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Work in the Information Economy

What is new, what is not;
What is cool, what is hot.

We'll look at the good, the bad, and the "other."

Are work and workplaces being transformed?

Advantages of IT-Enabled Work

- Collaboration is improved
 - Differences in degree, not kind
 - Faster, more transparent, easier
 - Limited by increased need for communications and data standards
- The old organizational hierarchies were already dying; now we have ways to replace them with “flatter” structures
 - Difficult era of adaptation of both social practices and IT infrastructure
 - It's still unclear how far this will go—it does threaten a lot of people

Advantages of IT-Enabled Work, II

- The biggest: faster, cheaper, better
 - But does this enhance work, really?
 - Possibility of new opportunities for creative or “smarter” and more satisfying work
- New paths to the top
 - Old tracks for MBAs and engineers now have IT experts shoulder-to-shoulder
 - This might be illusory, merely a consequence of the novelty of IT in unfamiliar environments
 - Better compensation in the short term
 - Already eroding, especially after dot-bomb of Spring 2000.
 - New opportunities for IT implementers—School of Information types—instead of CS “builders”
 - Contingent upon relative undersupply of IT skills

Disadvantages of IT-Enabled Work

- Massively more powerful techniques monitoring and surveillance, from RFIDs to performance measurement systems
 - Emergence of standardized output measures and task descriptions pressures labor
 - As more jobs become standardized, they can now be outsourced more easily
- Higher bars to cross for all workers in terms of the IT skills they need to have
 - Wide gap in practical IT training nationally
 - Need for constant skill upgrading as technology changes
 - Who will pay for this?
- Outsourcing of knowledge work is now *much* easier
- What of traditional labor rights, of unions?

Disadvantages of IT-Enabled Work, II

- Multiple devices and software applications require multi-tasking and ever-more-slim time slicing
 - Email, once a replacement for memos, now being supplanted by IM: what's the response-time expectation?
 - Fully networked systems open possibility for pressure from myriad new sources
 - Will employee burn-out occur at younger ages?
 - If so, will robustness displace wisdom within the firm?
- Possibility of exacerbating the pervasive problem in US business: short-term horizons for profit & planning
 - Pressure to “get it out the door” regardless of quality
 - As attention gets micro-sliced, who will look at the big picture?

Disadvantages of IT-Enabled Work, III

- Telecommuting and videoconferencing: who needs to “be there”?
 - Problems of presence: the water-cooler as social forum
 - Career cul-de-sacs
 - Both of these shown by research: face-to-face remains vital
- “Drying out of the middle”: The fate of middle managers and the middle class—IT supplants middle-level knowledge work
 - Example: bookkeeping, basic accounting, financial analysis, purchasing
 - Implications for social mobility
- IT-enabled global economies: who’s responsible?
 - Problems of governance & regulation: can we rely on the WTO?
[answer: probably not!]

Dilemmas for the Firm in IT-Enabled Work

- Managing risk: downtimes can cost millions
 - Standard method of risk-mitigation, redundancy, is complicated when cut-overs require porting of real-time data
 - Dependence on outsiders for system architecture, if not maintenance: unable to keep risk factors in-house and controllable
- Complicated benefit/cost calculations involved in IT choices and decisions
 - Beyond standard of “acquisition costs + operations costs”:
 - Employee training costs as investments in human capital —the risks
 - Recurring employee and organization “learning curve” expenses
 - Unpredictability of IT performance: endless bug-fixing, etc.
 - Who gets blamed (or held responsible) for failures/glitches?

Dilemmas for the Firm in IT-Enabled Work, II

- Remapping organizations from pyramidal hierarchies to flatter structures
 - Broad consensus that this is needed, but:
 - How to remap?
 - Will power, responsibility, and knowledge still be co-located?
 - Software must somehow operate as a virtual process and representation of knowledge flows within the firm
 - Recurring problem that only certain kinds of knowledge can be mapped by IT
 - Software of this sort is inevitably from third parties, so conflicts over IP rights, overall operational responsibilities
 - Tangled lines of responsibility
- Pervasive boundary issues: who's responsible for what IT?

Some Larger, Unanswerable Issues

- Relocating knowledge in the workplace: who will benefit?
 - Tradition of engineering knowledge replacing tacit and craft knowledge: what is the fate of “soft” knowledge? More women in middle management?
 - Problems of abstracting knowledge
 - Cultural frames
 - Invisible work
 - Tied to demographics of worker?
 - Cultural minimization of status associated with skill
- Does new technology empower or disempower existing workforce?
 - Remember: the workforce is like a river...
 - It's really about *recomposition* of skills & knowledge

A Few Illustrative Instances

- The emergence of “smart manufacturing,” rapid prototyping, reconfigurability: who is responsible for retraining?
- Elegant integration: CATIA at Boeing—can programmers really comprehend the politics of the organization and remap accordingly?
- Delocation of transactions: where do transactions get “booked”? (think: Enron)
- Outsourcing knowledge work: radiology but not surgery or physical therapy

New Business Models and Labor

- Old model as parcellization of work (Taylorism), new model as reconstructing production process
- Is “deskilling” moving up the status hierarchy, now affecting white-collar as well as blue-collar workers?
- Pilots were once the “aristocracy” in airlines, but new IT & communications have shrunken cockpit crews
- IT-enabled productive archipelagos replace vertical integration: subcontracting grows for all types of work; a “race to the bottom”?
- As businesses compete to please Wall Street with higher dividends, there are strong incentives to slash incomes of *all* workers

[A Reminder] Elegant Integration: CATIA and the Boeing 777/7E7

- “Paperless design:” whither the draughtsman?
- Rapid prototyping to no prototyping
- The role of standards: all must conform, minimizing “local knowledge”
- Global outsourcing and global integration: foreign firms brought in as partners, but why not just simply to cut salaries?
- The social and cultural remapping of power and knowledge
 - Software as a social actor (replacing the plant manager)
 - Bridging professional subcultures & reshaping workplace social relations

Work at a Distance: Cover the Earth™

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Sherwin Williams Logo

<http://www.sherwin-williams.com/images/snippets/general/homeowner/products/sw-logo-vertical.gif>

- The 24/7 production process across time zones
- Medical imaging and consultations
- Law and the rise of Lexis-Nexis and case databases
- Financial integration
 - Institutional constraints (few after repeal of Glass-Steagell)
 - Problems of trust and enforceability—the promise of “records-based compliance” following Sarbanes-Oxley

Globally Outsourcing Knowledge Work

- Standard model of the 1990s: Outsource factory work to Asia (etc.) and keep knowledge work here
 - Serious consequences in that, vis-à-vis balance of trade
- Now outsourcing knowledge work
 - Why not worry before?
 - Done by IBM, Microsoft, Oracle, etc
 - Bangalore as #1, but also China
- Positive consequences:
 - Helps develop peripheral economies—maybe...
 - Lowers production costs
- Negative consequences:
 - Loss of jobs and skill base in the USA
 - Fragmentation of a firm's knowledge base & “knowledge capital”
 - post-9/11 security concerns

Does Outsourcing Help the “Periphery”?

- Two examples: India and Mexico—India wins & Mexico stagnates
- India increasingly does “knowledge work,” while Mexico does grunt work
 - Bangalore programmers vs. Chiapas women and girls sewing clothes and making wiring harnesses
 - The programmers can “move up,” perhaps even become entrepreneurs, the Chiapas women go nowhere
- Indian government has invested in educational infrastructure, the IITs, Mexico has done little (in part seduced by oil wealth & corruption).
- Biggest difference: in India, outsourcing is a path to learning and mastery; in Mexico, it’s dead-end