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Online Education:
"Reverse Engineering" Higher Ed

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on Asynchronous Learning Networks

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Reverse Engineering—What is this?

Reverse engineering (RE) is the process of taking something apart and analyzing its workings in detail, usually with the intention to construct a new device or program that does the same thing without actually copying anything from the original.

From Wikipedia, the free encyclopedia

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Why Should Universities Re-engineer?

- Universities are the stable products of long evolution
- American Universities are the envy of the world
- In a rapidly changing society, universities are islands of stability.
  - Companies come and go, Countries come and go, economic systems…
- If it ain't broke, don't fix it.

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Why Should Universities Re-engineer?

- Dramatic changes in global social and economic systems
- The IT boom and bust left a radically altered playing field.
  - It really did change everything
- The increase in the cost of higher education is the only segment of the economy to rival (and sometimes exceed) the increase in the cost of health care.
- Public Higher Education is going private (not by desire)
- The bar has been raised for the entire world. (Perhaps the World is Flat)

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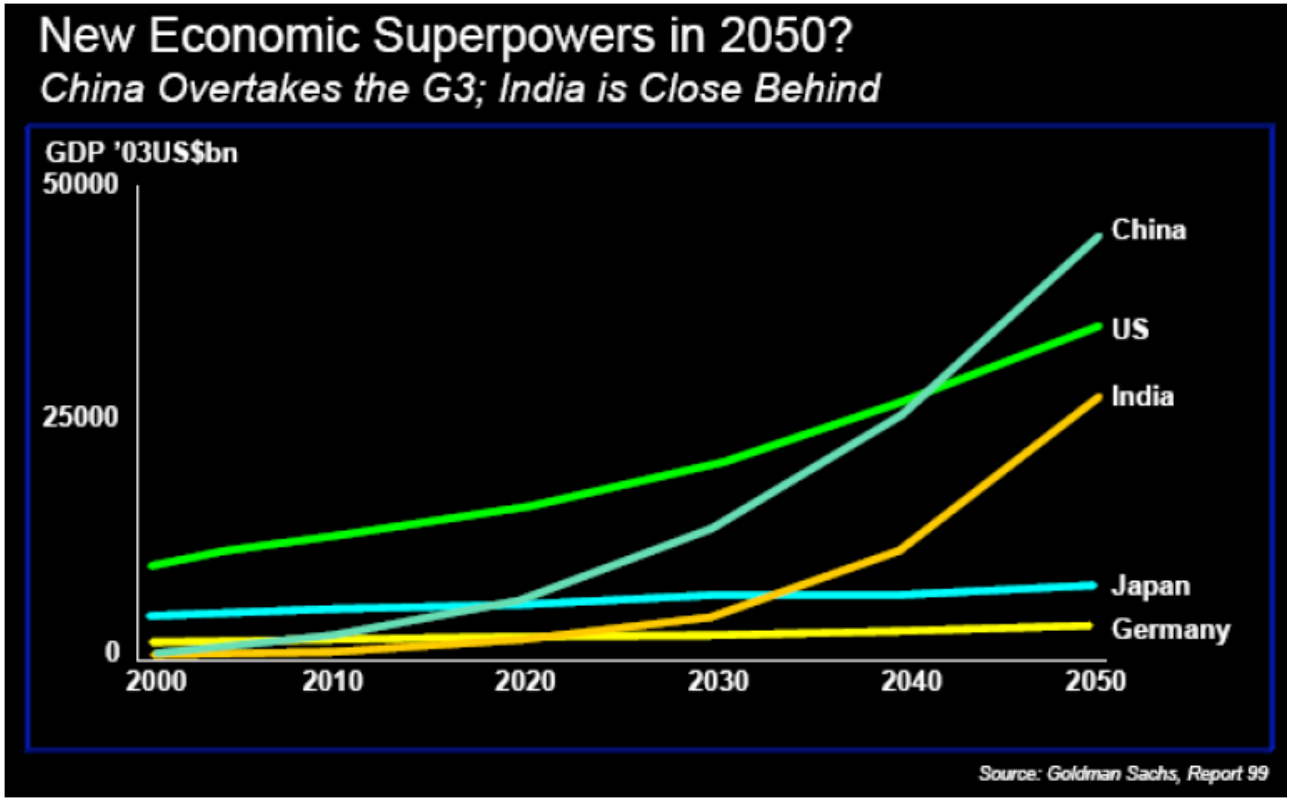
Challenges

- **Council on Competitiveness: National Innovation Initiative**



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Council on Competitiveness

- **"Education, both at the college level and in K-12, needs significant changes to prepare students to be leaders and innovators in the coming years. The system needs to be realigned to promote a competitive, 21st century definition of student achievement."**
- **"One essential target for reform is in the area of curriculum, where creative and integrative instruction based on Problem-Based Learning (PBL) should be developed and implemented within multi-disciplinary and diverse teams, including distributed teams where possible. Additionally, Standardized Technology Platform(s) to support PBL using interchangeable course modules should be developed and deployed to solve the scalability, and complex course management issues that PBL raises. New methods of teacher training, school organization, governance, incentives and accountability must also be addressed to support and sustain the newly-aligned system."**

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Rising Above a Gathering Storm.

- Today, Americans are feeling the gradual and subtle effects of globalization that challenge the economic and strategic leadership that the United States has enjoyed since World War II.
- A substantial portion of our workforce finds itself in direct competition for jobs with lower-wage workers around the globe, and leading-edge scientific and engineering work is being accomplished in many parts of the world.
- Thanks to globalization, driven by modern communications and other advances, workers in virtually every sector must now face competitors who live just a mouse-click away in Ireland, Finland, China, India, or dozens of other nations whose economies are growing.
  - National Academies of Science Medicine and Engineering

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Rising Above a Gathering Storm. Recommendations

- **The four recommendations focus on**
  - actions in K–12 education (10,000 Teachers, 10 Million Minds),
  - research (Sowing the Seeds),
  - higher education (Best and Brightest), and
  - economic policy (Incentives for Innovation)

- **Also provided are a total of 20 implementation steps for reaching the goals set forth in the recommendations.**

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Commission on the Future of Higher Education

- "So far, the secretary [secretary of Education Margaret Spellings] has defined the commission's task in the broadest of terms, saying that it will tackle such global issues as access, affordability, accountability, and productivity. In a one-page letter to its members, she also spoke of the need to ensure that higher education keeps pace with the changing economy."
- "A Federal Register notice on the commission provided a few more details, saying the panel would examine how colleges can serve minority students better, promote lifelong learning, produce more mathematics and science majors, and prepare students for the global economy. The commission, the notice said, would "analyze whether the current goals of higher education are appropriate and achievable.""

  - Chronicle of Higher Education; Oct 14, 2005.

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You are on the frontlines

- I assert that you and organizations like the Sloan-C ALN are indeed the frontlines on any effort to make significant change in higher education.

- Sloan-C: http://www.sloan-c.org/
- Alfred P. Sloan Foundation: http://www.sloan-c.org/
- Center for Academic Transformation: http://www.thencat.org/

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So How Does Online Education Foster Reverse Engineering for Traditional Higher Education?

- Online education has prompted compelling and widespread **conversations about teaching and learning** we have had in decades—more than any other innovations. These conversations are often controversial, contentious, and conflicting—but what change is not?
- Online education has **expanded traditional boundaries** —classrooms, libraries, campuses, regions served…
- Online education has brought **new learners** to our campuses—because we don't see them, we have had to find new ways to serve them…
- Online education has meant that we have had to **rethink how we teach**—the time-honored lecture needs to be reframed…
- And online education has meant that we have to look at **content and learning processes** in new ways.

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Some of the Impact of Online Education on Traditional Higher Education

- **Market competitiveness**, market reach, **market niches**, global reach…who talked about this 10, 15, 20 years ago in higher education?
- **New competitors** —not just limited to traditional institutions vs. for-profits, but institutions far and near offering certificates, short-term training, skills-based training…
- **Access and quality** have new meaning—now it can mean connectivity, wireless access, high speed, anywhere/anytime learning, **communication with faculty 24/7**, courses on home campus and courses at other campuses…
- **New terms** have emerged—hybrid courses, blended learning, **web-enhanced courses**—and these refer to campus-based teaching, not distance learning

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And Fundamental Questions Are Being Re-framed

- What is the **role of teaching** and learning on campuses?
- What is the scholarship of teaching and why is it more **important** than ever before?
- What is our **responsibility to students** during and after their time as students?
- How do we serve the "new" traditional students **and** adult learners, working professionals, degree completers from other institutions, etc?
- What do we do to serve even newer learners, those who will **never set foot** on our campuses?
- How do we shape our campuses to be both the Halls of Ivy and the **"Halls" of Learning**—virtually and otherwise?

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So What Are Some of the Results of This Reverse Engineering?

- Career faculty members who **re-engineer their courses** for Web-based teaching find themselves fundamentally rethinking how they teach and engage students.
- The lines between face-to-face instruction and distance education are **blurring** or even merging.
- **Blended learning & hybrid learning**—these are becoming commonplace terms for higher education. (ex: Nursing, Education)
- Course content is becoming **richer, more interactive** and collaborative.
- Faculty demand for **instructional design** and technology support is increasing.
- Faculty tenure and promotion will increasingly recognize **innovative teaching practices** and research about the art of teaching as part of the criteria.

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And We See…

- Accelerated programs
- Program development in response to market demand—providing incentives for programs that will scale and sell in key markets
- Reaching out to new and expanded markets
  - ✓ K-20
  - ✓ Corporate and workforce education
  - ✓ Exporting education
- Implementing "industry standard" practices: internet marketing & search engine optimization
- Single sign on
- Academic portals—development of a portal strategy
- "Academic passports"
  - ✓ Credit transfer
  - ✓ Articulation among campuses and institutions
- "e-Portfolios"

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We Learn from our Students

An odd thing has happened—the "traditional students" and the online students have a lot in common with each other, even though their ages may be different—

- They are technologically more savvy
- They expect to have technology services
- They expect access to faculty and to each other
- They can multi-task
- They can use the Internet as a never-ending source of information and exchange

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So What Is Happening in the UMass System with Reverse Engineering?

We've had the phenomenon of UMassOnline—the University's Online Education Consortium

- Formed in 2001 by President and Trustees with support of Chancellors
- System-wide collaboration in cooperation with Continuing Education
- Follows local governance
- Funded by loans, grants, and assessment revenue

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UMassOnline at a Glance

Size:

- CY 2005 enrollments: 19,728
- CY 2005 tuition revenue: $19 million

Programs:

- Undergraduate: 24
- Graduate: 25
- Non-Credit: 1
- CME/Post-Grad 1
- Courses: 1000+ annually

Growth CY '04 and CY '05:

- Average annual enrollment growth rate: 22%
- Average annual revenue growth rate: 31%

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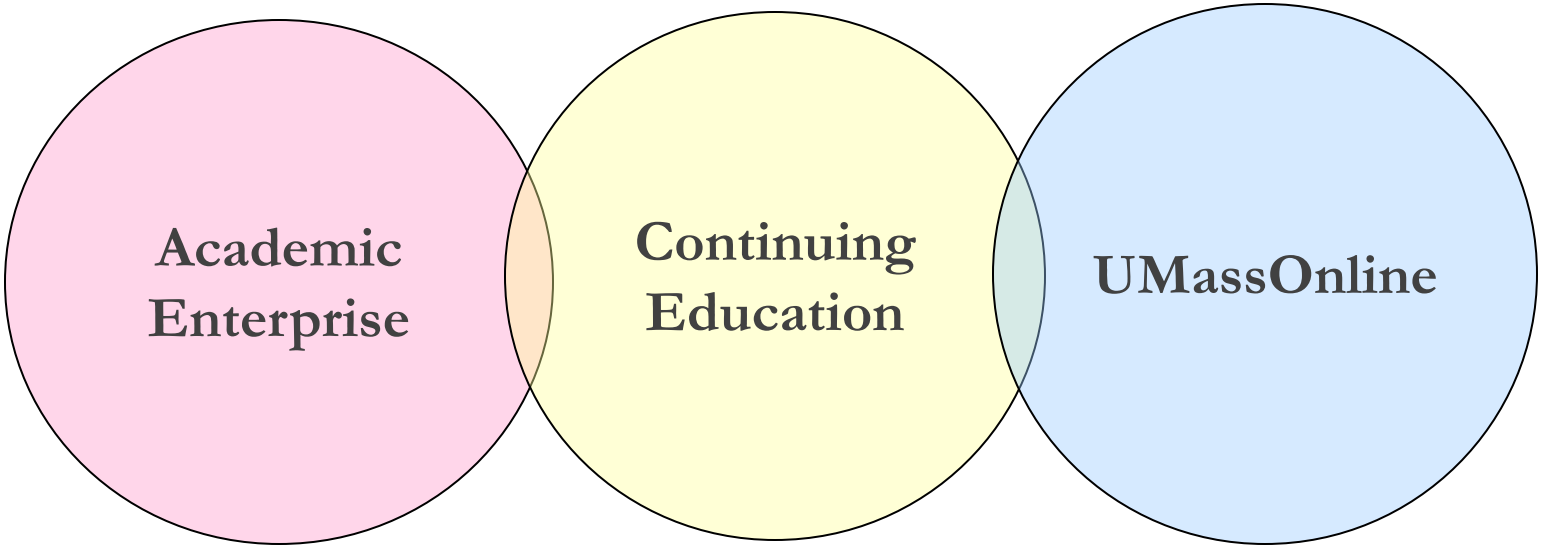
Distance Learning Supply Chain



- Faculty Selection
- Course Development & Instruction
- Advising
- Admissions
- Library services

- Registration
- Faculty Support and Training (w/OIT at UMA)
- Program Support
- Regional Marketing
- Bus. Hour Student Support

- Technology Platform
- Support and Training of Staff
- National/Int'l Marketing
- Program Dev. Investment
- Off-hour Student/Faculty Support

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Defining Success

- Enhancing the bottom line
  - ✓ Additional revenue streams
  - ✓ Efficiencies and economies of scale
- Building the brand
  - ✓ Expanding institutional reach and visibility
  - ✓ Establishes university's commitment to technology
- Supporting the University's educational mission
  - ✓ Broadening access to a UMass education
  - ✓ Enhancing teaching and learning
  - ✓ Serving alumni
- And serving those in need during critical times—**UMassOnline was proud to be part of Sloan C's national effort to serve students displaced by Hurricanes Katrina & Rita**

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UMassOnline Has Facilitated Advancements in Teaching & Learning

- The infrastructure is available to faculty whether they are teaching at a distance or enhancing an on-campus course.
- UMassOnline's e-Learning infrastructure supports more than 1,000 on campus Web-enhanced courses
- UMassOnline's e-learning infrastructure benefits "traditional" students, too.
- Commitment to the concept that online education is about serving learners first and using technology second.

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And the UMass Vision for Teaching and Learning Has Been Expanded

- Sub-committee on Academic Technology - (faculty, administrators, technology-support staff, and President's Office staff) created a system-wide plan for comprehensive integration of technology in teaching & learning.

- Plan developed in 5 months—vetted through faculty and administrator committees; approved by Chancellors and President in Spring 2005.

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Academic Technology for Teaching and Learning: Vision and Plan

Vision for 2015

"The University of Massachusetts is recognized as a leading university in using academic technology to improve teaching, learning, and scholarly interchange, and in evolving its role as a university in an information society."
(Vision and Plan, p. 4)

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The Vision and Plan Calls for Significant Outcomes by 2015

- Faculty feel that the University provides an environment for success in teaching and learning, and thus fulfill their responsibilities as individual contributors and as department members by **continually improving their courses** and their curricula.

- UMass has an **academic technology environment** that attracts and retains quality students.

- UMass **alumni are members of varied virtual communities** that support interaction and connectedness between alumni and the University.

- Early **portals and learning management systems** have evolved to powerful virtual learning environments that integrate seamlessly with faculty and student computing and communication usage, and are used effectively by students and faculty.

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For UMassOnline and for the System, the Challenges Are Many

- **How do we support the growth in teaching with technology?**
  - ✓ Adequate resources to meet instructional design needs
  - ✓ Seamless support and access to all systems
  - ✓ Increased encouragement of blended and hybrid learning
- **How do we better serve all students' needs with technology?**
  - ✓ Seamless and accessible support services to students at a distance and on campus
- **How do we meet market needs?**
  - ✓ Need senior leadership on-campus to encourage program development
- **How do we maintain our market position?**
  - Through the academic reward process (tenure and promotion), **recognize** and **endorse** teaching with technology and, specifically, teaching online and/or with innovative use of technology
  - Integrate with faculty research interests to extent possible

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Thank You

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