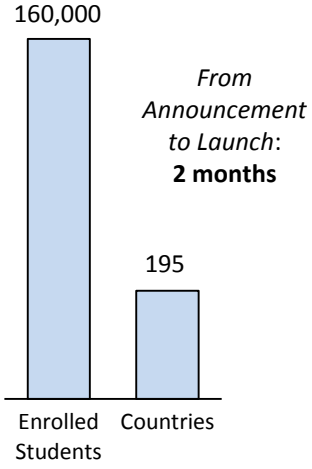
INTRODUCTION TO
Artificial Intelligence

Topics Covered

- Knowledge Representation
- Inference
- Machine Learning
- Planning and Game Playing
- Information Retrieval
- Computer Vision
- Robotics

=

Truly Amazing Uptake



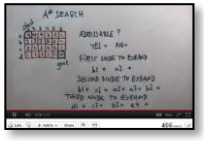
Source: Steven Leckart, "The Stanford Education Experiment," *Wired Magazine*, April 2012.

A Seminar at Scale

New Teaching Technologies and Social Models Essential to Course Design

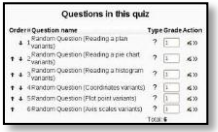
Relatively Common → **Still Rare**

Instructional Videos



Instructors Thrun and Norvig record traditional lectures and post online

Automated Assessment



Students' homework, quizzes, and exams graded by computer

Peer-to-Peer Academic Support

reddit

aiqus: the ai & cs learning community

facebook

Students post and answer thousands of questions on various message boards

Student-Designed Tools

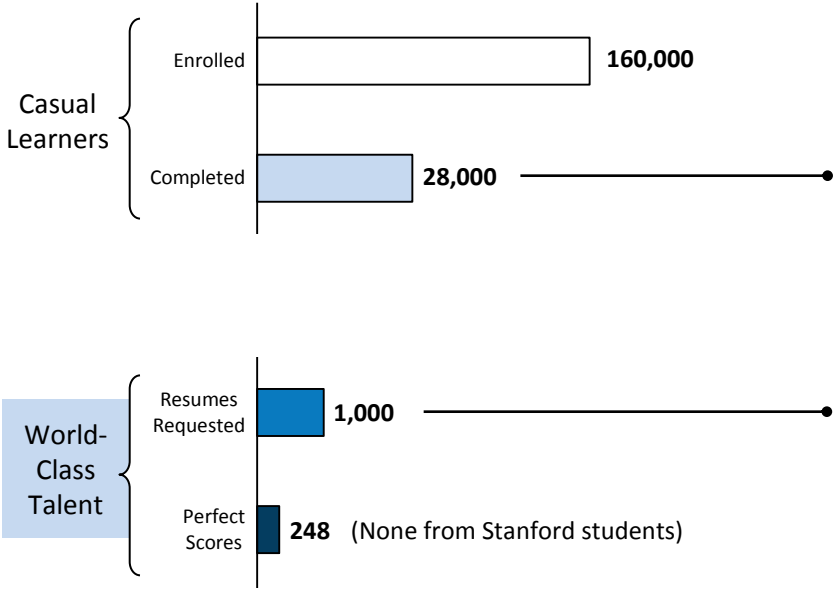
Students create software tools to support the course, including an AI "playground" for testing code

Source: Tamar Lewin, "Instruction for Masses Knocks Down Campus Walls," *The New York Times*, March 4, 2012.

Parting Ways Over Assessment

Thrun and Stanford Differ Over Credentialing

Open to All, But Winnowing the Elite



Connecting to Industry

Certificates of Completion

Students completing class can add certificate to CV

Employer Introductions

Top student resumes passed along to employers

Source: Steven Leckart, "The Stanford Education Experiment," *Wired Magazine*, April 2012.

A Venture Capital-Backed Startup

Your Revenue Model Is Thrun's Loss Leader

An Inverted Revenue Model

- Courses are free
- Assessment and certificates are free
- Revenue may come from value-added services to students and employers:
  - Premium Tutoring
  - Authenticated Credentials
  - Lead Generation

No Going Back for Thrun

"Having done this, I can't teach at Stanford again. It's impossible. There's a red pill and a blue pill and you can take the blue pill and go back to your classroom and lecture your 20 students. But I've taken the red pill and seen Wonderland."

Sebastian Thrun

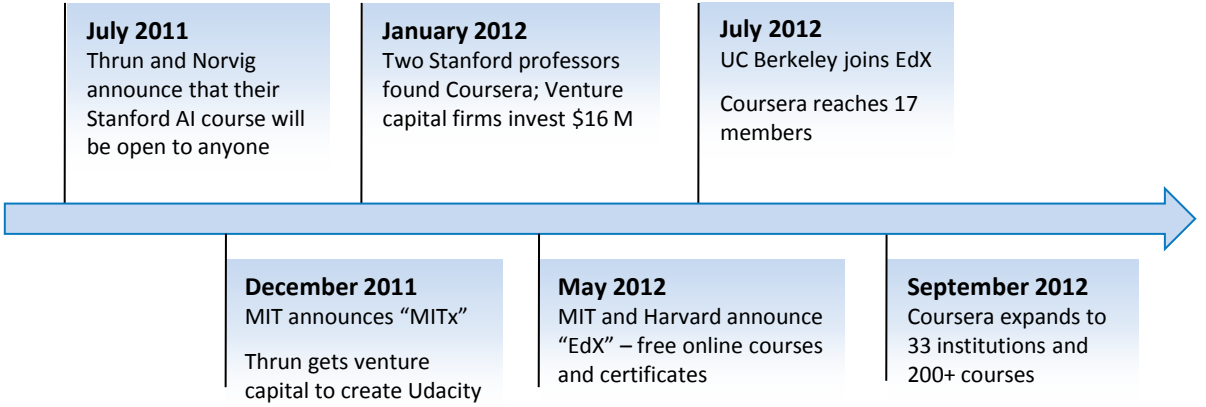
Imagining a Multi-Million-Dollar Human Capital Search Opportunity

1,000 Students × **$100,000** AI Starting Salary × **10-30%** Recruiter Commission = **$10M-$30M**

Source: Steven Leckart, "The Stanford Education Experiment," *Wired Magazine*, April 2012.

A Tipping Point

From Inspiration to Fruition in Only a Year



Source: Education Advisory Board interviews and analysis.

The Incumbent Response

New Ventures Offer Elite Universities a New Platform

coursera

A Venue for Star Faculty

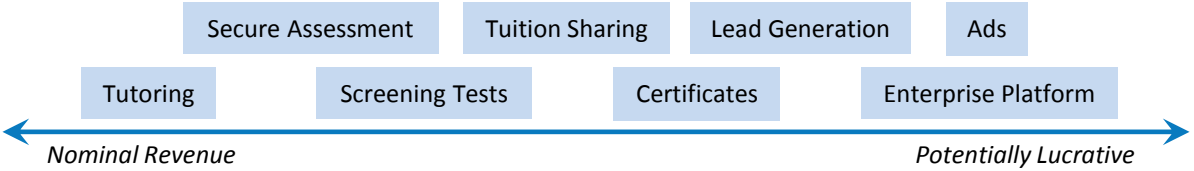
- Private company founded by Stanford computer scientists Andrew Ng and Daphne Koller
- Partners with elite universities to showcase "the world's best courses"
- No money exchanged in partnerships; Coursera serves primarily as central web portal

edX

Building an Open Platform

- Not-for-profit organization coordinating partner MOOCs (*HarvardX*, *MITx*, *BerkeleyX*)
- Led by Anant Agarwal, MIT computer scientist and MITx's first instructor
- Delivery platform will be open and sharable; cited as key "differentiator" by Berkeley

Sustainable Business Model or Marginal Revenue?



Source: Coursera contract with the University of Michigan; Education Advisory Board interviews and analysis.

Envisioning the Current MOOC Market

Key Differences Emerge in Aim and Structure

	coursera	edX	UDACITY
Initial Funding	$22 M in Venture Capital	$30 M from Harvard $30 M from MIT	$5 M in Venture Capital $200 K from Thrun
Course Structure	Fixed terms Automated assessment Lectures + quizzes	Fixed terms Automated assessment Pearson testing centers	Self-paced Automated assessment Pearson testing centers
Student Engagement	MeetUp gatherings Considering peer assessment	Class discussion boards Wikis	Active peer support forums Q&A Sessions
Scale	33 University partners 1.3 M "Registrants"	UC Berkeley first additional partner; seeking more 122 K students in pilot course	Focus on STEM and industry 160 K students in pilot course
Employer Partnerships	None	None	Career Placement Program 400+ interested firms 20 official partners

Reading Between the Lines

What's Motivating the Rush to Online Offerings?

Brand Enhancement

"They will in no way diminish the value of a UVA degree, but rather enhance our brand and allow others to experience the learning environment of [Thomas] Jefferson's Academical Village."

Teresa Sullivan
President, University of Virginia

Public Service

"The missions of Harvard and MIT are to provide access to learning and education and improve the general quality of life of humankind. What we're doing is simply a continuation of that mission."

Anant Agarwal
President, EdX

Improving Pedagogy

"Through this partnership, we will not only make knowledge more available, but we will learn more about learning. We will refine proven teaching methods and develop new approaches that take full advantage of established and emerging technology…"

Drew Faust
President, Harvard University

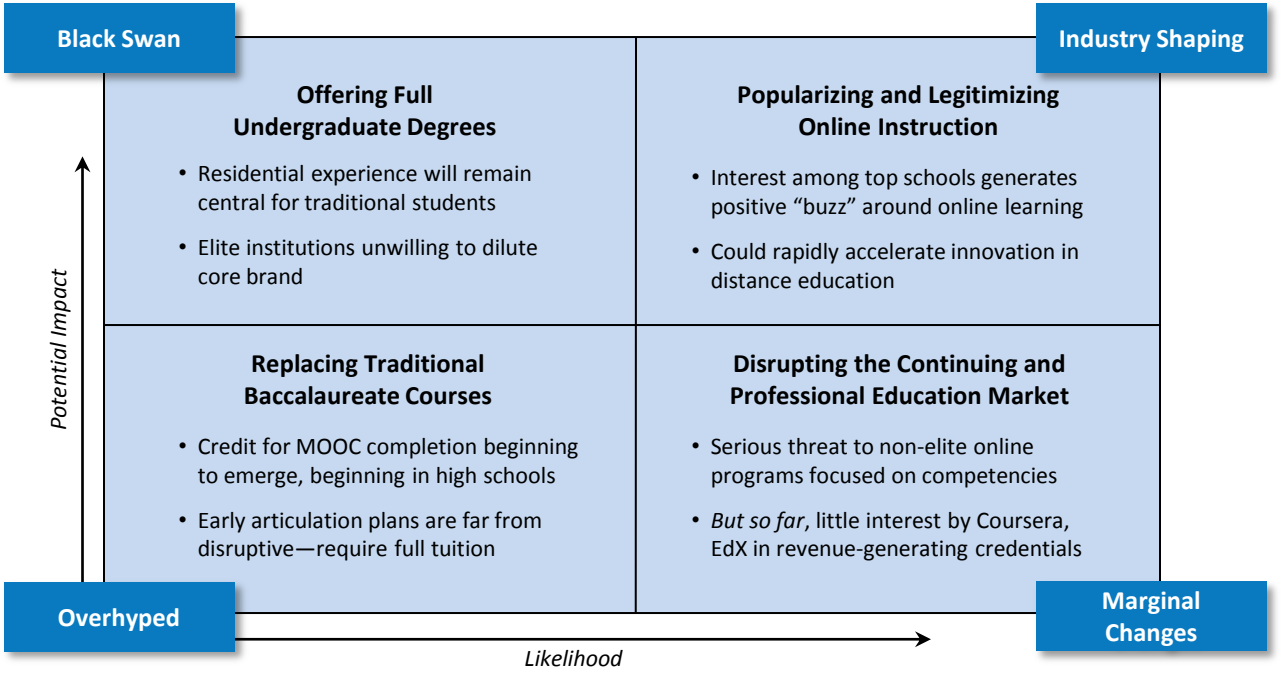
Fear of Missing Out

"You're known by your partners, and this is the College of Cardinals. It's some of the best universities in the country… We're doing this in the hope and expectation that we'll be able to build a financial model, but I don't know what it is. But we can't be too far behind in an area that's growing and changing as fast as this one."

E. Gordon Gee
President, Ohio State University

Overhyped or Truly Disruptive?

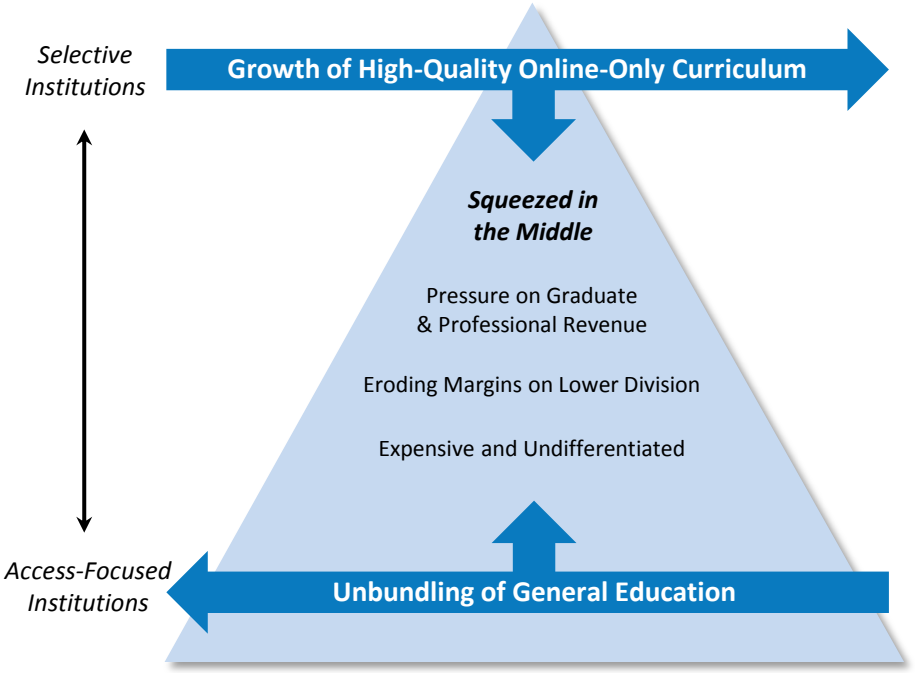
Forecasting the Potential Impact of MOOCs on Higher Education



Source: Education Advisory Board interviews and analysis.

Disruption from Above, Then Below

New Models Will Threaten Incumbents from Both Ends of the Spectrum



Uncoupling "Quality" from Price and Exclusivity

- Celebrity Faculty Open Courses
- Hot Employer Partnerships
- Top Global Brands Crowd Out Mid-Tier Institutions

Gathering Legitimacy of Low-Cost Models

- Legislator and Parental Support for "No Frills" Programs
- Flipped Classrooms and Technology-Assisted Instruction
- Employer Acceptance of Non-Traditional Educators and Credentials

The Burning Platform

Economic Conditions Accelerating the Rise of Alternatives

The Unpleasant Economic Realities

- State budget cuts
- Federal budget pressure
- Soaring student debt
- Bankruptcy rates rising
- Falling home equity
- High graduate unemployment

The Threat You've Feared:
Regulation

- Caps on Tuition and Fees
- Limits on Collective Bargaining
- Faculty Productivity Mandates
- Performance-Based Funding
- Academic Program Elimination
- Forced Articulation

The Real Threat:
Irrelevance

- Governors launching charter universities and other alternatives
- Venture philanthropists funding alternative projects
- Non-traditional students flocking to for-profit universities
- Traditional undergraduates opting for community colleges
- Faculty launching educational technology startups

Disruptive Competition and Incumbent Innovation

Pressures on the Traditional Higher Education Business Model

	Traditionalists Believe…	***But Innovators Show…***
1 **Quality at Scale**	*Quality means small courses with tenured faculty*	*Academic rigor is possible in large-scale settings*
2 **Competing on Convenience**	*We should not treat students like customers*	*Students increasingly demand flexibility and affordability*
3 **Integrating Academic and Career Preparation**	*Degrees represent mastery of a discipline*	*Degrees can represent employer-relevant competencies*
4 **Problem-Focused Research**	*Curiosity-driven disciplinary research is most fruitful*	*Grand challenges can only be solved by multidisciplinary collaboration*

How Will Disruption Manifest?

Pressures on the Traditional Higher Education Business Model

1 Quality at Scale

Elite institutions and faculty rapidly legitimize technology-intensive, globally scalable instructional models

2 Competing on Convenience

3 Integrating Academic and Career Preparation

4 Problem-Focused Research

Disruptive Competitors:

- Elite Open Course Credentials
- Signature Online Master's Programs
- Prestigious Online Undergraduate Universities

Incumbent Responses:

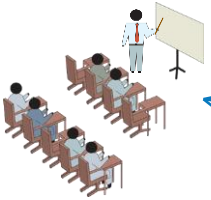
- Flipped Classrooms
- Adaptive Learning
- Learning Analytics
- Course-Sharing Consortia

Inactive Learning, in Person and Online

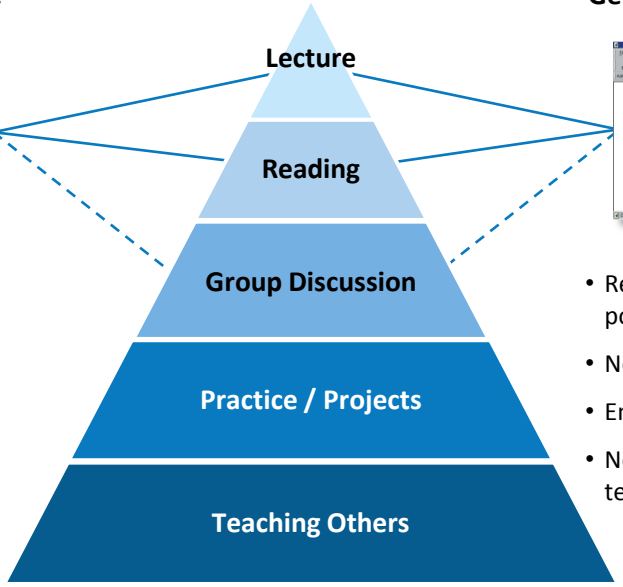
Few Benefits from Static Content Delivery

Less Engaging

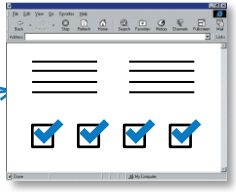
"Sage on the Stage"



- 1-2 hours of lecture
- No way to "rewind"
- Physical constraints of classroom
- Students play passive role



Generic Online Course



- Readings and homework posted online
- No forum for interaction
- Email correspondence
- No additional value from technology

More Engaging

A Cure for Baumol's Cost Disease

"Live Performance" Economics Ignore Scaling Effects of Technology

Can Musicians Be More Productive?

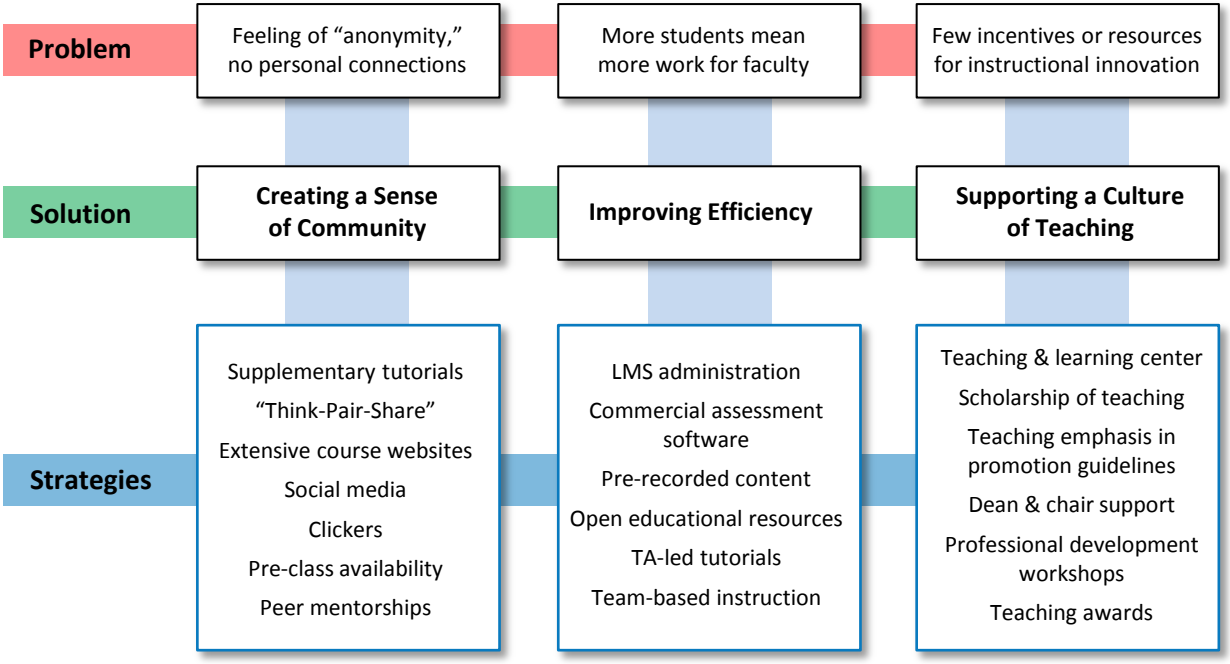
- More capital per worker
- Increased labor skill
- Better management
- Improved technology
- Economies of scale

The "Unbundling" of Faculty Roles

	Content Creation	Content Delivery	Learning Assessment	Student Support
In House	Professional Course Designers	Lecture Capture	Independent Competency Tests	Peer Tutors
Outsourced	Publisher "Course in a Box"	Adaptive Learning Technologies	Outsourced Grading	On-Demand Advising
Open Source	Open Educational Resources	iTunes U	Massive Open Online Courses	Online Peer Advising

Making the Most of Large Classes

How Ontario's Best Faculty Approach High-Capacity Instruction

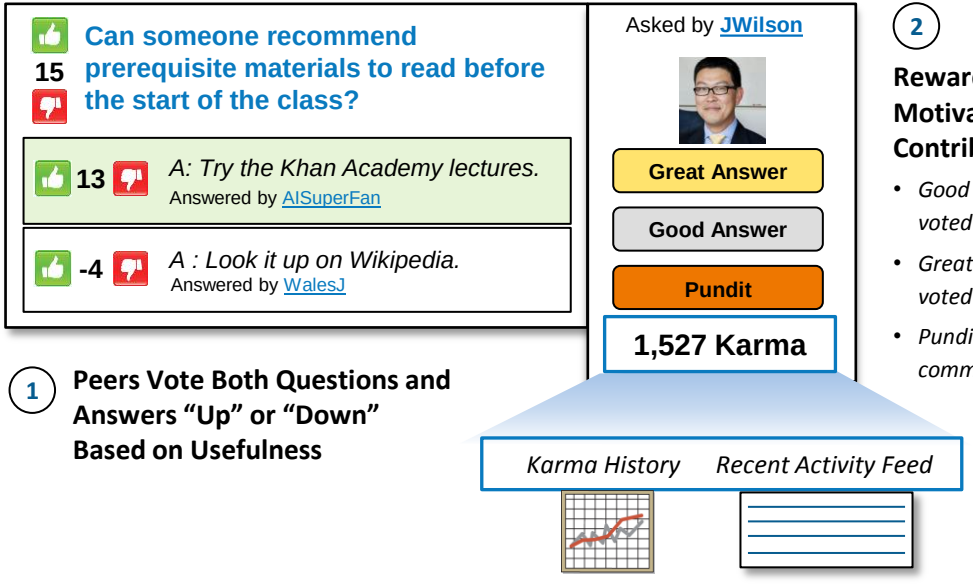


Source: Angelika Kerr, "Teaching and Learning in Large Classes in Ontario Universities: An Exploratory Study," Higher Education Quality Council of Ontario, 2011; Education Advisory Board interviews and analysis.

Crowd-Sourced Student Support

Incentivizing Heads of the Class to Help Others in a Class of 160,000+

Thrun's A.I. Class Discussion Board



1 **Peers Vote Both Questions and Answers "Up" or "Down" Based on Usefulness**

2 **Reward Badges Motivate Quality Contributions**

- *Good Answer: Answer voted up 25 times*
- *Great Answer: Answer voted up 100 times*
- *Pundit: User has left 10 comments*

3 **Real-Time Dashboard Provokes Progress Over Time, Daily Activity**

Source: Education Advisory Board interviews and analysis.

The SCALE-UP Model

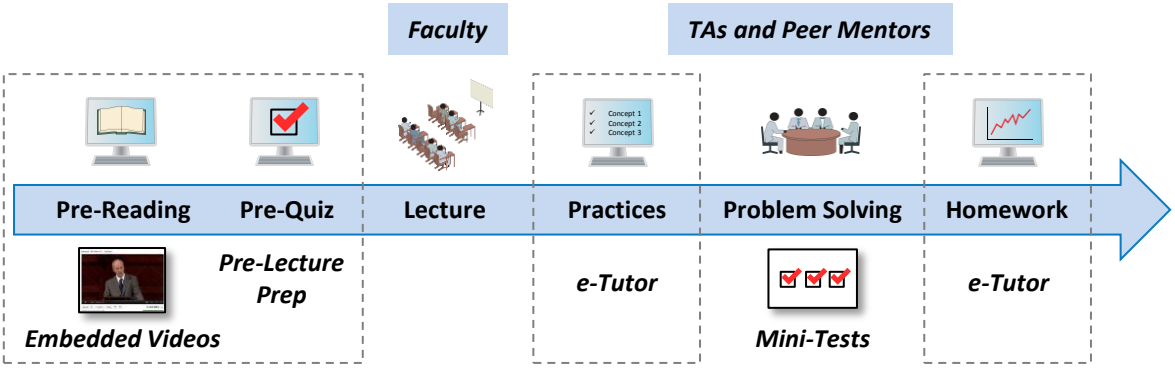
A New Approach to Introductory Physics at NC State University

Source: "Robert J. Beichner 2011 Prize Winner," McGrawHill, http://www.youtube.com/watch?v=MdymI61hLPY

Winning on All Fronts with Course Redesign

Alternative Model Expands Capacity, Improves Quality, and Costs Less

UNC CHARLOTTE



12% Reduction in DFW rate

45% Increase in enrollment cap

31% Cost savings per student

Source: "Physics Large Course Redesign Project Report," UNC Charlotte, Center for Teaching & Learning, Sept. 8, 2011.

Few Excuses Left

Course Redesign Gaining Traction Across Institutional Types and Disciplines

"I always thought I was a pretty good lecturer, but … I had come to a realization that even my most successful students weren't retaining a lot of the material I'd covered from one course to the next."

Elizabeth Alexander
Texas Wesleyan History Professor

Physics

- Clickers and frequent feedback opportunities keep students on track
- Students grouped based on answers to questions

BYU
BRIGHAM YOUNG UNIVERSITY

English

- From 3 hours to 1 hour in class per week
- Additional time spent in one-on-one sessions, peer tutoring, and multimedia lessons

TEXAS Wesleyan UNIVERSITY

History

- Historical Methods class won "Radically Flexible Classroom" award
- Movable furniture and tech-enabled classrooms facilitate group work

Cleveland State COMMUNITY COLLEGE

Math

- Emporium model: 1 hour in class, 2 hours in large computer lab
- Significantly improved completion and retention rates
- 19% instructional cost savings

"Do our students actually *learn* during class, or do they simply feverishly scribble down everything we say, hoping somehow to understand the material later?"

Eric Mazur
Harvard Physics Professor

Source: The National Center for Academic Transformation (www.thencat.org); "Texas Wesleyan's Classroom.NEXT: 21st Century Learning in Action," *Campus Technology*, April 10, 2012.

Incentivizing Pedagogical Change

Three Lessons in Encouraging Faculty to Improve Their Courses

1 Provide Centralized Instructional Design Support

Typical Problem:

- Multiple, duplicative services
- No integration of tech & instructional design expertise

Exemplar Model:

- Center for Teaching & Learning combines tech and pedagogy staff
- Staff directly involved with course design at all levels

UNC CHARLOTTE

2 Focus on New Hires to Create Culture of Innovation

Typical Problem:

- Political capital spent trying to convert eternal skeptics
- Research remains the priority

Exemplar Model:

- Faculty Development Institute focuses on new hires
- 100s of short courses available on every facet of teaching

VirginiaTech

3 It's Not About Technology. It's About Assessment.

Typical Problem:

- Faculty recoil at "online" and "machine-aided" teaching
- Wasteful tech investments

Exemplar Model:

- Faculty required to submit self-assessment studies yearly
- Agnostic about end product; experimentation encouraged

THE UNIVERSITY OF ALABAMA

"Moneyball" for Education

Instructor Dashboards Provide Real-Time Outcome Data, Predictive Analytics

Open Learning Initiative Introductory Statistics Dashboard

Carnegie Mellon

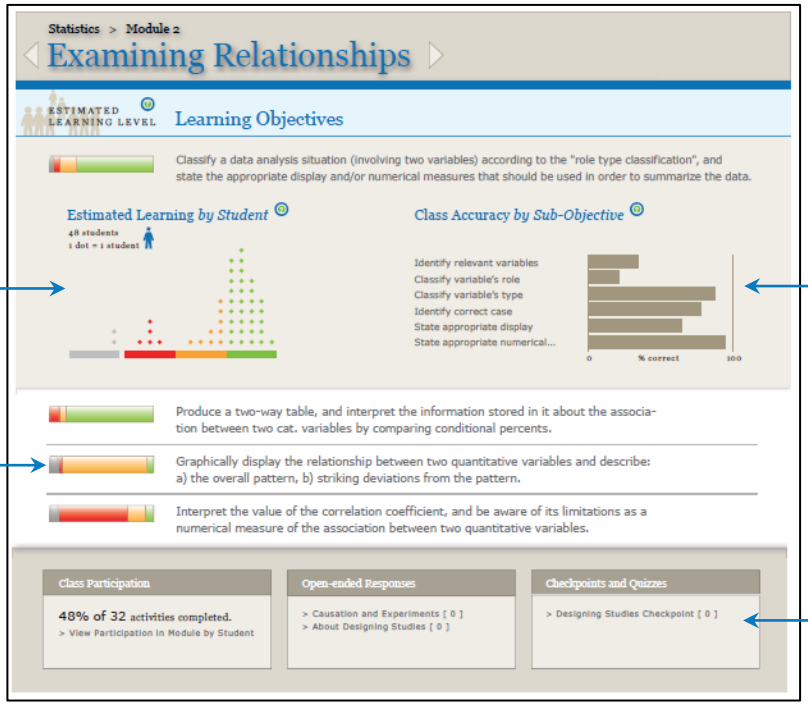
Open Learning Initiative

Predictive map of overall learning outcomes

Performance distribution for each objective

Accuracy distribution by sub-objective

Participation by assignment category



Source: Candace Thille, "Changing the Production Function in Higher Education," American Council on Education, March 2012.

Aiming Higher than Equivalence

"While continuing to study the impact of online learning on completion is important, the question to be answered is not 'is online education as good as (or better than) traditional education?' but rather, 'how can the technology be used most effectively to support and accelerate colleges' efforts to dramatically increase student progress and completion?'"

Candace Thille
Director, Open Learning Initiative

A Change of Heart

"I have been on record for some time as being skeptical about the likely effects on productivity in higher education of various new technologies… But the evidence...about the work at Carnegie Mellon has caused me to rethink my positions."

William Bowen
President Emeritus, Princeton University

Source: Candace Thille, "Changing the Production Function in Higher Education," *American Council on Education*, Feb 2012.

Game-Based Learning on the Horizon

Motivating and Educating a Generation of Gamers

6 Million Years
Total worldwide playtime

10 Million Players
Currently subscribed

200 Million Minutes
Total playtime per day

1 Billion Downloads
Since 2009

Built-in Assessment

- Players must solve problems, coordinate teams, and develop mastery to "beat the game"
- Completion signifies known competencies and objective achievements

Contextual Learning

- Players learn by doing, not reading or watching
- Puzzles placed in compelling, intuitive narrative
- Crowd-sourced "theorycrafting" for serious players

Motivating Progression

- Games must be accessible and fun, yet challenging
- Huge amount of data used to calibrate incentives
- "Experience points" and items provide social recognition

Source: James Paul Gee, "Games and 21st Century Learning," *Games for Learning Institute*, May 6, 2009; Jane McGonigal, "Be a Gamer, Save the World," *The Wall Street Journal*, Jan 22, 2011.

Transforming Commodity Courses

Breaking the Cost / Capacity Curve With Self-Paced Learning

Adaptive Software Promotes Engagement and Provides Analytics

KNEWTON
Adaptive Learning Platform™

Activity-Based Learning
Short, engaging, "real world" problems to solve

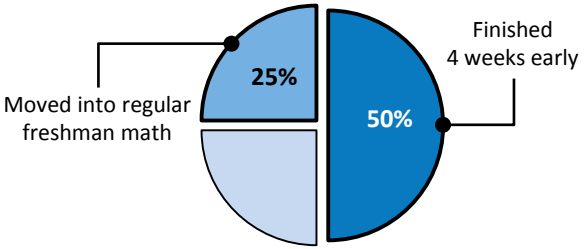
Achievement Points
Uses game-like badge system to track progress and motivate students

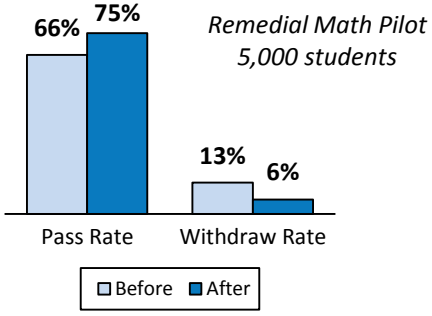
Automated Assessment
Built into activities and diagnostic exams, which adapt to performance

Performance Dashboards
Instructors focus face time on biggest stumbling blocks

ASU

Dramatic Improvement in Remediation Results





Source: Bruce Upbin, "Knewton Is Building the World's Smartest Tutor," Forbes Magazine, Feb. 22, 2012.

Course-Sharing Consortia

Comprehensiveness Achieved by Combining Offerings Online

Lowering the Cost and Risk of Launching Online Programs

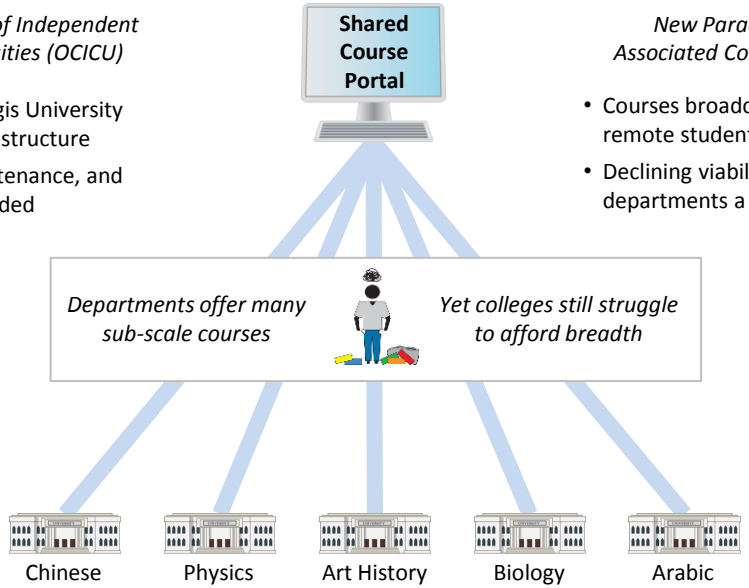
Online Consortium of Independent Colleges & Universities (OCICU)

- New Ventures of Regis University provides online infrastructure
- Course design, maintenance, and faculty training included

Taking Niche Offerings to Scale Without Sacrificing Breadth

New Paradigm Initiative
Associated Colleges of the South

- Courses broadcast via teleconference; remote students participate in real time
- Declining viability of language departments a key catalyst



Source: Leigh Brown Perkins, "A New Paradigm For Learning," *Rollins Magazine*, March 2012.

The Platform Wars

Big Data Fueling Emerging Market for Education's "Google Equivalent"

APOLLO GROUP

Blackboard

Google

KAPX

KNEWTON Adaptive Learning Platform

Class2Go

PEARSON

edX

Next-Gen Learning Platform

- Course administration
- Multimedia content delivery
- Live collaboration tools
- Real-time performance data
- Predictive analytics
- Adaptive assessment
- Automated advising

The Power of a Platform

"It's hard to predict who will win the platform wars, but it's easy to predict that someone will. The costs of building an online platform are negligible… The rewards of building the winning platform are vast, as Instagram found when it was bought by Facebook for $1 billion."

Kevin Carey, New America Foundation

How Many Providers Do We Need?

"In 50 years, there will be only 10 institutions in the world delivering higher education and Udacity has a shot at being one of them."

Sebastian Thrun

Source: Kevin Carey, "Revenge of the Underpaid Professors," The Chronicle of Higher Education, May 20, 2012.

Disruptive Competition and Incumbent Innovation

Pressures on the Traditional Higher Education Business Model

1. Quality at Scale

2 Competing on Convenience

Lower-cost options, more convenient delivery modes, and targeted marketing attract students who would not otherwise have enrolled

3. Integrating Academic and Career Preparation

4. Problem-Focused Research

Disruptive Competitors:

- Affinity Population Marketing
- Competency-Based Placement
- Pay-by-the-Course Subscriptions
- No-Frills Charter Universities

Incumbent Responses:

- Affinity Market Support
- Flexible Articulation
- On-Time Graduation Guarantees
- 2+2 Models
- 3+2 and 4+1 Master's Programs

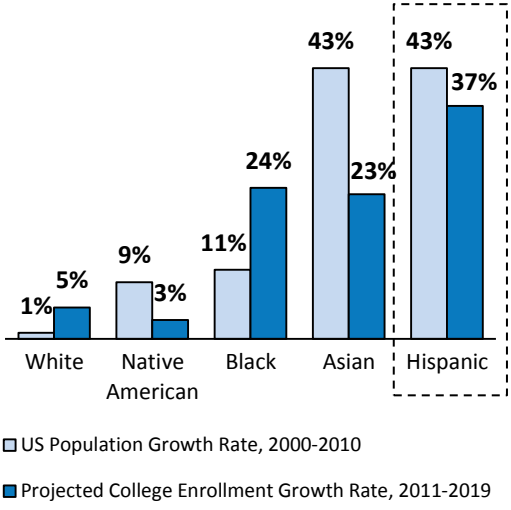
The Non-Traditional Majority

Full-Time Residential 18- to 22-Year-Olds a Declining Share

Significant Percentage of Undergraduates Now Non-Traditional

46%	Enrolled Part Time
36%	Age 25 or Older
32%	Employed Full Time
23%	Are Parents

Hispanic Population and Enrollment Growing Rapidly



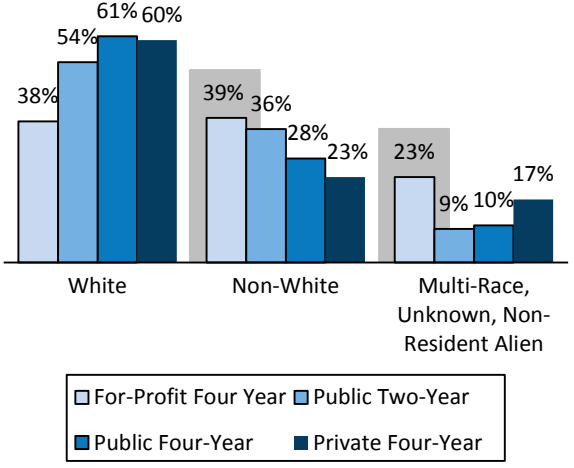
Source: NCES Statistics; 2010 Census; "Forecast for Growth on Campuses: More Women, Minorities," *The Chronicle of Higher Education*, Aug. 21, 2011.

Targeting the Non-Consumers

For-Profit Universities Serve Traditionally Non-College-Going Populations

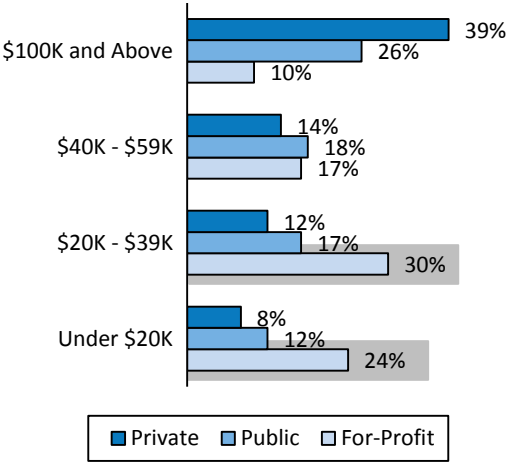
Attracting More Diverse Students

Race/Ethnicity of Student Population



Serving Families with Lower Incomes

Family Income for Dependent Students



Source: BMO Capital Markets

Access at a Price

Growth in For-Profit Sector Accompanied by Concerns About Debt

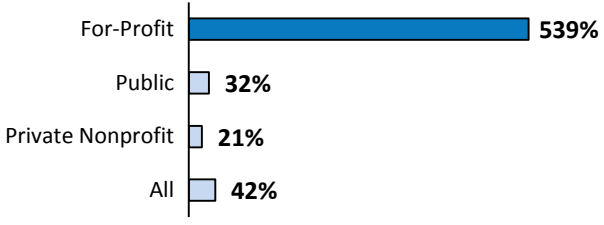
Winning on Flexibility

"[For-profit institutions] play a critical role in the future of education by providing access to students who previously have been left behind by or excluded from the traditional higher education system in the U.S… We do this by providing flexible scheduling, a choice of online or campus-based classrooms, small class sizes, degree programs relevant to today's workforce, faculty who have professional experience in their field of instruction, and high levels of student support to help students succeed."

The Apollo Group, "Higher Education at a Crossroads"

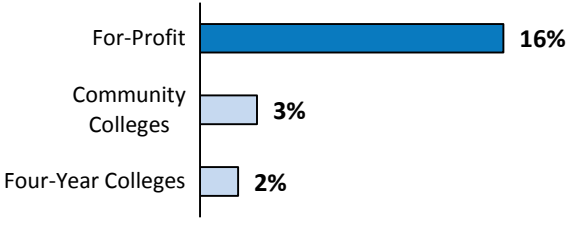
Growth of Undergraduate Enrollments

1999-2009



Student Loan Default Rate

After $10,000-20,000 Debt by 2009



Source: *The Chronicle of Higher Education*, Analysis of U.S. Education Department data; David J. Deming, Claudia Goldin, & Lawrence F. Katz, "The For-Profit Postsecondary School Sector: Nimble Critters or Agile Predators?" *Center for Analysis of Postsecondary Education and Employment,* Feb 2012.

Targeting Underserved Demographics

New Enrollment Markets Require New Institutional Competencies

Hispanic Students

Armstrong Atlantic State University

Maximizing Campus Support

- **Beyond Marketing** – *Hispanic Outreach & Leadership at Armstrong* (HOLA) combines admission, advising, financial aid, event, and community support services
- **Building Community** – New Latino leadership program, fraternities, sororities, and dance team
- **Ensuring Access** – Special scholarships help overcome new financial barriers for undocumented students
- **Proven Results** – Hispanic enrollment up 200% over last decade; retention and graduation rates higher among Hispanics than non-Hispanics
- **Soon to Expand** – Received Lumina grant to lead local Latino college attendance drive

Active-Duty Military and Veterans

FIDELIS

Utilizing Third-Party Services

- **Personalized Mentoring** – Transition Coach eases shift to higher education and civilian workforce
- **Access to Instant Network** – National community of veterans study and connect together online
- **Instructional Partners** tailor curricula:
  - ***2+2Plus*** – U of California GE courses during active duty, transition to campus life afterward
  - ***Pre-MBA Bootcamp*** – Free basic course, "Quant Primer" from UCLA Extension, MBA placement
  - ***Silicon Valley Concentration*** – 6-week intro course, post-bacc program with 7 web-based concentrations

Source: Jennifer Gonzalez, "Swimming Against the Political Tide, a Public University in Georgia Reaches Out to Hispanics," *The Chronicle of Higher Education*, Jan. 22, 2012; Education Advisory Board interviews and analysis.

A Governor's Dream

Competency-Based Alternative Helps Meet Completion Goals

"Online. Accelerated. Affordable. Accredited."

A Radically New Instructional Model

- No "courses" or "credits," just competency exams
- No traditional instructors; 800+ faculty a mix of assessment designers, subject matter experts, and student mentors
- 32,000 students nationwide
  - Average age = 36
  - 70% work full time
- 30% annual growth

An Appealing Alternative to For-Profits

- Founded by 19 governors in 1997
- Tuition: $5,780 per year; hasn't been increased since 2007
- Online, self-paced instruction expands access to non-traditional students
- New subsidiaries in Indiana, Washington, and Texas

WESTERN GOVERNORS UNIVERSITY

"Indiana's 8th State University"

- Governor Mitch Daniels commissioned *Western Governors University – Indiana* in 2010
- No state allocation; initial funding from Gates & Lumina Foundations
- WGU students are eligible for state aid
- Critical in meeting completion goals

Source: Education Advisory Board interviews and analysis.

Competency Model Gaining Momentum

Incumbents Increasingly Embracing Alternatives to the Credit Hour

KCTCS
Kentucky Community & Technical College System

- *Learn On Demand* program based on modular competency components as alternative to semester-long course
- Pre-test and post-test required for credit
- Course facilitators guide students through online, self-paced modules
- Third-party student services through *Presidium,* a Blackboard company

UNIVERSITY OF WISCONSIN SYSTEM
UW

- Plans for UW Flexible Degree announced in July 2012
- "Homegrown" alternative to Western Governors subsidiary
- Programs will begin in Fall 2013 and prioritize areas of high employer demand

"A personalized, quality, affordable, higher education model to help get Wisconsin working"

- Office of Governor Scott Walker

NORTHERN ARIZONA UNIVERSITY

- Will begin to offer competency-based courses and degrees in Jan 2013
- Starting with Business, I.T., and Liberal Studies
- Partnering with Pearson on content/course development; NAU will pay $875 fee per student every 6 months
- On-demand instructors will focus time on students with the highest need

Source: Steve Kolowich, "Competency Loves Company," *Inside Higher Ed,* July 11, 2012; Elise Young, "Another State to Assess Skills," *Inside Higher Ed,* July 9, 2012; Paul Fain, "Competing With Competency," *Inside Higher Ed*, August 6, 2012.

Canada's Online University Not Yet a Threat

Push Toward Efficiency and Access a Matter of Policy

Online and Scalable

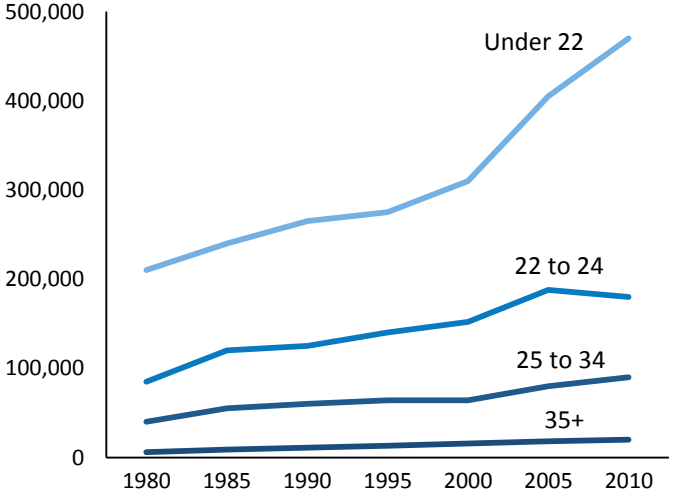
- 160 faculty and 38,000 students
- 98% of students are employed

A Complementary Relationship

- Online courses start on demand
- Lessens burden on traditional institutions

Adult Students Having Little Impact on Enrollment Growth

Full-Time Undergraduate Enrollment in Canada



Source: Statistics Canada data and AUCC estimates; Education Advisory Board interviews and analysis.

Competing on Price with High-Demand Courses

An Experiment in Outsourced General Education

StraighterLine – At a Glance

Business Model
- Most affordable provider of online general education courses
- 30-50 courses account for 1/3 of all higher ed

Pricing
- $99 a month + $39 course registration fee
- $999 a year for 10 courses

Enrollment
- 1,000 students in 2010; 3,000 students in 2011

Next Steps
- ETS iSkills and CLA assessments for a fee
- ACE "Recommended Credit" for free Saylor.org courses + StraighterLine assessment

Few Official Partners…

Capella University

Western Governors University

DeVry University

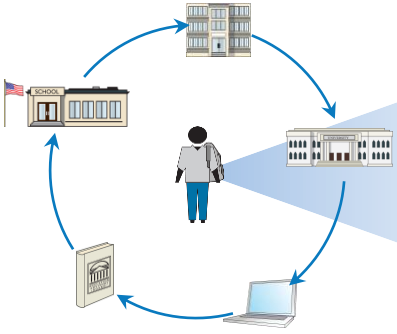
…But Some Early Incumbent Adopters

NOVA Northern Virginia Community College + George Mason University

…And 250+ Have Accepted Credits

Targeting Today's Swirling Student

"Credit Bank" Model Meets Demand for Low-Cost, Flexible Degrees



Excelsior College – Albany, NY

- Founded in 1971 by SUNY System as Regents College
- Became independent institution in 1998
- 30,000 students (mostly undergraduate)

"Students have educational paths that are as unique and diverse as they are … Excelsior College revolutionized adult higher education by recognizing learning wherever and whenever it occurs."

EXCELSIOR COLLEGE®

TRANSCRIPT

High School
- AP Credits

Local Community College
- Foreign Language Requirement

Former Employer
- Prior Learning Assessment

Online For-Profit Course Provider
- General Education Requirements

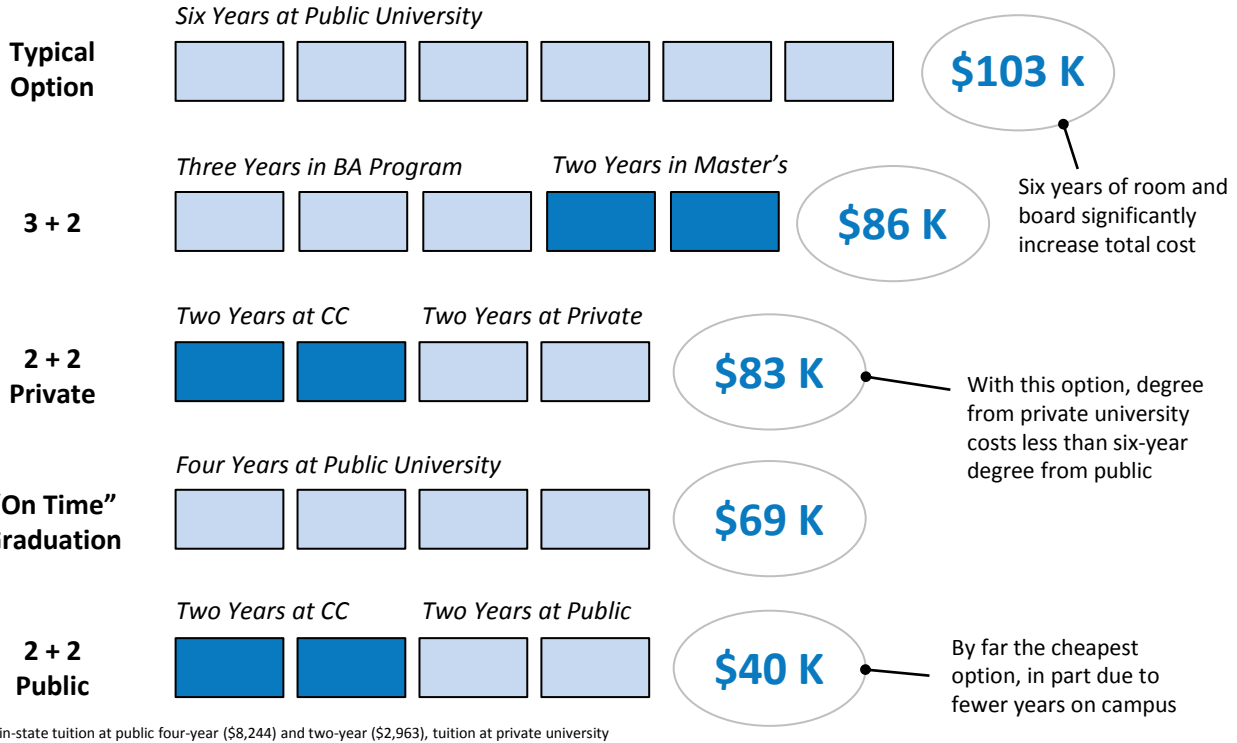
Military Training
- Engineering Certification

Online Certificate Program
- Competency Test Results

Foreign University
- Semester Abroad

The Path Dependency of Total Cost

Reducing Degree Costs through Articulation and Faster Time to Completion



1 Assumes in-state tuition at public four-year ($8,244) and two-year ($2,963), tuition at private university ($28,500) and room / board while at the public four-year ($8,887) and at the private four-year ($10,089)

Source: College Board, Trends in College Pricing 2011.

The Net Price Calculator Does Its Job

"We're definitely seeing students and parents looking more closely at retention rates, time to degree, and net price. They understand that these factors are important, and the data are now much easier to get your hands on."

Kathleen Dawley
President & CEO, Maguire Associates

Source: Education Advisory Board interviews and analysis.

The $10,000 Degree

Early Attempts at Drastic Price Reduction Will Affect Few Students

Targeted Merit Aid for High-Achieving STEM Majors

University of Texas of the Permian Basin

- Accepted into selective "Texas Science Scholar" program
- \+ No remedial courses
- \+ Majoring in STEM field
- \+ 4-year completion

= $10,000

Accelerated 2+2 Program Starts in High School

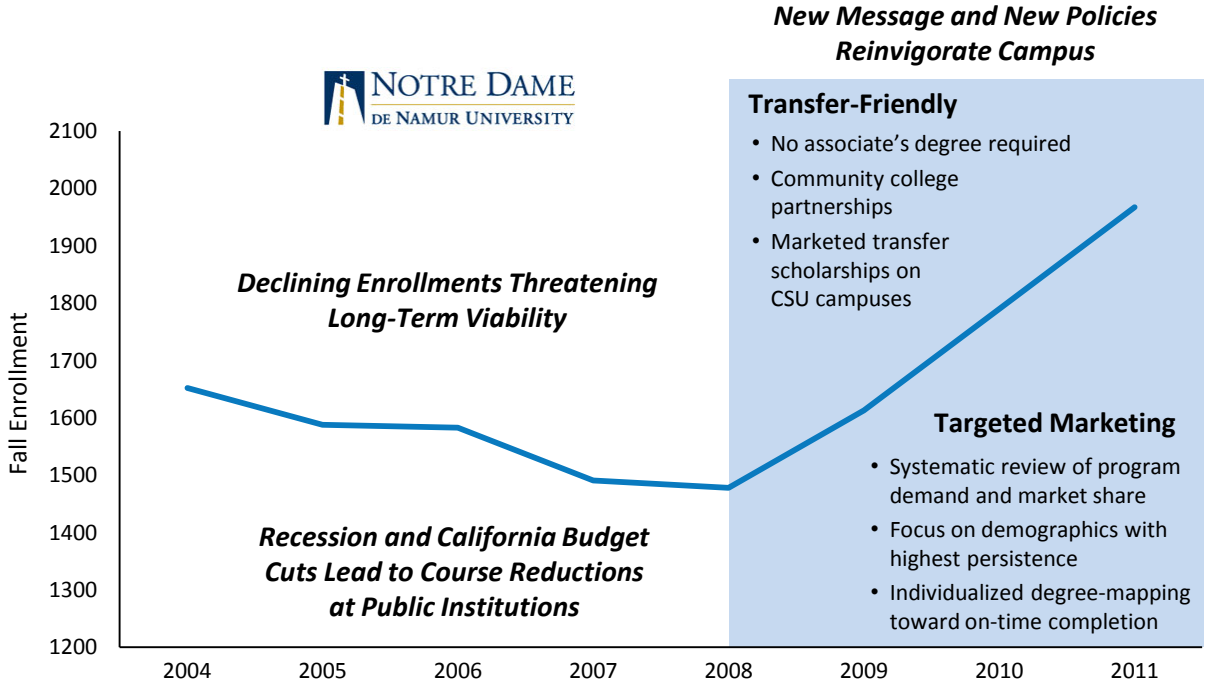
Texas A&M University - San Antonio

- Qualifies for dual-enrollment program in high school
- \+ Majoring in IT and Security
- \+ 27 credits at a community college
- \+ 36 credits at Texas A&M - SA

= $10,000

Marketing a Transfer-Friendly Advantage

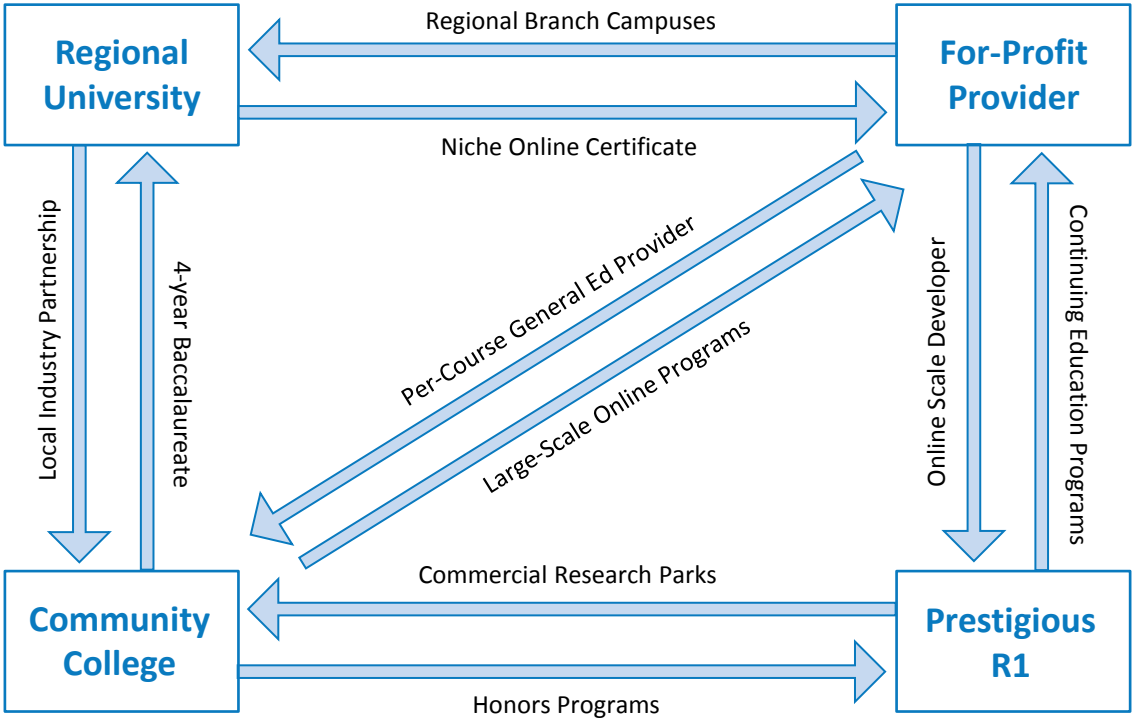
Enrollment Strategy Adapts as Student Demand Shifts to Completion



Source: Education Advisory Board interviews and analysis.

Enrollment Shifts Blurring Institutional Barriers

Innovation Centered Around Reaching New Kinds of Students



Disruptive Competition and Incumbent Innovation

Pressures on the Traditional Higher Education Business Model

1. Quality at Scale
2. Competing on Convenience
3. **Integrating Academic and Career Preparation**

   Schools compete on ability of students to land "job of choice" through employer-relevant curriculum, experiential learning, and comprehensive career advising services
4. Problem-Focused Research

Disruptive Competitors:

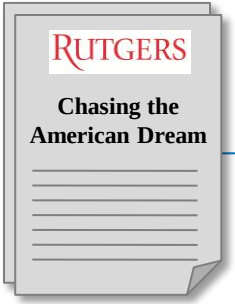
- Digital Badges
- Employer-Defined Stackable Credentials

Incumbent Responses:

- Competency-Based ePortfolios
- Workforce Development Campuses
- "Applied" Liberal Arts Curricula

Dismal Job Market Making Career Prep a Priority

Spotlight on Higher Ed as Graduates Search for Employment



Of those who graduated since 2006…

- Over 11% were unemployed
- Only 51% were employed full time

Of those who graduated since 2009…

- Fewer than half were employed within a year of graduating
- Three times as likely to be unemployed as 2006-08 graduates

A Vicious Cycle

"Given that the unemployment picture for young college graduates has yet to show substantial improvement, the Class of 2012 will be joining a significant backlog of unemployed college graduates from the Classes of 2009, 2010, and 2011 in an extremely difficult job market."

"The Class of 2012: Labor Market for Young Graduates Remains Grim"
Economic Policy Institute

Source: Carl Van Horn, Charley Stone, and Cliff Zukin, "Chasing the American Dream: Recent College Graduates and the Great Recession," *John J. Heldrich Center for Workforce Development,* May 2012.

Beginnings of a Marketplace for Digital Badges

Will Micro-Certifications Replace the Symbolic Power of Diplomas?

What's a Digital Badge?

MacArthur
The John D. and Catherine T. MacArthur Foundation

Mozilla's Open Badges Infrastructure makes it easy to issue, display, and manage badges across the web.

Government | Affinity Groups | Industry Associations | Individual Employers

- Collectable, sharable certifications of specified competencies
- Acquired by examination, demonstration, proof-of-experience
- Help students find a job, collaborator, or social media followers

What's Needed for a Liquid Market?

1. **Proof-of-Concept Funding**
   MacArthur Foundation launches $2M contest for badge design
2. **Open IT Standards**
   Mozilla developing interoperability specs for badge formats
3. **Credible Sponsors**
   Famed organizations designing and recognizing badges

Source: www.DMLCompetition.net; Education Advisory Board interviews and analysis.

Using Badges as Infrastructure for Learning Outcomes

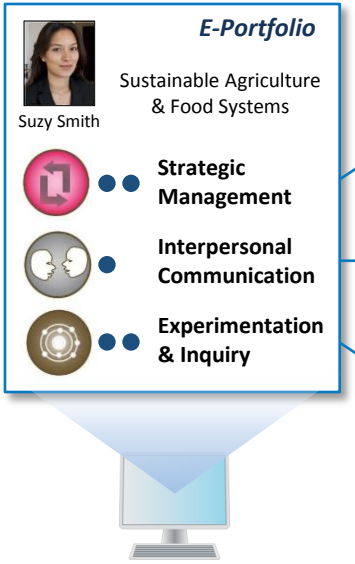
Early Adopter Rethinking Assessment in a Digital Age

Beyond Mere Grades

New Major Building Learner-Centric Toolkits

UC DAVIS
UNIVERSITY OF CALIFORNIA

- Agriculture students will earn badges based on competencies, skills, classes, and internships
- Mix of pre-determined standards and self-assessment with peer review
- Intended to capture learning that occurs outside of traditional classroom setting and beyond graded assignments
- Operationalizes emphasis on learning outcomes



Internship Deliverables

Recorded Presentations

Experimental Results and Analysis

Instruction **Peer, Mentor, and Faculty Feedback** *Evidence*

Source: Education Advisory Board interviews and analysis.

Employers Embrace Competency-Based Curriculum

Employer-Defined Credentials Facilitate "Mixed Sourcing" of Higher Education

1 Industry-Defined Competencies

Certified Manufacturing Engineer

Entry-Level Technical
- Safety
- Machine Operation

Core Academics
- Science
- Analytical Thinking

Management
- Leadership
- Team Management

Advanced Technical
- Lean Principles
- Global Sourcing

30+ competencies defined

2 Individual Employers' HR Strategy

Recruiting
- "Preferred" or "required" in job postings
- Intern recruiting

Development
- Defined career pathways
- Tuition assistance policies

3 Students Steered to "Configurable" Menu of Educational Options

Credit by Examination
- National testing service firms and industry association exams

Online Course Providers
- Low-cost, self-paced "approved" general education courses

2 + 2 Transfer and Differentiated Bachelor's

Tailored Community College Programs
- Pilots in OH, NC, TX and WA building Applied associate's degree around industry competencies for direct hires or transfers to 2+2 programs

Applied Bachelor's Degrees
- For-profits launching Bachelor of Science with Concentration in Manufacturing
- Transferable credits from prior certifications
- Tuition reduction agreements for employer partners

Source: "ACT and the National Association of Manufacturers Collaborate on New Skills Certification Program," *Activity*, Spring 2009.

Approaching a Tipping Point

"A lot of the foundation for competency-based education is in place now. Employer-identified competencies, a growing inventory of high-quality online courses, enough accredited two-year and four-year institutions so that working students can get degrees as well as skills. It will really take off when a prestigious employer or two features the credential—people may downplay online education, but would they if a Boeing or a John Deere were on board? If even one of those firms endorses the concept, it will get a lot of legitimacy quickly, and I think we'll see a big part of the 'applied' market split their education among traditional and non-traditional models."

Burck Smith
CEO, StraighterLine

A Streamlined Pipeline for Local Industry

Accelerated Degree Program Focuses on Workforce Development

A new value proposition for parents and students

Cohorts Begin Courses in Local High Schools

- Students explore potential careers, apply in 9th grade
- Successful applicants assigned an industry mentor
- Free college credit earned in 11th and 12th grades

2-Year Campus Curriculum Focuses on "Real World" Skills

- Dual-counting / special general ed credits accelerate "core"
- Students intern with local employers, earn credit and financial assistance
- Results in BS in Systems Engineering Technology

Graduates Hit the Ground Running at Local Businesses

- Industry-focused curriculum mitigates cost of training new employees
- Developing stackable certificates for continued training
- Hope to attract new businesses in "research park" model

 Source: Missouri Innovation Campus White Paper: http://www.ucmo.edu/about/mic/documents/micpaper.pdf

Not an Unfunded Mandate Anymore

$500 K

Block grant to support initial Innovation Campus initiatives

$10 M

Competitive funding to adapt Innovation Campus model throughout Missouri

Governor Jay Nixon

"…[C]ompanies in high-growth sectors need a highly skilled workforce to grow, innovate and compete … but the current business model for higher education is not keeping pace."

Jay Nixon, "Missouri Innovation Campus Will Speed Students Toward Degrees, Jobs," *The Kansas City Star*, Feb. 26, 2012.

Liberal Arts 2.0

Articulating "Return on Education" to Outcome-Focused Students

Liberal arts college in Worcester, Massachusetts

CLARK UNIVERSITY 1887

Motto: "Challenge Convention. Change Our World."

"Develop focused skills to make immediate contributions to the workplace"

"LEEP provides a greater return on your educational investment by preparing you to thrive in today's highly interconnected, competitive, and dynamic global economy"

"Turn your talents and passions into a rewarding career"

L E E P — Liberal Education & Effective Practice

LIBERAL EDUCATION AMPLIFIED

1 "Effective Practice"

- Clark's "defining contribution" on top of AAC&U core learning outcomes

2 Alliance & Mentors

- Employers and alumni partner with Clark to provide career guidance

3 "Return on Education"

- New interactive website focusing on alumni placements and salaries

Disruptive Competition and Incumbent Innovation

Pressures on the Traditional Higher Education Business Model

1. Quality at Scale
2. Competing on Convenience
3. Integrating Academic and Career Preparation
4. **Problem-Focused Research**

Philanthropy, corporate, and government funding concentrates on handful of universities with demonstrated capabilities to solve business, technical, and social problems

Disruptive Competitors:

- Competitive "Grand Challenges"
- Venture Philanthropy

Incumbent Responses:

- Alternative Research Structures
- Incubator Campuses
- Community-Based Scholarship

Science in the Service of Society

Funders Emphasizing "Grand Challenges," Not Disciplinary Research

University Model

Department → **Faculty Salary** → **Disciplinary Research** → **Idea** → **Publication**

"Grand Challenge" Model

Foundation → **Idea** → **Global Competition** → **Invention** → **Prize Money**

A Push to Remake Science Policy in Canada

"The current suite of programs is mainly (but not exclusively) focused on investigator-led 'idea-push' projects… However, there remains a gap with respect to collaborative R&D and innovation projects that are large scale, industry facing, demand driven and outcome oriented…"

Innovation Canada: A Call to Action

Will Research Dollars Migrate to the Private Sector?

Venture Philanthropists Playing Increasingly Central Role in R&D

Paul Allen

ALLEN INSTITUTE *for* BRAIN SCIENCE
Fueling Discovery

- $500M investment
- Attracting top faculty from elite institutions
- Doubling size to 360 staff
- Marketing accountability, speed, and publicly accessible results to funders

Leaving the Academy

"…[U]niversity- and government-financed labs cannot afford the personnel and equipment to perform the multidisciplinary work that Mr. Allen wishes to encourage"

Ricardo Dolmetsch
(Former) Professor of Neurobiology
Stanford University

Source: Peter Monaghan, "Microsoft Co-Founder's Brain Institute Attracts Top Academic Researchers," *The Chronicle of Higher Education*, April 1, 2012.

Competing in the Age of Venture Philanthropy

CDOs Hear Major Donors Critique Higher Education as Destination for Big Gifts

Stewardship

Can't Quantify Impact

"Big donors are now demanding business plans—we'll sustain funding after the initial gift is used up and report on progress against goals on a quarterly basis."

CDO, Selective Private University

Less Attractive the Closer We Look

"We did a survey of trustees trying to find out what drove their giving behavior. We were discouraged to learn that several were less inclined to give after becoming a trustee, because they saw up close the vision and efficiency challenges."

CDO, Tuition-Dependent Private University

Academic Vision

Funding Transformations, Not Operations

"You won't get an eight-figure gift for financial aid or deferred maintenance. Venture philanthropists want to seed transformational ideas."

CDO, Private Research University

Organized around Disciplines, Not Problems

"Social entrepreneurs want to solve big problems that are inherently interdisciplinary, like public health or sustainable energy. It's a struggle to get all our disciplines synchronized, and we're starting to lose out to NGOs who have more integrated marketing pitches."

CDO, Flagship Public University

Source: Education Advisory Board interviews and analysis.

Restructuring the Research Enterprise

Overcoming the Limits of Departmental Autonomy

Energy Initiative

- Established in 2006 to transform global energy system
- More than 50 industry partners provide financial support and tech transfer relationships
- Connects more than 50 departments, laboratories, centers, and programs involved in energy-related research on campus

Thematic Divisions

- More than a dozen new interdisciplinary schools (i.e., Human Evolution and Social Change, Earth and Space Exploration)
- Large-scale research initiatives (Sustainability, Biodesign)
- Eliminated many traditional departments (Biology, Sociology, Anthropology, Geology)

Innovation Collaborative

- *Baylor Research and Innovation Collaborative* (BRIC) will provide faculty, industry, and start-ups with 330,000 square feet of space
- International partnerships, interdisciplinarity, commercialization, and workforce development are central themes

Key Themes Initiative

- University will focus on one major global challenge every two years (starting this year)
- First theme, "Water in Our World," will address global water crisis from all angles
- Builds on existing institutional strengths and focuses energies of nearly every academic unit

Beyond a Research Park

The Race to Incubate the Next Silicon Valley

Cornell University NYC "Tech Campus"

Massive Investment Supports High-Impact Commercial Development

- **Hot Topics**: Focus on tech-based startup incubation in health care, social media, and green energy
- **Global Partners:** Partnering with Technion-Israel Institute of Technology to offer master's in applied science
- **Generous Donors:** 99-year lease on land from NYC; $350 M donor gift, and $150 M revolving finance fund
- **Significant ROI:** Estimated $23 B (nominal) economic benefit and $1.4 B in tax revenue over 3 decades

Letting Industry Lead

"The new campus will be organized around areas of interdisciplinary research which are also relevant to commercial impact, rather than traditional academic departments. This will facilitate more meaningful collaboration and better align the campus with Mayor Bloomberg's vision for success."

David Skorton
President, Cornell University

Source: Richard Perez-Pena, "Cornell Alumnus is Behind $350 Gift to Build Science School in City," *The New York Times*, Dec. 19, 2011.

Linking Research to Education and Service

Clarifying the Value of Academic Research to Students and the Community

Ernest Boyer's Model of Scholarship

Discovery

Advancing Knowledge

Integration

Synthesizing Information

Application

Translating Results

Teaching & Learning

Improving Pedagogy

Elite Research Institutions

Access-Focused Institutions

Abandoning the "Carnegie Climb"

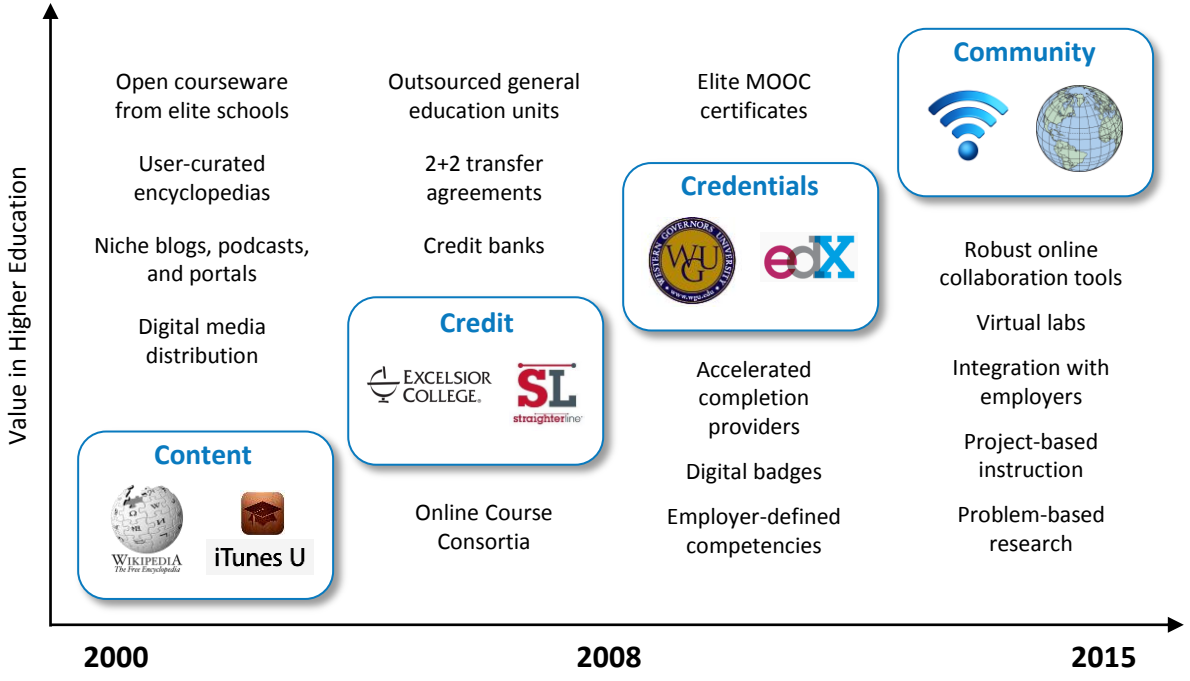
"We ought to be an undergraduate teaching and learning institution, first and foremost. Our research agenda should support our students, and it should support the community that's helping to pay the freight here. And while that may not be the traditional Harvard model, that's a pretty nice place to be."

Provost
Regional Public University

Source: Ernest Boyer, "Scholarship Reconsidered: Priorities of the Professoriate," *The Carnegie Foundation for the Advancement of Teaching*, 1990; Education Advisory Board interviews and analysis.

No Longer a Monopoly Market

Incumbents Losing Control Over Previously Exclusive Territory



A Skeptical Conclusion

Transformation in Higher Education Depends on Fundamental Social Changes

What We Would Have to Believe…

Employers begin to care more about demonstrated competencies than prestigious degrees

Tenured faculty abandon the craft model and open up the classroom to other providers

Students/parents select institutions based on outcomes and low costs rather than reputational rankings

State/provincial legislatures mandate transferability of credits and shift funding to outcomes

Accreditors and/or professional societies define objective standards for learning outcomes

Universities give up trying to be all things to all people and focus on distinctive strengths

Questions for Your Next Strategic Retreat

	Threats to Existing Business Model	***Opportunities to Improve Value Proposition***
1 Quality at Scale	*Will we lose students (or credit hours) to free online courses from respected universities?*	*Should we accept credits from open courses? Can we "outsource" some instruction to them?*
2 Competing on Convenience	*Will cheaper, more flexible alternatives grow faster than we can adapt and expand?*	*Should we build lower-cost, streamlined degree programs and expand our target market?*
3 Integrating Academic and Career Preparation	*How can we preserve the liberal arts when students are so focused on immediate career prospects?*	*Can we demonstrate to employers that our students are properly prepared for their needs?*
4 Problem-Focused Research	*How fast will federal, state, and foundation funding shift from disciplinary to applied problems?*	*Can we better integrate research, teaching, and outreach by organizing around grand challenges?*