Promises to Keep: Information Technology in the New Higher Education Marketplace

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Thoughts from a Recovering Technophile

Skeptical Thoughts from a Recovering Technophile
Sigmoid Curve/Inflection Point

Is Higher Ed at Inflection Point?
Sustaining vs. Disruptive Technologies

Hard Disk Capacity (MB)

Year


Demand in mainframe market

Demand in minicomputer market

A. 14-inch drive technology
B. 8-inch drive technology

Source: Innovator’s Dilemma, Clayton Christensen
The Answer is Technology – What was the Question?

<table>
<thead>
<tr>
<th>Student convenience</th>
<th>B +</th>
<th>Overall student experience</th>
<th>B -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhance research</td>
<td>A</td>
<td>People intensity</td>
<td>D</td>
</tr>
<tr>
<td>Cost containment</td>
<td>B -</td>
<td>Leveraging faculty time</td>
<td>D</td>
</tr>
<tr>
<td>Cost reduction</td>
<td>D</td>
<td>Demonstrated ROI</td>
<td>D</td>
</tr>
<tr>
<td>Teaching &amp; learning</td>
<td>I</td>
<td>The paperless office</td>
<td>D</td>
</tr>
<tr>
<td>Decision making</td>
<td>D</td>
<td>Information access</td>
<td>A -</td>
</tr>
</tbody>
</table>
New Lexicon

- Market (strategic plan market university)
- Market share
- Market niche
- Market segmentation
- Return on investment
- Comparative advantage
- Benchmarks

- Key indicators
- Mass customization
- Core values
- Cost/benefit
- Partnering
- Students as customers
- Data Warehouse
Conceptual Framework

• Productivity Paradox
• Ecological Technology
• Institutional Goals as Driver
• Putting CIO at the Table
• University Legacy Systems

MAKE TECHNOLOGY STRATEGIC
Drivers

- Knowledge Economy needs
- Increased student demand and diversity
- Private vs. public good
- Belief that costs are out of control
- Need to compete for best and brightest
- Basic and problem-oriented research
- New Competitors
- Re-careering
Knowledge Economy
Knowledge Economy Characteristics

- Technology is a given
- Globalism is here to stay
- Knowledge builds wealth
- People are the most important raw material
- There’s no such thing as a smooth ride
- Competition is relentless
- Alliances are the way to get things done
- Place still matters—but for different reasons
High-Technology Location Factors

Existing High-Tech Presence

- Traditional Business Costs
- Tax Structure
- Compensation Costs
- Space Costs
- Capital Costs
- Business Climate
- Specific to High-Tech
- Proximity to Excellent Research Institutions
- Access to Venture Capital
- Educated Workforce
- Network of Suppliers
- Technology Spillovers
- Climate and Quality of Life

Source: Milken Institute, *America’s High-Tech Economy*, 1999
To Compete in the Knowledge Economy

- Investment in human capital
- Investment and promotion of leading edge research
- Investment in a quality business and living environment

Source: Morrison Institute Report
Demographics are Destiny
High School Graduates

Source: Chronicle
US College Age Population, 18-24
Projected Growth, 2001-2015

Projected Growth: 4,257,111

Source: Carnevale & Fry
Chance for College

For Dependent 18 to 24-year-olds by Family Income Quartiles: 1970 to 1996

Source: Postsecondary Education Opportunity
Competition for Best and Brightest

- Georgia Hope
- Missouri “Bright Flight”
- Cal Grant Program
- Movement from need-based to merit
- Movement from grants to loans
Public Attitudes about College Cost and Value

Cost: 4-year public, in-state
- Public Estimates: $9,694
- Actual Tuition: $3,111

Value of a 4-year education
- 59% cite as “usually worth the price”

Source: ACE
<table>
<thead>
<tr>
<th>Purchase</th>
<th>Proportion Citing Usually Worth the Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four-year college education</td>
<td>59%</td>
</tr>
<tr>
<td>Home computer</td>
<td>59%</td>
</tr>
<tr>
<td>Two-year college education</td>
<td>50%</td>
</tr>
<tr>
<td>Food at a grocery store</td>
<td>45%</td>
</tr>
<tr>
<td>Medical care at a hospital</td>
<td>43%</td>
</tr>
<tr>
<td>Nursing-home care</td>
<td>28%</td>
</tr>
<tr>
<td>American automobile</td>
<td>27%</td>
</tr>
</tbody>
</table>

Source: ACE
Renewed Research
Investment –

Why Now?
1899 Fastest Growing Sectors

- Machine tools
- Firearms
- Clocks
- Sewing machines
- Hardware
- Agricultural implements
- Bicycles
- Steel
- Electrification
- Telegraphy/Telephony

Source: Crow & Sampat, Columbia University
1999 Fastest Growing Sectors

- Microelectronics
- Biotechnology
- New materials science industries
- Telecommunications
- Computer numerically controlled machine tools and robots
- Civilian aircraft manufacturing
- Computers (hardware & software)

Source: Crow & Sampat, Columbia University
2029 Fastest Growing Sectors?

• Nanotechnology
• Biomimicry
  – Biomaterials/Bioelectronics/Biocomputing
• Artificial Intelligence
• Knowledge Management
• Planetary Management
• Green Power Technologies

Source: Crow & Sampat, Columbia University
Why University Research?

Papers Cited in Industry Patents

- FFRDC
- Non-Profit
- Academic
- Government
- Industry
- Unknown

Source: Crow & Sampat, Columbia University
Research Investments

- NSF – doubling budget
- NIH – quadrupling budget

- Georgia – $100M and 85 res professors in IT
- KY & Tenn: goal to put universities in top 25
- Michigan – $1B in Biomed/Biotech Research
- California – $300M in Biomed Research
- North Carolina – $3B in facilities
- Univ. Connecticut – $1B in facilities

- Arizona – Prop 301: $40-50M per annum
New Competitors
New Competitors

• Univ. of Phoenix
• Open University
• WGU
• Sylvan/Calibre
• UNEXT
• Columbia Fathom.com
• NYU/for-profit

• CA Virtual U.
• Jones Int’l U.
• Motorola University
• MI Virtual Automotive U.
• Penn State World U.
• Mickey Mouse
• All of Us
Outta State U

Mukogawa Ft. Wright Institute (Japan)
Trajal Hospitality & Tourism College (Japan)
Univ. of Alaska S.E. (AK)
Eastern Oregon Univ. (OR)
Oregon Inst. of Tech. (OR)
Lewis & Clark College (OR)
Portland State Univ. (OR)
Univ. of Portland (OR)
Western Seminary (OR)
George Fox Univ. (OR)
Oregon State Univ. (OR)
Linfield College (OR)
Western Oregon Univ. (OR)
Chapman Univ. (CA)
Pacific Oaks College (CA)
Center of Innovation in Education (CA)
Pepperdine Univ. (CA)
Golden Gate Baptist Theological Sem. (CA)
Golden Gate Univ. (CA)
Apollo College (AZ)
Univ. of Phoenix (AZ)

Salish Kootenai College (MT)
Winona State University (MN)
Walden University (MN)
Univ. of Idaho (ID)
Lewis-Clark State College (ID)
Southern Illinois Univ. (IL)
ITT Technical Inst. (IN)
Vincennes Univ. (IN)
Lesley College (MA)
Old Dominion Univ. (VA)
Webster University (MO)
Columbia College (MO)
Park College (MO)

Embry Riddle Aero. Univ. (FL)
Nova Southeastern Univ. (FL)
Tulane University (LA)

Kigezi Int’l School of Medicine (Uganda)

Source: University Business
Perspective from Wall Street

What determines the success of a nation?

In today’s economy: education.
Bullish on Higher Ed

Growing returns

- **1980** – bachelor’s grad earns 60% more than H.S. grad
- **1998** - bachelor’s grad earns 86% more than H.S. grad
Bullish on Higher Ed

Exceptional revenue and earnings potential

An enrolled student represents predictable, recurring revenue stream for a number of years
The Opportunity

$680 billion per year on education: 9% of GDP and second largest industry

Compared to $1 trillion (13.2% GDP) on health care and $270 billion on defense (3.6% GDP)
The Opportunity

- $211 billion on post-secondary education
- $5 billion on post-secondary, for-profit market
Bullish on Higher Ed

Education as a counter-cyclical industry:

Job loss and career threats lead to increase in consumption of education
Bullish on Higher Ed

Education will never go out of style

*No threat of substitution or change in consumer tastes*
Bullish on Higher Ed

Value of face-to-face learning is substantial

Growth in distance learning will come from latent market of learners
Adult Education

- 45% of college students
- Unique needs
  - Highly interactive
  - Immediate practical value
  - Convenient access
  - Fewer meeting times
  - Shorter program completion times
  - Rolling admissions
Bullish on Higher Ed

For-profit schools are likely to become more competitive with publicly financed institutions as government looks for spending cuts.
For-Profit vs. Non-Profit

- For-profits more agile
- Superior cost structure
- High fixed costs imply high operating leverage
High Barriers to Entry

- Reputation
- Economies of Scale
- Accreditation
Our Core Business

• Discovery (research)
• Transmission (teaching/learning)

How does the most stable enterprise on earth respond?

Create a safe haven for creative destruction.
“The future ain’t what it used to be” – Yogi Berra

- Proliferation/consolidation of e-learning
- Mission deflation
- Greater differentiation
- Universities at risk
- Top 25 courses
- Campus experience as a differentiator
- E-knowledge transfer
“The future ain’t what it used to be” – Yogi Berra

- Just-in-time
- Mass customization
- Re-tooling
- Import/export?
- OU-type teams?
- Invisible technology that is mission-critical, both tactical and strategic
Strategic Technology

- Has clear objectives with agreed upon costs and benefits
- Derives from university strategic priorities
- Provides greater access to students (time and place)
- Enhances student learning
- Supports student recruitment
- Markets the university
- Builds community
Strategic Technology

- Reduces staff demand
- Scales/leverages the faculty
- Simplifies rather than complicates the faculty’s job
- Allows faster and better decision making
- Allows mass customization
- Serves as front door to the university
- Enhances research capacity
- Has transformational potential