Challenges Posed to Operations Management by the “New Economy”
Operations Management in the “New Economy”

• In what ways are “New Economy” (IT-based) operations different from “traditional” Old Economy operations?

• What are the implications of such differences for operations managers? (And what we should be teaching our MBA students today about “New Economy operations mgmt.”?)
With the goal of being provocative, rather than precise, Let us confine ourselves to sketching out a rough framework for thinking about some basic issues
– which you can test vs. your own perceptions
– within which we can fill in the details later, adding qualifications and footnotes
What do we mean by the “New Economy?”

The key inputs and outputs are primarily *intellectual*, rather than *physical*

- As a result, the value of a company tends to be much greater than the value of its physical assets
- Usually involves information technology/“compunications”
- But NOT just “dot-coms” and internet services!
  - Includes software development, telecommunications, media/entertainment, and even “hardware” industries like ICs and pharmaceuticals
Why should we care about the “New economy?”

- Rapidly growing share of GDP
- A driver of productivity & innovation
- A magnet for capital and our MBA students

(“That’s where the action is.”)
Moreover, Alan Greenspan Says It’s Important!

“Important technological changes have been emerging in recent years that are altering, in ways with few precedents, the manner in which we organize production, trade across countries, and deliver value to consumers.”

“Is There a New Economy?”
Sept. 4, 1998, Berkeley, CA
Some Assumptions Behind “Traditional” (Old Economy) P/OM:

• The organizational unit of analysis is a *single unit*: a process, facility, or company *(which you can “control”)*
• Products & processes are relatively *stable*, so development costs can be amortized over time
• Major concern of an Operations Manager is to control/reduce the *variable* costs of production, which are subject to both *economies* and *diseconomies* of scale.
• Major P/OM task is to *control the flows* of physical items through a sequence of process steps
• A key to success is *differentiating* oneself from competitors
We tend to accept these assumptions as being self-evident

However, it is said that

“The last thing that a fish discovers...is water”
So, let us conduct a “Thought Experiment”

How would Operations Management be changed if some of these assumptions were reversed?

• Suppose the variable cost of operations is relatively insignificant compared with the development cost?
• That diseconomies of scale do not exist?
• That a single company can’t succeed just by itself; it needs help from others—including competitors!
How do “New Economy” Operations differ from “Old Economy” Operations?

The special characteristics of information networks:

– info is costly to produce, but cheap to reproduce
– the cost of delivering it is essentially unaffected by distance
– unlike physical resources, which are consumed by or deteriorate with usage, information and knowledge can grow as they are used
– the value of an info. network tends to increase indefinitely with size (the “Network Effect”)
“New” vs. “Old Economy” Operations (cont.)

The unusual cost structure of New Economy opers. implies that the key to low cost is high cumulative volume rather than variable production costs,

so:

– Being early to market with a “satisfying” product is key
– Project Mgmt. (creating the first unit) is more important than on-going process management,
– Companies are impelled to expand geographically very quickly, and
– Customer retention (through excellent, ever-improving products and fast, responsive service) is essential
The Operating Implications of the “Network Effect”

Seek out/establish large (both volume & scope) distribution networks that:

• offer lots of (compatible/complementary) products (so customers see “packages” of products/services)
• involve other companies: suppliers, customers, even complementors/competitors (”co-opetitors”)
  => adopt/establish standard platforms and interfaces
  => managing external operations becomes as critical as managing internal operations
The *Operating* Implications of the “Push for Volume”

- Get to market *as quickly as possible* with an attractive product that is designed to be *improvable* over time (e.g. *speed & flexibility* more critical than *efficiency*)
- Build in sufficient product/process options (e.g. modules) to make it possible to *customize products to individual customer needs*
- In addition to developing *proprietary/differentiated* products, one must ensure their *compatibility* with other companies’ products
..or of Combining *Internal* with *External* Opers.

“*From Enterprise to Extraprise*”

- IT facilitates the *outsourcing* of many activities that used to be performed internally
  - rise of “co-production” and “Contract Manufact’g”
  - Creating a strong network requires common standards/interfaces, even collaborative development
- Operations management now includes “managing” external suppliers, collaborators, and even competitors
  => Requires skills in *indirect mgmt.* & *diplomacy* vs. traditional direct “Command & Control”
# Contrasting Old and New Economy Operations Management

<table>
<thead>
<tr>
<th>Old Economy</th>
<th>New Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent companies</td>
<td>Network of collaborators</td>
</tr>
<tr>
<td>Individual products</td>
<td>Packages of compatible products &amp; services</td>
</tr>
<tr>
<td>Manage stable flows through internal processes</td>
<td>Manage dynamics of highly flexible and evolving products within networks</td>
</tr>
<tr>
<td>Process improvement</td>
<td>Project improvement</td>
</tr>
<tr>
<td>“Direct” control</td>
<td>“Indirect” control (trust, negots., incentives, etc.)</td>
</tr>
<tr>
<td>Diff. Ways to Compete</td>
<td>Get to high volume asap</td>
</tr>
</tbody>
</table>

© Harvard Business School
Summarizing: Some Characteristics of The “New Economy”:

- Intellectual assets are as important as physical assets
- “Up-front” costs more important than operating costs
- R&D intensive and technologically dynamic
  => fast obsolescence, so continual product/service upgrades and introductions of new ones
- “Network effects” as important as scale economies
- Knowledge intensive work => ”knowledge workers”
- Information flows more important than physical flows
The New Economy is Everywhere!
(Not restricted to Dot-Coms, or even Compunications)

Many industries today have similar characteristics:
• High up-front costs => get to high volume quickly/early to market
• Intellectual Asset-intensive
• Importance of attracting collaborators and complementary products
  – e.g. pharmaceuticals/biotech, media/entertainment

Even “old-fashioned” industries (e.g. automobiles, retail, textiles), are now mixtures of info. and product flows, so also are being shaped by “New Economy” forces
Other “Special” Challenges of New Economy Companies

- Often grow very quickly
- Staffed with “knowledge workers”
  - in short supply/hard to recruit
  - highly paid, but whose output is difficult to measure
  - highly mobile (“go down the elevator each night”)
  - respond to different incentives (equity, “fun”, etc.)

...and who respond negatively to “Command & Control” management styles!
Challenges facing an Enterprise that is Intellectual Asset-Intensive

- Measuring performance
  - how do you measure return on assets when you can’t measure the value of the assets?
  - what is “capacity utilization” when the key asset is a piece of intellectual property?
- Renewal
  - economic half-life of intellectual assets much shorter
  - premium on renewal (learning) processes vs. “optimizing” a stable process
The Challenge Today for Operations Managers

• Managing New Economy operations requires very different perspectives, skills, and tools than does “traditional” O.M.
  – Many of which have yet to be developed and tested

• Companies increasingly are combinations of New and Old Economy operations
  – “clicks” and “bricks” (e.g. B2B networks)

=> operations mgrs. have to be able to manage both!
Some Issues for P/OM Research

• How do you “control” New Economy/multi-company operations?
  – Is the “operating unit” the most appropriate level of analysis?
• How do you measure/manage “capacity” in an IT network?
• How do you measure and manage operating performance (e.g. productivity, quality, reliability)?
  – Is the Toyota Production System still a good model to emulate?
• How do you manage, improve, and place a value on intellectual assets?
• How do you manage a work force that is largely composed of “free agents?”