World Academy Forum on Global Higher Education
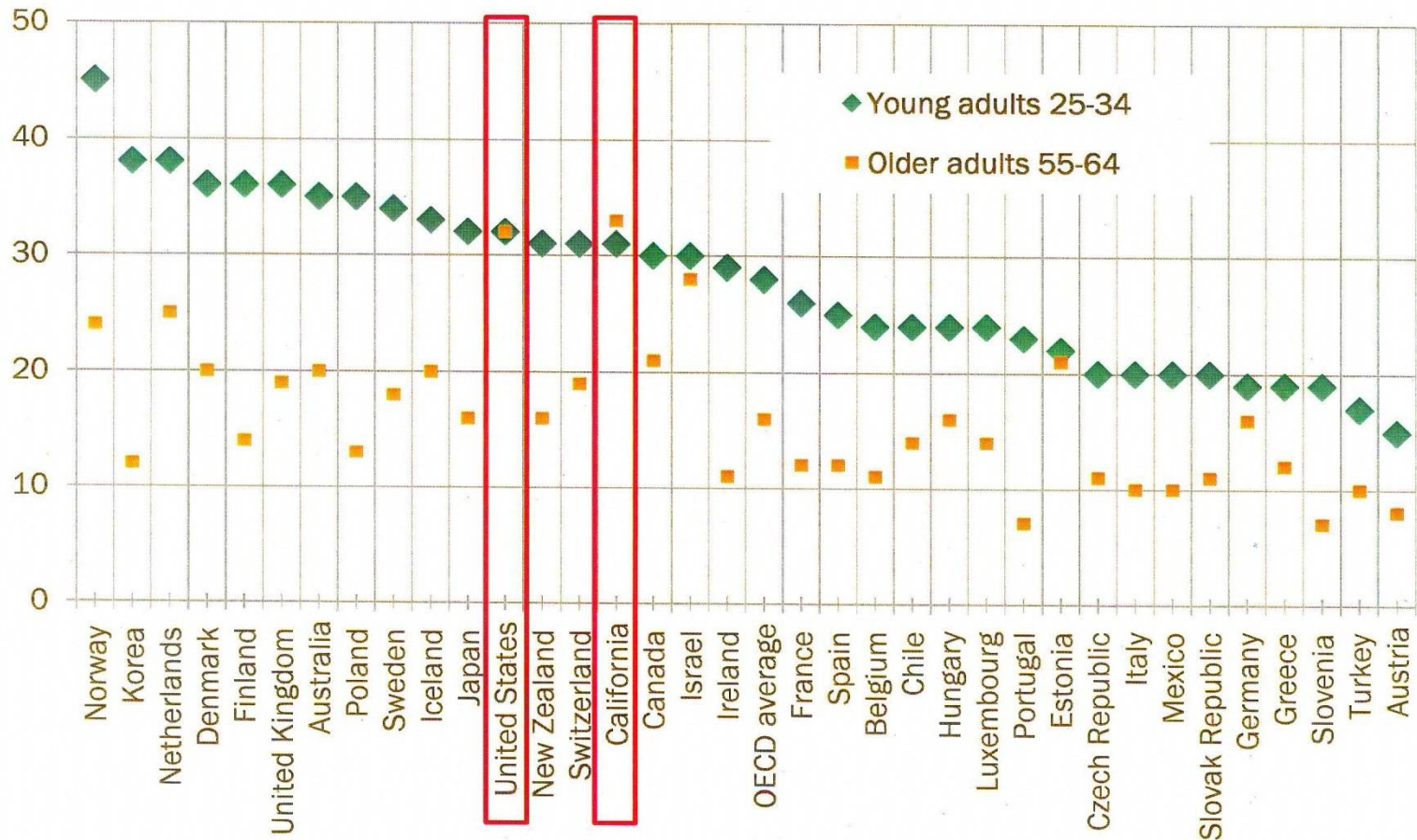
October 2, 2013

San José State
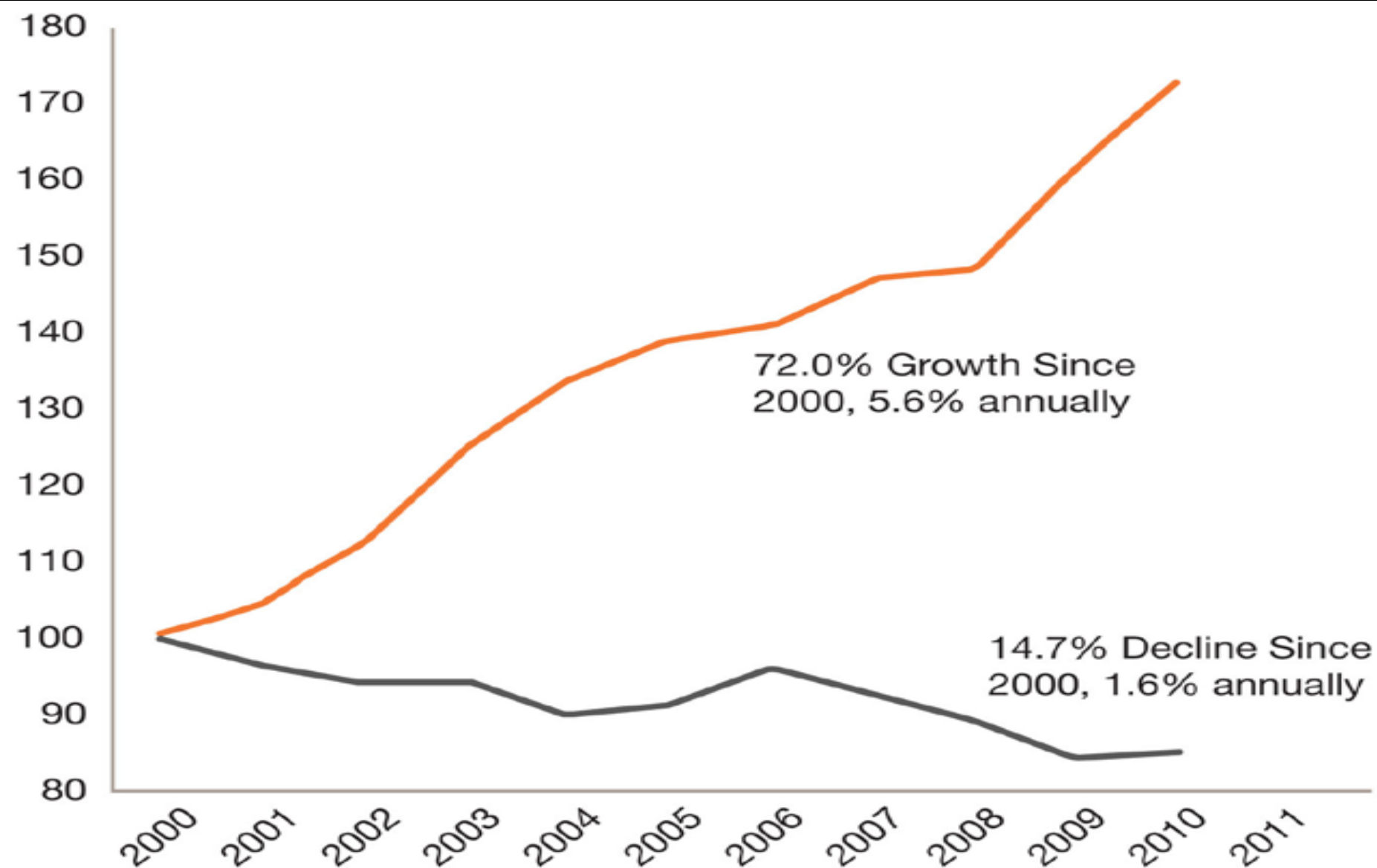UNIVERSITY

Mo Qayoumi .

California is falling behind

Percentage of adults with at least a bachelor's degree

Legend:
- ◆ Young adults 25-34
- ■ Older adults 55-64

72.0% Growth Since 2000, 5.6% annually

14.7% Decline Since 2000, 1.6% annually

— Average Tuition and Fees at Public, Four-Year
— Average Earnings for Full-Time Workers Aged 25–34 with Bachelor's Degree Only

Tectonic Shifts Shaping Current Realities

- More cell phones than tooth brushes

- 76% having access to electricity, but 81% to mobile devices

- From scarcity of knowledge to unimaginable abundance

- 10 billion devices connected

Redefining Citizenship in a hyper-connected World

- Active participation in dialogue

- Quickly self-organizing systems

- The Acceleration of innovation as a driving strategy

- The role of IT from an enabler to transforming culture

The Need for Transformation

- Trail blazers and benchmarkers

- Developing the ambidexterity

- Altering the DNA & modifying the genetic code of H.E.

- Form Problem Solving to imagining new possibilities

Technology's Move to Regularize Architecture

- Internet platform (Amazon)

- People platform (Facebook)

- Tablet platform (Apple)

- Information platform (Google)

- Mobile as the platform of computational computers

New Opportunities

- World with 6B mobile devices and 1B smart phones

- In Facebook 2.5 B items are shared, 2.7 B likes, & 300 M photos are uploaded per day

-

- The Development of Massive Open Online Courses (MOOCs)

- The Internet of Everything (IOE) with $14.4 Trillion economic opportunity

Massive **O**pen **O**nline **C**ourse

The term, MOOC allegedly first appeared in *Inside Higher Ed* in December 2011, in reference to a course offered by a Stanford University professor. The *New York Times* declared 2012 to be "the Year of the MOOC".

MOOCs:

edX: *Harvard-MIT (Anant Agrawal), $60M, **Dec 2011***

+18 partners, over +24 courses, +1 M students https://www.edx.org/

http://web.mit.edu/newsoffice/2012/mit-harvard-edx-announcement-050212.html

Udacity: *Ex-Stanford (Sebastian Thrun), **Feb 2012***

https://www.udacity.com/

$15.3 M, +20 courses

400,000 students

Coursera: *Stanford (Daphne Koller, Andrew Ng)*

***April 2012**, $16 M VC, 33 universities, +200 courses, +2.5 M student from 196 countries, Feb 2013 https://www.coursera.org/

Investor   **Donor**   **Professor**   **Alumni/fellow**   **Board member**   **Other**

VENTURE CAPITAL

NONPROFIT WORLD

Cathy N. Davidson
A professor at Duke, Davidson helped generate a 'Bill of Rights' for online students

Digital Media and Learning Competition
This $6-million (and counting) program offers grants for experiments in online badges and certification

Philippe P. Laffont

Jonathan Grayer
Former chairman and CEO of Kaplan Inc.

Ann & John Doerr

Peter Levine

Andreessen Horowitz

New Enterprise Associates

Bill & Melinda Gates Foundation

MacArthur Foundation

Humanities, Arts, Science, and Technology Advanced Collaboratory
A consortium that studies online learning

National Science Foundation

Kleiner Perkins Caufield & Byers

OpenStudy
Available to students in standard classes and MOOCs alike, this platform makes study groups into both a game and a social network

Ithaka S+R

American Council on Education

COMPANIES

Pearson
Owner of the *Financial Times* and the Penguin Group, Pearson is a heavyweight in the education publishing and technology sector

Google
In the fall of 2012, Google quietly released an open-source tool for MOOCs called Course-Builder, and has been in talks with edX and Stanford about digital learning platforms

Mozilla
The organization's Open Badges are intended to recognize skills learned in or out of the classroom, perhaps competing—someday—with standard college credit

coursera

KHAN ACADEMY

MOOCs

UDACITY

edX

San Jose State

UC Berkeley

UT Austin

CalTech

University of Pennsylvania

L. Rafael Reif

Anant Agarwal

Stanford

MIT

Harvard

UNIVERSITIES

$100k $15m $16m $2m $5.5m $1m $1.5m $724k $895k $200k $60m $3.7m

Undisclosed amount   Undisclosed amount   John works here   Co-founder   Administrator   Designed framework   Andrew Ng founded Google Brain project   Proctors exams   Partner   Partnered on learning outcomes study   Helped develop platform   Andrew Ng and Daphne Koller used to teach there   Sebastian Thrun is a professor   Andrew Ng is an alumnus   Salman Khan is an alumnus   May recommend credit for courses   Sharing Class2Go platform   President   Helped found

SJSU's edX Flipped/Blended Model

Fall 2012: Pilot flipped/blended 1 section of SJSU (EE98), using MIT edX's first MOOC course, edX 6.002x.

- **Outside class: edX online content**

    Watch edX MIT 6.002x video lectures

    Complete work on other online features (quizzes, labs, textbook)

- **In class: small group work + group/individual quizzes,** Instructor answers questions in the first 15 min; group work and group/individual tests for remaining 60 min.

From left to right:
1. Professor Khosrow Ghadiri
2. Dr. Ping Hsu
3. Dr. Anant Agarwal (President, edX)
4. Behnam Behziz (Grad TA student)
5. Dr. David Parent

edX Prelim Results

Section 2 (in red) = edX pilot
(NOTE: Data is preliminary)

Average: 50.4%, SD: 27.1%
41%= retake ➜ **59%** passed

Fall 2012 (edX pilot)
Average: 60.0%, SD: 15%
10%= retake ➜ **91%** passed

NEW:
- SJSU-edX Center for Excellence in Adaptive and Online Learning
- 9 other CSUs this July
- Expand other edX courses
- Publish/disseminate data

Section 1
Mean=50%, STD=23% N=50

Section 2
Mean=62%, STD=20% N=78

Section 3
Mean=45%, STD=19%
N=75
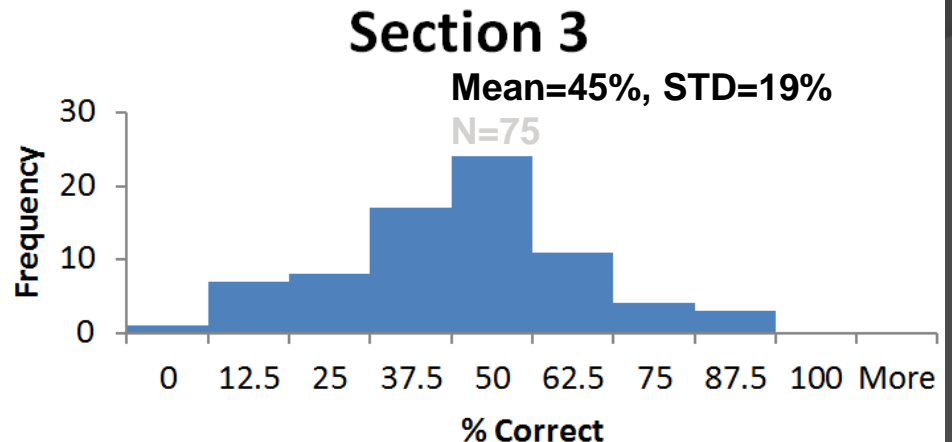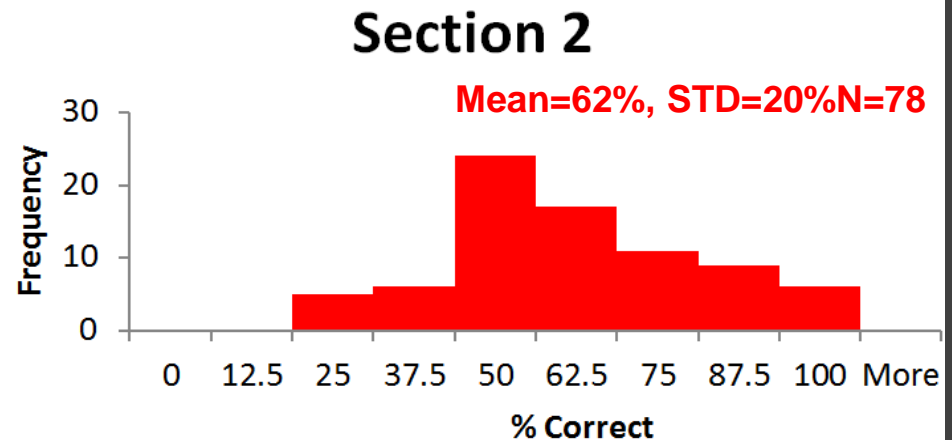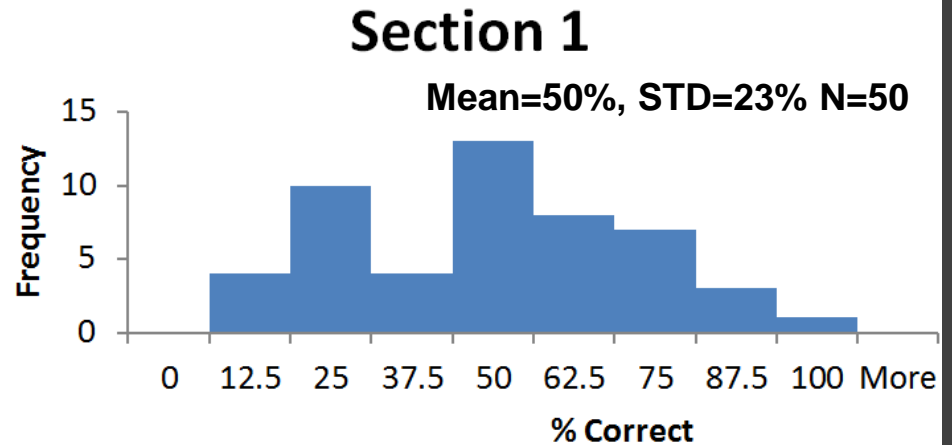
SJSU and MIT edX Collaboration

Electrical Engineering 98: Circuits and Electronics Course
(5 online components = <u>short</u> videos, quizzes, virtual lab, textbook, office hours)

Anant Agrawl, President edX

Lt. Governor Gavin Newsome
President Mo Qayoumi

SJSU & Udacity Collaboration

Inquiry-based, problem-solving, active learning pedagogy

<u>Spring 2013:</u>
- Remedial Math
- Introduction to Algebra
- Introduction to Statistics

<u>Summer 2013:</u>
- Introduction to Psychology
- Introduction to Computer Programming

U
UDACITY

PRELIMINARY Outcomes & Caveats

Results: Table below represents students who earned a C or better.

	Spring Pilot 2013	Summer Pilot 2013	SJSU On-Campus (based on past 6 semesters)
Elementary Statistics	50.5%	83.0%	76.3%
College Algebra	25.4%	72.6%	64.7%
Entry Level Math	23.8%	29.8%	45.5%
General Psychology	not offered	67.3%	83.0%
Intro to Programming	not offered	70.4%	67.6%

STUDENT ENROLLMENTS (exclude W/Drop)

Spring 2013

- **Developmental Math**   **= 84** (SJSU=47)
- **Introductory Algebra**   **= 63** (SJSU=16)
- **Intro to Statistics**   **= 81** (SJSU=36)

     228 (SJSU=99) 43%

Summer 2013

- **Developmental Math**   **= 84** (SJSU=21)
- **Introductory Algebra**   **= 95** (SJSU=26)
- **Intro to Statistics**   **= 312** (SJSU=51)
- **Intro to Computer Programming**   **= 449** (SJSU=44)
- **Intro to Psychology**   **= 321** (SJSU=87)

     1,261 (SJSU=229) 18%

MOOC free enrollment total = 94,000

MEDIA FRENZY!!

2013 Campus Innovator Award

SJSU'S MOOC INNOVATORS (left to right): Khosrow Ghadiri, Sandra DeSousa, Ellen Junn, Ronald Rogers, and Julie Sliva Spitzer.
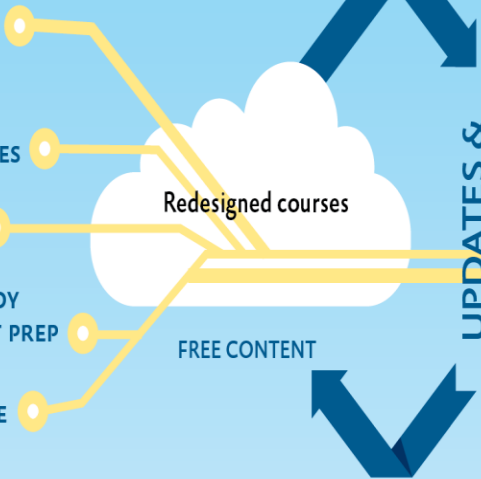
New Learning Pathways

LOWER DIVISION

SUCCESSFUL COMPLETION OF LOWER-DIVISION COURSES

UPPER DIVISION

COMMUNITY COLLEGE COURSES

FOUR-YEAR UNIVERSITY COURSES

HIGH SCHOOL AP COURSES

INDEPENDENT STUDY & PLACEMENT TEST PREP

LEARNING AT LARGE

Redesigned courses

FREE CONTENT

UPDATES & IMPROVEMENTS

Redesigned courses

PBS

National labs

Libraries & open content

Corporations

Open source courseware

FREE CONTENT

UPDATES & IMPROVEMENTS
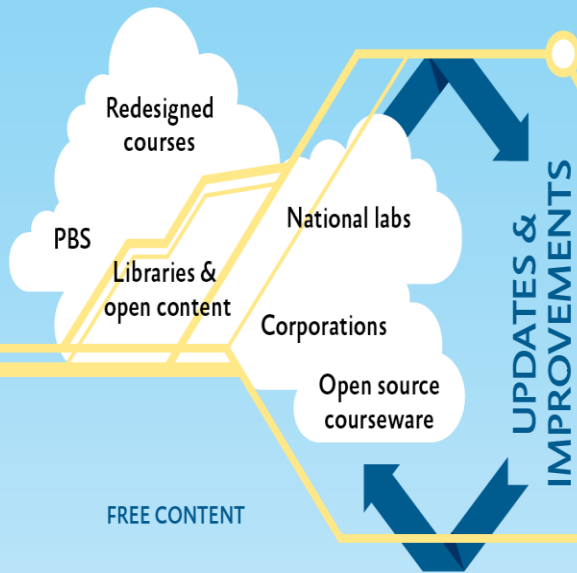
STUDENT GRADUATION

CAREER

LIFELONG LEARNING

–New Technologies

Massive scale online collaboration

A New Learning Ecosystem

- From disengaged individuals to extreme learners

- From assigning H.W. to enticing with content

- From lecture halls to collaboratoria

- From grades to continuous feedback

Opportunities in New Technologies

- Roman Numbers vs. Indian numbers

- "You see things; and you say, Why?' But I dream things that never were; and I say, Why not?'"
—*George Bernard Shaw*

- "If everything seems under control, you are not going fast enough." *Mario Andretti*

Closing Remarks

Lets utilize technology as a weapon of mass instruction!

Thank You!