The Changing Role of University in the 21st Century

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Outlines

1. Setting the Stage –
   - The Evolution of Global Environment
   - The Evolution of University Mission

2. Perspectives of the Entrepreneurial University

3. Suggested Pedagogy in entrepreneurial education

4. Summary
1. Setting the Stage
   - The ICT Revolution and Beyond…
   - The Evolution of University Mission
2. Perspectives of the Entrepreneurial University
3. Suggested Pedagogy in Entrepreneurial Education
4. Summary
Historical Perspective of Innovation

Source: J Bradford DeLong, University of California, Berkeley
The ICT Revolution

- It took 50 years for telephone to reach its first 5 million users, but only 5 years for Internet to reach its first 50 million users & less than 20 years to reach 1,000 million

- The State of Broadband report claims global web users set to reach 2.9 billion by the end of 2014.

- Mobile broadband, with the number of people accessing the internet on phones and tablets set to reach 7.6 billion by 2020.

- Information is being transmitted with “almost” instant speed, unlimited bandwidth at insignificant cost

- Instant messaging, blogging, P-P file sharing, and social media like Facebook, Twitter, Skype and WeChat are defining new etiquette for human interaction
<table>
<thead>
<tr>
<th>And It Continues to Accelerate…</th>
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<td>The speed of a PC likely will become $10^6$ faster than what was then the current state in 2005 in 20 years</td>
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<td>The intelligence of a PC moves from that of a lizard to that of a human</td>
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<td>Globalization with citizens interacting with each other seamlessly between the physical space and the cyberspace, will be</td>
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<td>It further shortens the technology-enabled product cycle</td>
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<td>Product brought about by new technology will be commoditized sooner rather than later</td>
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<td>Innovation, in contrast to mere invention, creates the channel to bring newer products to the market place</td>
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It has resulted in a world than is both local & global, collaboration & competitive, independent & inter-dependent
Challenge of an Innovation Age: Increasing Gap between the Haves and the Have-Nots
Challenge of an Innovation Age:
Pressure caused by the gap between what can be done vs. what are being done

“89% of the Fortune 500 companies from 1955 are not on the list in 2014.”

Technology accelerates -> Threat to companies

“The average half life of a business competency has dropped from 30 years in 1984 to 5 years in 2014.”

Indexed growth in core digital technologies

Indexed growth in labor productivity

Source: Leading technology research vendor; Bureau of Labor Statistics; Deloitte analysis
The Big Shift in the Business World

- The ROA performance gap has increased over time
- The “topple rate,” at which big companies lose their leadership positions, has more than doubled
- U.S. competitive intensity has doubled during the last 40 years.
- Productivity improvements appear to be captured in part by creative talent.
- Customers use power as reflected in increasing customer disloyalty.

All long-term trends point to continuing performance pressure.
Trending toward an Innovation Economic System

- With the exponential growth in information, computing and telecommunication, economic system for industrialized countries have moved rapidly for a manufacturing based of the last industry revolution, to a service-based, then a knowledge-based system at the beginning of the 21st century...

- But Internet, mobile commerce and social media all have caused an irreversible movement toward empowering consumers from a provider-centric business model,

- The burst of “dot-com” and the seismic collapse of large financial institutions during the sub-prime crisis in 2008 had also created an unexpected impetus for a new innovation-based economy in many major cities in the U.S.
Innovation has superseded pricing as the primary weapon of commercial competition.

“Artful” process of synthesis, not simply analytical skills, are needed for us to arriving at the right solution.

Collaboration and strategic partnering are what make us successful competitors.
The Emergence of an Urban Innovation Ecosystem

- A synergistic relationship between people, firms and physical geography of the pace that facilitates idea generation and accelerates commercialization.

- “It’s all about programming: choreographing “spontaneous” opportunities for smart people to interact with each other. This is what separates us from traditional science parks.”
  – Dennis Lower, Cortex Networks, City of St. Louis
The Emergence of Innovation Districts

- For the past 50 years, innovation has been dominated by places like Silicon Valley—suburban corridors of spatially isolated corporate campuses, accessible only by car, with little emphasis on integrating work, housing and recreation.

- The trend is to nurture living, breathing communities rather than sterile remote, compounds of research silos. In U.S., innovation districts are emerging near anchor institutions mostly in underutilized areas of cities.

- They provide a strong foundation for the creation and expansion of firms and jobs by helping companies, entrepreneurs, universities, researchers and investors—across sectors and disciplines—co-invent and co-produce new discoveries for the market.

- Katz & Wagner, Brooking Institute, 2013
A Vibrant Downtown is anchoring a new innovation district in Brooklyn, NYC
The global mega-trend

The report on “Big Ideas 2014” by Bruce Katz, VP, Brookings Institute, pointed to the emergence of “Innovation Districts” in major U.S. cities.

“Goodbye Silicon Valley, Hello Silicon Cities!”
NYC: From a Global Financial Center to a Silicon Alley, to now a Silicon City…..

A 2014 report by Center for an Urban Future further pointed it out that “…NYC recently eclipsed Boston as the nation's #2 hub for Internet and mobile technologies, with a 29% increase in area IT jobs…It has experienced a dynamic growth in VC capital investment since the world-wide economic storm in 2008

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U.S. Venture Capital Investment Dollars, in million, & Deals by State, 2008-13
NYC’s adaptation to the Innovation Age

The Innovation District

- No single company can master all the knowledge it needs; rather, innovation relies on a network of connected firms, collaborating to compete.

- Clusters leading-edge anchor institutions & innovative firms, connecting them with supporting and spin-off companies, business incubators, mixed-use housing, office, retail & 21st century urban amenities.

Google located in suburban Mountain View is forced to bus in workers living in downtown San Francisco causing it to now consider a move into that city. Interestingly, it has also built a large campus in NYC’s West End.
Challenges for fulfilling the Promise of a Silicon City

I. Talent Shortage
II. Bureaucratic Inefficiency
III. Consistent Connectivity
IV. Inferior Infrastructure
V. An (Un)Affordable Atmosphere

New York City as a Start-Up City
The Convergence of Technology, New Media & Education in shaping A World-Class Innovation District

Key Factors to sustain a 21st Century Knowledge-based Economy

- Efficient Government & Public Policy
- Superb Infrastructure
- Affordable & Environmental Friendly Life-Style
- Broadband, Wireless Connectivity Everywhere
- Innovative Educational System
The City has an unique opportunity to propel itself into a 21st-century, innovation-driven modern economy. Higher education has a critical role to play in anchoring the development of a clustered “Innovation District,” but it must not simply follow the conventional wisdom of a comprehensive research university model.

Fostering an innovative culture in order to produce future technologists, entrepreneurs and business executives to create a holistic learn-work-live lifestyle.
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3. Pedagogic Practices in entrepreneurial education

4. Summary
A Model of an Activist University

I. UG Education & Research

II. Outreach to Industry: Applied Research, Professional Education & Consultancy

III. Tech transfer, Regional Economic Development, Life-long Learning & Training

Project Scope

Faculty Participation

High
Median
Low
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Moving toward an Entrepreneurial University

**Foundation Index**
- Technology Performance
  - Computing
  - Digital Storage
  - Bandwidth
- Infrastructure Penetration
  - Internet Users
  - Wireless Subscriptions
- Public Policy
  - Economic Freedom

**Flow Index**
- Virtual Flows
  - Inter-firm Knowledge Flows
  - Wireless Activity
  - Internet Activity
- Physical Flows
  - Migration of People to Creative Cities
  - Travel Volume
  - Movement of Capital
- Flow Amplifiers
  - Worker Passion
  - Social Media Activity

**Impact Index**
- Markets
  - Competitive Intensity
  - Labor Productivity
  - Stock Price Volatility
- Firms
  - Asset Profitability
  - ROA Performance Gap
  - Firm Topple Rate
  - Shareholder Value Gap
- People
  - Consumer Power
  - Brand Disloyalty
  - Returns to Talent
  - Executive Turnover

*Source: Deloitte*
Three Levels of Pulls to Achieve Corporate & Individual Successes

I. Access or the ability to find, learn about, and connect with resources (people, products, and knowledge) on an as needed basis to address unanticipated needs

II. Attract relevant and valuable people and resources you need but didn’t know you were looking for. Think here of serendipity; it occurs in physical space such as geographic spikes of talent and conferences, or in virtual space such as social media and/or connection platforms

III. Team building techniques required to reach new levels of performance by working with others. Creation are often driven by smaller, more entrepreneurial firms seeking new ways to learn together
Designing an Entrepreneurial Organization

- Creating and reinforcing a strong sense of ownership
- Reinforcing feelings of freedom and autonomy
- Maximizing opportunities for holistic management
- Tolerating ambiguity and intuitive decision making
- Developing responsibility to see things through
- Seeking to build commitment over time
- Encouraging building of relevant personal stakeholder networks
- Tying rewards to stakeholder credibility
- Allowing mistakes with support for learning from them
- Facilitating enterprising learning methods in general
- Avoiding strict demarcation and hierarchical control systems
- Allowing management overlap as a basis for learning and trust
- Encouraging strategic thinking & personal contact as the basis for building trust
### How could universities meet the challenge of an innovation-based economy

- Aside from research and educational excellence, accept the role of job creation and regional economic development as central to its mission

- Become more “entrepreneurial” itself with strategies, infrastructural changes and practices to modify the traditional research-centric culture

- Help students and faculty members to develop their entrepreneurial mindsets and entrepreneurial actions

- Adopt a paradigm shift on curricular matters
The Paradigm Shift in Curricular Content

Discovery → Innovation
Understanding complex phenomena → Finding creative solutions
Discipline Specific → Interdisciplinary
Individual → Team
Single culture & local → Multi-culture & Global

9/19/2015
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* Based on a report entitled “Creating the Entrepreneurial University Worldwide: Do we need a wholly different model of Entrepreneurship?” by A. Gibb of the University of Durham University, submitted to the UK National Council for Graduate Entrepreneurship (NCGE)
A plausible model for an Entrepreneurial Education

- Emotional Intelligence
- Capacity for Experiential Ingestion (tacit knowledge)
- Holistic Management Arm (Know How)
- Entrepreneurial management in different contexts'
- Entrepreneurial Organisation Design and Development
- Entrepreneurship Values
- Strategically Intuitive Gut
- Trust building Relationship Arm (Know Who)
- Conative Affective And Cognitive Learning
- Vision and Feel for ‘Way Of Life’
- Rich Growth Of Entrepreneurial Attributes

You or Me?

Globalised World of Uncertainty / Complexity

Project Management
What are the attributes & Values of an Entrepreneur?

**Attributes**
- Achievement orientation and ambition
- Self confidence and self belief
- Perseverance
- High internal locus of control (autonomy)
- Action orientation
- Preference for learning by doing
- Hardworking
- Determination
- Creativity

**Values**
- Strong sense of independence
- Distrust of bureaucracy and its values
- Self made/self belief
- Strong sense of ownership
- Belief that rewards come with own effort & being able to make things happen
- Hard work brings its rewards
- Strong action orientation
- Belief in informal arrangements & the value of know-who and trust
- Strong belief in freedom to take action, and in the individual and community, but not the state
Can Entrepreneurial Behaviors & Skills Be Taught & Learned?

**Entrepreneurial Behaviors**
- Opportunity seeking and grasping
- Taking initiatives to make things happen
- Solving problems creatively
- Managing autonomously
- Taking responsibility for, and ownership of, things
- Seeing things through
- Networking effectively to manage interdependence
- Putting things together creatively
- Using judgment to take calculated risks

**Entrepreneurial Skill Set**
- Creative problem solving
- Persuading
- Negotiating
- Selling
- Proposing
- Holistically managing business/projects/situations
- Strategic thinking
- Intuitive decision making under uncertainty
- Networking
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The changing paradigm for an Entrepreneurial University

- **CERTAIN**
  - Pure Public Budget Driven
  - Pure Knowledge and Research-based Paradigm
  - INDIVIDUAL CURIOSITY-BASED EXCELLENCE

- **COMPLEX**
  - Interdisciplinary, International, Networked, Extensively Partnered
  - Massification
  - Employability
  - Globalisation
  - Diversified Knowledge Capture
  - Competitiveness Agendas

- **SOCIETALLY SHARED KNOWLEDGE-BASED EXCELLENCE**
  - Public Value Relevance, Integrated and Engaged
  - Highly Leveraged Entrepreneurial Application and Innovation Driven

- **UNCERTAIN**
  - National, Regional, Stand Alone
  - SIMPLE