Old Rules and New Realities: Old Media, New Media and Convergence

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The Digital Economy
Why We Should Care

- 3 million Internet users in 1994; 200 million today.
- Internet traffic is doubling every 100 days.
- By 2003-2005 Electronic Commerce revenue projected to total >$1 trillion.
- IT and telecom sectors account for 1/3 of real growth of U.S. GDP, reduce inflation by 1/3.
- Communications/information sector 14-16% U.S. GDP.
- Is fundamentally changing relationships between buyers and sellers, producers and consumers.

Source: OECD, Forrester, Emerging Digital Economy.
Growth in U.S. Online Subscriptions

Millions of Households


Households with PCs

Total Household Online Subscriptions

Source: Internet Research Group

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E-Commerce as Percent of U.S. GDP

Source: Morgan Stanley Dean Witter
Average Online Usage Per User

Average Hours Online per Month

Source: IDC, Hambrecht & Quist

- 1995: 12
- 1996: 16
- 1997: 25
- 1998: 29
- 1999e: 36
- 2000e: 45
- 2001e: 57
- 2002e: 71

Increase in Internet Backbone Speed

Source: United States ISP Association
Bandwidth Discontinuity

- Bit Rate vs. Year
- Key Points:
  - 1.5 Mb/s, 45 Mb/s, 565 Mb/s, 405 Mb/s, 10 Gb/s, 40 Gb/s, 160 Gb/s
  - Access/Loop
  - Submarine, Long Haul, Regional
  - Cable Modems, DSL

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Deployment of Consumer Broadband

Broadband Subscribers (Cable & DSL)

Share of Broadband Subscribers by Technology (Biz & Res)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Cable</th>
<th>xDSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998Q4</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>1999Q1</td>
<td>87%</td>
<td>13%</td>
</tr>
<tr>
<td>1999Q2</td>
<td>81%</td>
<td>19%</td>
</tr>
<tr>
<td>1999Q3</td>
<td>77%</td>
<td>23%</td>
</tr>
<tr>
<td>1999Q4*</td>
<td>71%</td>
<td>29%</td>
</tr>
</tbody>
</table>

SOURCES: Telechoice, Cable Datacom News, company reports and analyst estimates.
Network Investments

Annual Investment

SOURCES: ALTS, CTIA, MultiMedia Telecommunications Market Review, FCC.
^ ILEC figure is projected
Old Rules and New Realities

- Old Rules based upon distinct industry and regulatory structures
- Old Rules based upon non-competitive model
  - Based upon/assumed scarcity
  - Assumed natural monopolies or regulated oligopolies
  - Government protected incumbents—ensuring scarcity
  - Barriers to entry
  - Government decided winners and losers
- Old rules were written when the conduit told you something about the content—defined boundaries
- But with digitization, content and conduit are not necessarily linked
Revolution in Communications Technology

- Technology: analog → digital
- Network: circuit-switched → packet-switched
- Packetization/digitization → convergence of video, voice and data
- The Internet IS convergence
- From Silos to Convergence: The Conundrum
New Reality: Digitization Changes Everything

- Digitization creates conditions for competition:
  - Reduced entry costs
  - Innovative new services and products at lower costs
  - Business have the flexibility to combine different products and services (e.g., CNN on-line with text, audio, video)
  - Traditional boundaries between sectors are being destroyed
    - e.g., Real Networks, streaming audio and video -- is it Internet, radio, TV? Who cares?

- Digitization makes old structures obsolete
  - All regulated communications regimes are going digital
Dimensions of Convergence

- Convergence of technologies
- Convergence of services
- Convergence of user perceptions
- Convergence of markets
- Convergence of and within firms
  - AOL/Time Warner
  - Is AT&T a telecoms, cable, media, wire, wireless, or Internet firm?
New Reality: The Internet Changes Everything

- **Economics**
  - The Digital Economy
  - Economic relationships
  - Lines of business (‘‘…the car as the Internet on wheels.’’--J. Nasser)

- **Social**
  - Personal/home -- embedded computing and the networked home
  - Organizational

- **Media use/competition**
  - How people spend their time
  - Cost of production--everyone a producer? (e.g., MP3, iMac DV?)

- **Distance and boundaries -- the global radio and TV market**
## Demand for Digital Content

<table>
<thead>
<tr>
<th>Category</th>
<th>1997 Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadcasting</td>
<td>50.4 billion</td>
</tr>
<tr>
<td>Cable television</td>
<td>33.8 billion</td>
</tr>
<tr>
<td>Computer software (non-OS)</td>
<td>16.0 billion</td>
</tr>
<tr>
<td>Consumer Online market</td>
<td>5.9 billion</td>
</tr>
<tr>
<td>Motion pictures</td>
<td>6.4 billion</td>
</tr>
<tr>
<td>Video rentals</td>
<td>7.5 billion</td>
</tr>
<tr>
<td>Video sales</td>
<td>7.6 billion</td>
</tr>
<tr>
<td>Video games</td>
<td>2.6 billion</td>
</tr>
<tr>
<td>Newspapers</td>
<td>56.7 billion</td>
</tr>
<tr>
<td>Magazines</td>
<td>27.2 billion</td>
</tr>
<tr>
<td>Books</td>
<td>26.1 billion</td>
</tr>
<tr>
<td>Recorded music</td>
<td>12.2 billion</td>
</tr>
</tbody>
</table>

**TOTAL**                              **OVER $252.4 BILLION**

Old Rules: Protecting the Past

- Created and maintained scarcity protecting incumbents to “protect” the public interest

- Shield from competition used by incumbents to slow/stop new entrants and competition
  - Broadcasters v. cable TV
  - Cable TV v. DBS
  - Domestic media v. foreign media
  - Cable v. broadcast DTV (compatibility/copy protection issues)
  - Cable v. Web (no streaming video > 10 minutes)
  - IPR as anti-competitive shield v. Web competition?

- Stifled competition driven innovation

- Futile and foolish
  - Will ultimately fail
  - In mean time, will harm innovation, investment, growth
Lessons From the Internet for the Digital Economy

- Don’t impose old rules designed for monopolies on new services and entrants—"Unregulate the Internet"
- When new services compete with the old dominant providers, begin deregulating the dominant incumbents.
- Prevent bottlenecks and anticompetitive behavior by dominant incumbents.
The IPTV Example: Old Rules or New Reality?

- IPTV
  - Interactive Personal Television?
  - Intelligent Personal Television?
  - Internet Protocol Television?

- Looking forward or backwards?

- IPR as enabler or barrier?
  - Who controls the content, gateway, the customer?
  - Radio as model?

- Role of broadcast television?
  - Video, data, web?
Policy Questions (Policy ≠ Regulation)

- Privacy & Information Use
- "Offensive" material (porn, gambling, hate, terrorism)
- Electronic commerce (taxation, tariffs, Uniform Commercial Code, Intellectual Property, Trust)
- Intellectual Property
  - Application of old rules to new technology (is RAM a copy?)
  - US Digital Millennium Copyright Act clarifies that ISPs are not liable for violations of intellectual property that occurs over their facilities
  - Avoid using networks as cybercops
The Future?

- More change in technology, user choice, demand
- Increasingly global markets
- Growing importance of the Digital Economy
- Bandwidth demand will keep growing
  - continued increase in Internet penetration
  - push media and streaming video
  - electronic commerce
- Continued experimentation with different business models and growth strategies
- Converged networks and services will emerge
- Boundaries will blur and incumbents will try to use government to slow change
For More Information

- [www.fcc.gov](http://www.fcc.gov)
- [www.ecommerce.gov](http://www.ecommerce.gov)