

Global Sourcing of Knowledge Work

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Mani Subramani, Associate Professor
Carlson School of Management
msubramani@csom.umn.edu

About Me

- > Mani Subramani, Associate Professor
 - > Information and Decision Sciences Dept
 - > PhD from Boston University
 - > 7 yrs in Computer Industry
 - > Researcher at MISRC (UoM), CISR (MIT)
 - > Research Interests
 - Leveraging Intangible Assets, Interorganizational Relationships
 - > Teaching: “Managing Globally”, course with 2 week trip to India

Agenda

- > Developments in Global Sourcing of Knowledge Work
- > Theoretical Perspective
 - > Transaction Cost Theory, Modularity
- > Consequences
- > Challenges for US Professionals

Global Sourcing of Capabilities

- > Simple Managerial/Economic Logic
 - > Disaggregation of Complex Business Processes
 - > IT Enabled Ability to Leverage Expertise Irrespective of Location
- > Outcomes
 - > Changes to Mix of Valued Skills
 - > Complex Social Consequences
 - > Complex Consequences for Individual Knowledge Workers

Sourcing Flexibility

- > Labor-intensive, Routine Professional Work
 - > Data Entry, Customer Interaction
 - > Photographic 'touch-ups'
 - > Digital Animation Production
 - > X-ray Interpretation, Diagnosis

- > Routine Knowledge Work in Business Processes
 - Accounting, Auditing
 - Financial Reporting (Reuters)
 - Software Development

- > Non-Routine Knowledge Work (e.g. R&D)
 - Motorola, Intel, GE, Microsoft, AvesthaGen

Markets vs. Hierarchies

- > Key Determinants of *Governance of Activity*
 - > Production Costs & Transaction Costs
- > **Markets have production cost advantages**
 - > Advantages: Scale Economies, Expertise
 - > Disadvantages: Transaction Costs
 - Search, Bargaining, Negotiation
- > **Firms have transaction cost advantages**
 - > Shared Vocabulary, Specialized Expertise
- > **Make vs. Buy = f (overall cost)**

Costs like friction, reduce efficiency

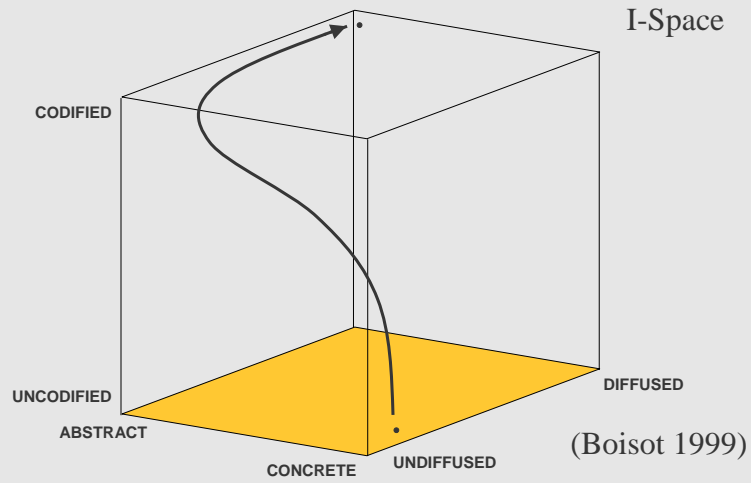
IT and Transaction Costs

- > IT developments have significantly reduced
 - > Communication costs
 - > Search, Bargaining costs
 - > Monitoring, Control costs
- > Implications
 - > **Some activities in hierarchies are now more efficient in markets**
 - Logistics outsourcing
 - > **Some activities in hierarchy can now be moved to lower cost locations as costs of monitoring and control are reduced**

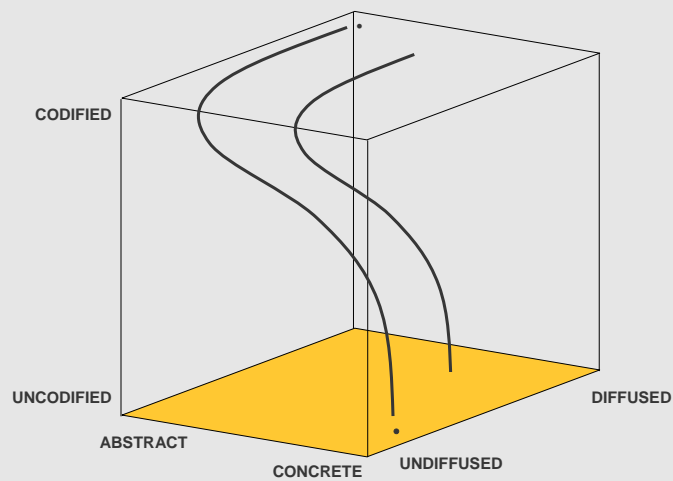
Modularity

- > Digitization enhances process modularity
 - > **Make vs. Buy, Location decision about each module**
 - E.g. Customer Service
 - Taking Calls, Managing Call Centre, Monitoring Customer Complaints, Responding to Customer Inputs
 - Make vs. Buy Choice for Individual modules
 - Accounts Payables
 - Receive Invoices, Examine Invoices and Act, Feedback
 - Accounts Receivables
 - Invoice Customer, Follow up

The Codification-Diffusion-Abstraction Curve



IT shifts Diffusion Curve



Greater diffusion at lower levels of codification, abstraction

Waves of Change

- > First Order Effects: Direct, Predictable
 - > E.g. Creation of Highway System in US..streamline commerce
 - Supply points can be far from Demand points
 - Economies of scale/specialization
 - Broader development in country, better resource usage
- > Second Order Effects: Complex, Diffuse, *Unpredictable*
 - > Cascaded Chain....Complex *effect of effects*
 - Highway System in US
 - changes in patterns of living (suburbs), *white-flight* from cities, inner city crime
 - Realized largely in Hindsight
 - Product of Behavioral responses to changes

Changes due to Technology..(1)

- > Source of Change: Convergence of Technology
 - > Computing, Communications Technologies
 - > Network Infrastructure Supporting Mobility, Connectivity
- > *First Order Effects: Revolution in Control*
 - Work anywhere, anytime
 - Why come to the office?.. Telecommuting
 - Organizational Restructuring (Bus Process Re-engineering)
 - Streamlined Processes, Redistribution of Tasks
 - Empowerment, Flattening of Hierarchy
 - Reduced Organization Size (*cutting the fat!*)
 - Competition at the level of the Value Chain
 - » Network vs. Network

Changes due to Technology...(2)

- > *Second Order* Effects: Complex, Indirect
 - > Greater Modularity of Business Processes
 - > Transformation of Work, Expectations
 - Reduced relevance of location
 - Integration of labor markets across the globe
 - Organizations leverage resources globally
 - Fundamental changes in organization of work
 - Fundamental changes in structure of economy
 - Production economy -> knowledge based economy creating intangible products, services

Airgain Inc.

- > \$5M Startup – Smart Antenna ..‘seeks’ strongest signal
 - > Hired group of mathematicians, scientists and programmers in Russia with prior experience in radars
 - > Developed new system superior to the competition
 - > Estimates \$15M to do the task in the US
 - would have found few backers ..untested technology
 - “for complex algorithms, I would certainly go to Eastern Europe and Russia. ..mathematicians are treated as all-stars, not 1 in 100 in USA can name a single mathematician”






Consequences

- > Integration of Labor Markets
 - > Location/Context Independent Skills less valuable in developing economies
- > Mix of Employee Skills Migrates to Specialized, Context-Specific Activities
- > Job Growth in Higher-Skill Categories

India today

- > IT Services 2005 US\$13.5B, 2006E US\$17.5B
- > IT BPO 2005 US\$5.2B, 2006E US\$7.2B
- > IT Industry US\$21.6B, 2005 US\$28.4B, 2006E US\$36.3B
- > Sources of revenue 2005: USA 68%,
- > Growth of IT services companies interviewed averaged approximately 30-40% over last 3 years
- > 150,000 IT jobs added this financial year²
 - > TCS 30,500 (67,000 total employees at end of last financial year), Infosys 25,000 (54,000), Wipro ~25,000 (54,000), Satyam 12,000 (29,000)
 - > IBM 25,000 (17,000), Accenture 23,000 (15,500), EDS 1000 (4000), HP (20,000).

Cost savings from India

Leading Companies	Services outsourced from India	Current Scale of Operations FTEs	Projected Scale over 2 years FTEs	Estimated annual savings* US\$million/year
	<ul style="list-style-type: none"> Transaction processing Inbound customer care Telemarketing Collections 	15,000	25,000	675
	<ul style="list-style-type: none"> Accounting/Transaction processing Collections 	4000	12,000	300
	<ul style="list-style-type: none"> Technical support Inbound Customer Service 	5000	12,000	300
	<ul style="list-style-type: none"> Mortgage / Loan processing Inbound customer support 	1500	5000	125
	<ul style="list-style-type: none"> Transaction processing Inbound customer care 	2000	5000	125

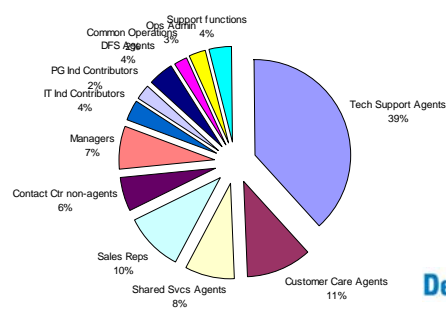
* Based on conservative annual saving estimate of US\$25,000 per FTE. Source: Interviews, Press Articles

TransWorks

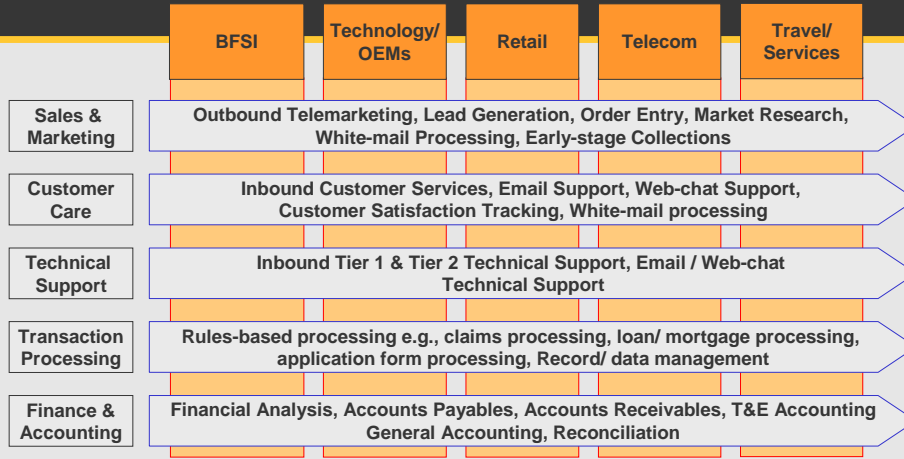
Dell in India

Employees:	6,511 (2004) ..10,000 (2005)...20,000 (2007)?	
Business Processes:	65	
Segments/Organizations Served:	11	
	Agent	Non-agent
Average Age:	24	30
Average Tenure at Dell:	9 months	15 months
Average cost to company:	\$3,842	\$15,070

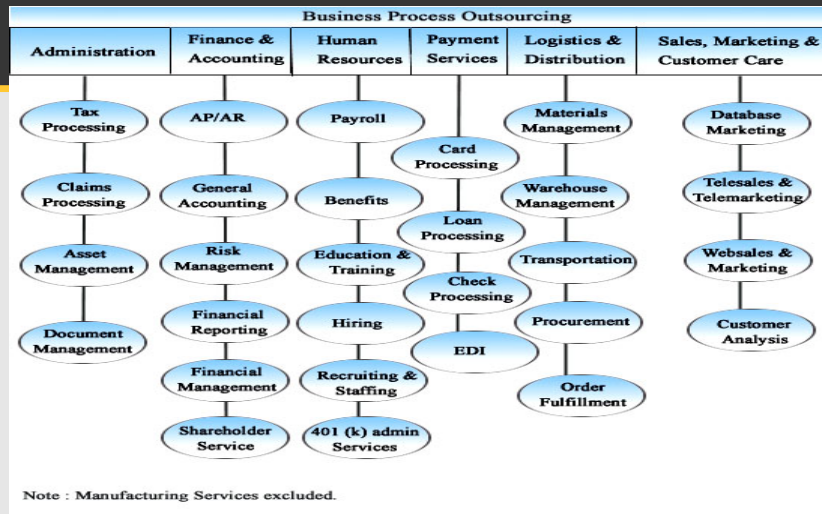
Dell India Role Distribution



Service Offerings



BPO – Broad Areas for Outsourcing



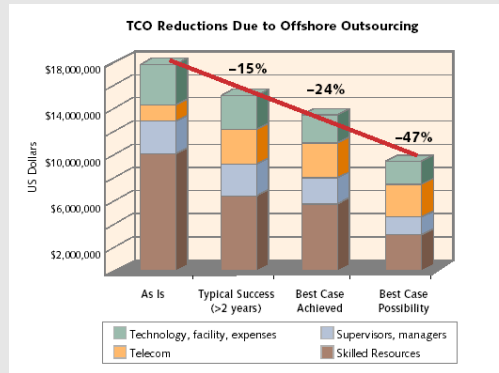
Source : Gartner Dataquest

TCO Reductions From Moving Offshore

- Significant savings can be achieved by implementation of best practices in Processes, People & Technology

- Can be achieved through simplification, automation & innovation of business processes

- Graph shows trends based on experience as achieved for US Fortune 50 companies

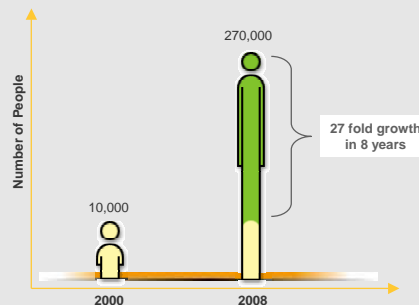


Source : Deloitte Consulting

India: BPO Opportunity

- Low cost location with world class capabilities
- Highly skilled English speaking workforce
 - 2 million graduates each year
 - World class education system
- Robust telecommunications infrastructure + WWW backbone
- Stable Business environment with a considerable increase in foreign investment

NASSCOM growth projections for the Indian BPO market*



* Nasscom report on IT- Enabled Services – 2002 (NASSCOM – National Association of Software and Services Companies, India)

A Personal Story: Infinera



Welcome to Infinera

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Infinera is an optical systems company with core technology in photonic integration. We believe that the technical achievement of large scale photonic integration will enable carriers and other network builders to fundamentally rethink their optical strategies.

Over the past decade, optical networks have become increasingly analog in an attempt to eliminate optical-to-electrical conversions. The analog nature of today's optical networks results in excessive cost and complexity, difficult customer access, and often-painful network operations and evolution. Infinera's opportunity

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Optical Systems Company....high end digital optical switches...(>\$100K)

India Development Center



Vinod Khosla (VC)

Narayanan (33), BTech (IIT), MS (University of Maryland), 4yrs in IBM (US), 4yrs in Hughes Networks (US), with firm in India since 2001. Salary: \$35,000

Sourcing Capabilities-the HR Challenge

- > Wipro and Infosys:
 - > From 10,000 to 60,000 employees in 5 years
 - Hiring up to 400/week
 - Each received over 1 million resumes
 - > Hexaware: 19,000 Interviews for 40 hires
 - > Went from signing contract to opening tech center in 5 weeks for Peoplesoft, expanded to 850 developers in 18 months
- > Managing employee hiring and retention is a big challenge
- > Firms “out-perking” each other with free meals, commuting, gyms and swimming pools, discounts on cellphones, employee “fun” events

'Entry level salaries for grads sharply up' , SiliconIndia
Monday, October 10, 2005

NEW DELHI: In the last five years the salary package being offered to the students passing out from courses such as Bachelor of Business Administration (BBA) and Bachelor of Computer Sciences (BCS) across the country has increased fourfold...

The feedback from different universities indicated that the starting **salary offered to a young graduate has gone up from \$60 in 2000 to \$250 in 2004.** In this the firms visiting university campuses for recruitment are from the IT and ITES sectors, study says.

Salary levels for the Bachelor in Computer Applications or B.Sc (Information Science) streams have gone up to \$250- 350 in the years 2003-04 and 2004-05. Apart from IT and ITeS firms companies from hospitality, banking and finance industry have also started visiting institutions for campus recruitments. In this the major companies are Infosys, TCS, Wipro, Cognizant, Dell Computers, iGate, ICICI Bank, CRISIL, ABN-Amro Bank..

What Is Not Moveable?

- > In-person services (Reich 1990)
- > Activities involving interaction with customers, suppliers, designers, or production facilities
- > Activities where knowledge is derived from intensive, iterative interaction with the market or environment, e.g., clusters

Challenges

- > In the firm there is a pyramid of talent –what is location dependent?
- > For what is moveable, is talent available in lower cost locations?
- > Middle of pyramid relocation - what happens to career paths in U.S.?