



# The Indian ICT Industry: Current Trends and Future Challenges

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[www.isb.edu/citne](http://www.isb.edu/citne)

Acknowledgements - Rajdeep Sahrawat, VP MASSCOM for Data  
S Sivakumar, ITC Agribusiness for e-choupal Case



## The Indian School of Business

- Research driven, globally focused B-School
- Kellogg, Wharton play an active role
  - All area leaders are from Kellogg and Wharton
- “Innovative” portfolio faculty model
  - Steady state
    - 60-70% coursework taught by resident faculty
  - Currently
    - 30-40% taught by thought leaders from global B-schools
  - Tenure system
    - Managed by an area leader from Kellogg/Wharton
    - Comparable to the top 25 US research B-schools
- Student body
  - Post Graduate Program (420)
  - Executive Education Program (growing rapidly)

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## What is CITNE?



- **ISB’s latest “Centre of Excellence”**
  - Wadhvani Centre for Entrepreneurship Development
  - Centre for Analytic Finance
  - Centre for Global Logistics and Manufacturing Strategies
  - **Centre for IT and the Networked Economy (CITNE)**
- CITNE is a inter-disciplinary research centre
  - Rigorous, relevant and impactful ICT centric research
  - Worldwide Information Systems (IS) research community ↔ burgeoning global-scoped Indian ICT industry
- **Mission**
  - Foster ICT centric research and education
    - a) to propel the Indian ICT industry to the next level globally,
    - b) the promote the country’s economic development

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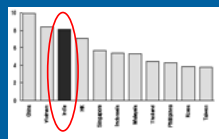
## Agenda



- India Inc. Background
- An Agrarian to a Service Based Economy
- Growth of IT/ITeS Sector
  - The Global Delivery Model
  - Operational Excellence
- Current Trends and Challenges
  - The Domestic Market
  - CASE - e-Choupal: Towards an Inward Looking IT Revolution
  - Educational Reform
    - Talent Gap
    - Research
    - Industry Academia Linkages
- Emerging Opportunities
  - Knowledge Intensive Services
  - R&D

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## India Inc. - Some Facts



FY06 GDP Growth in India is Amongst the Fastest in the Region

Source: Citigroup

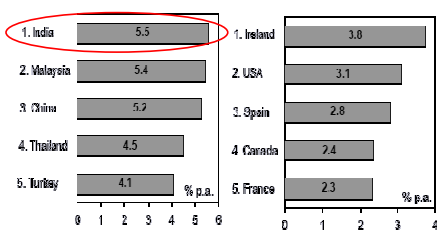
- India’s GDP has grown at nearly twice the global rate over past 20 years
- Steady annual growth in real GDP, industrial production and domestic demand of 5-6%
- Sustained real growth in foreign investment inflows (FDI and FII) since economic liberalization (1991)
- Cumulative forex reserves of ~USD 150bn

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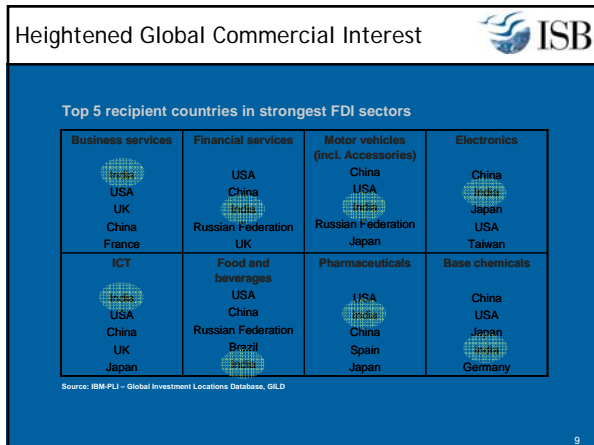
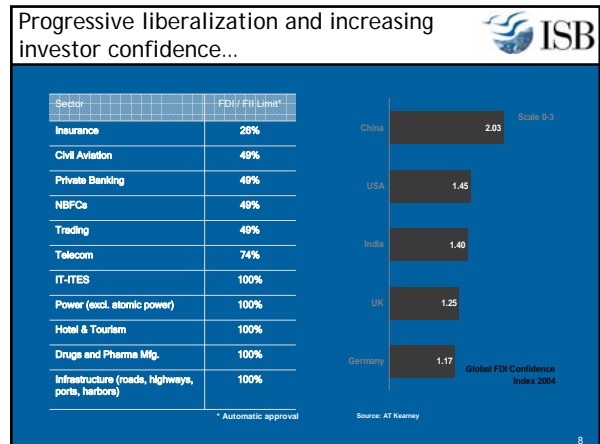
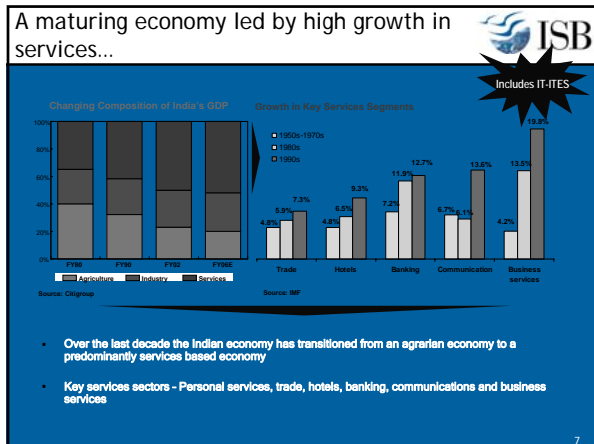
## Projected High Growth



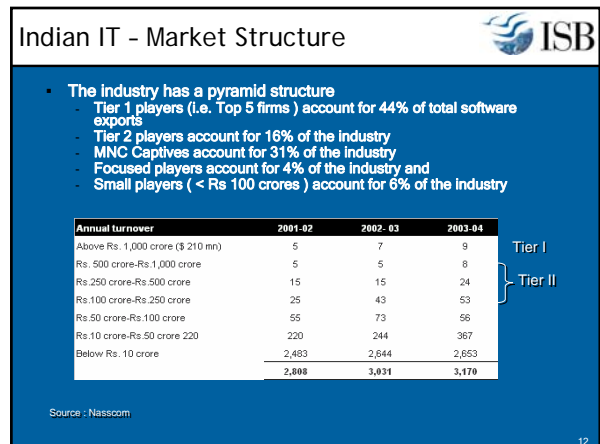
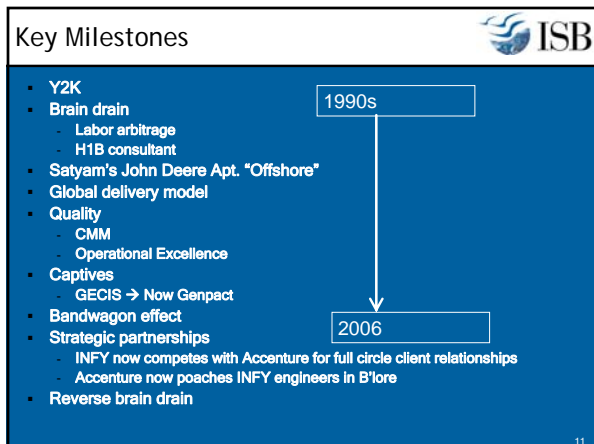
### The top 5 growth centres until 2020 (GDP growth 2008-2020)



Source: Deutsche Bank Research



### IT - ITes Sector Evolution



## Big Three



- In 2005, the big three Indian IT services firms
  - Infosys
  - Tata Consultancy Services (TCS)
  - Wipro
- Surpassed \$2 billion in revenue
- Reported an astounding compound annual growth rate of more than 30 percent

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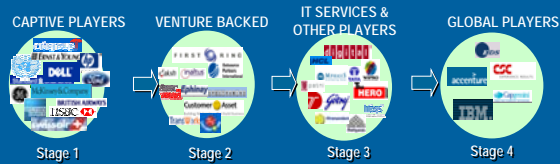
## Industry Trends



- Approximately 2/3<sup>rd</sup> of the Fortune 500 companies source IT-ITES services from India
- Offshore outsourcing is being actively embraced by not only large organizations but also middle market companies in the US
- Competition from Multi National IT services providers who are setting up offshore presence aggressively
- The Build-Operate-Transfer(BOT) model appears to be gaining momentum
- Reverse brain drain with '000s of Indians returning to India after years of leadership roles in Silicon Valley start-ups and technology MNCs
- India becoming APAC hub for many MNCs (SAP Labs, Nokia, ADI, Cisco); Besides, many Asia-Pacific companies leveraging India better (LG Soft, Samsung R&D, Sony R&D, D-Link, Huawei)

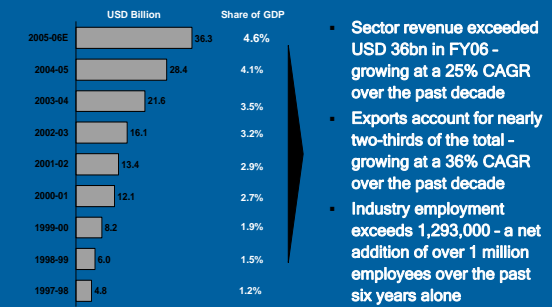
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## Evolution of ITES in India...



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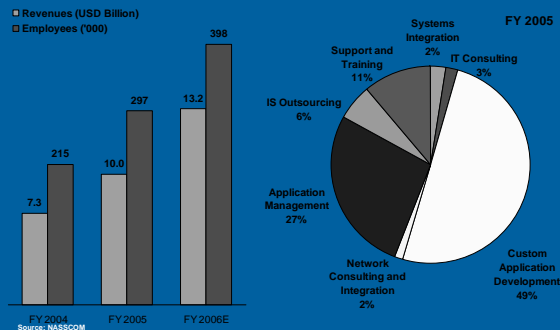
## Indian IT-ITES sector grew by 28% in FY06 and currently accounts for 4.6% of the country's GDP



- Sector revenue exceeded USD 36bn in FY06 - growing at a 25% CAGR over the past decade
- Exports account for nearly two-thirds of the total - growing at a 36% CAGR over the past decade
- Industry employment exceeds 1,293,000 - a net addition of over 1 million employees over the past six years alone

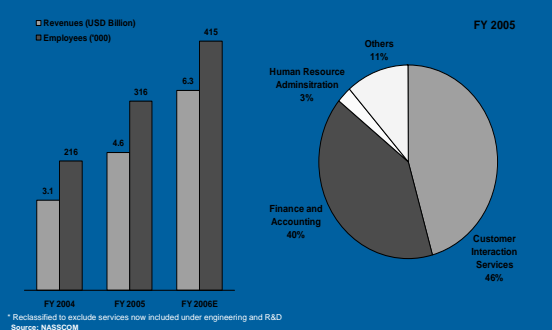
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## IT services exports lead, accounting for 35% of the total, growing at 32-33% (FY06E)



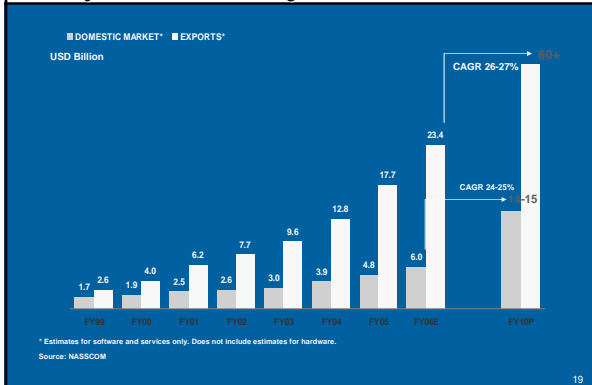
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## ITES-BPO exports\* to grow by 37%, estimated to reach USD 6.3bn (FY06E)



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## Positive outlook for Indian IT-ITES; industry set to achieve targets for 2010



## India's pillars of success



- Access to a large, growing pool of highly qualified talent
- A high degree of quality orientation and demonstrated service delivery expertise
- Keen emphasis on information security reflected in the comprehensive legal framework and elaborate security practices supplemented by enabling intervention
- Improving telecommunication Infrastructure
- International standards in real estate and office facilities
- Enabling (and progressively improving) business environment through strong government support; incentives, favorable regulations and policy

...delivered at a sustained and compelling cost-value proposition

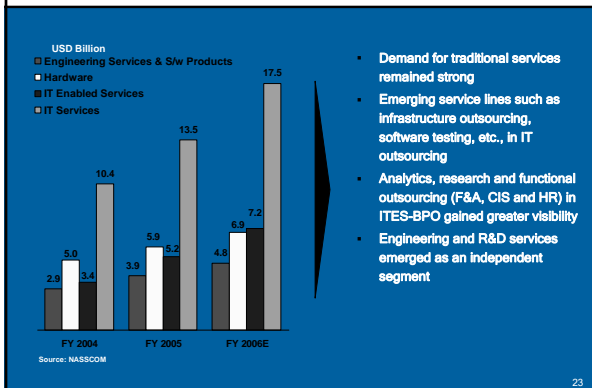
### Future Growth

## Knowledge Work



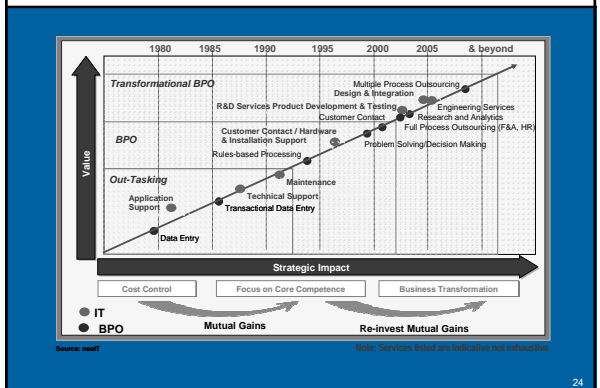
- R&D work being done out of India
- Over 1700 US patents filed in 2003
  - Texas Instruments (225 patents)
  - Intel (125 patents)
  - Phillips (102 patents)
  - Cisco (120 patents)
- Engineering services
- Legal and litigation support
- Financial research (Mumbai)
  - Lehman Bros Research
  - JPM

## Growth driven by service line depth,...

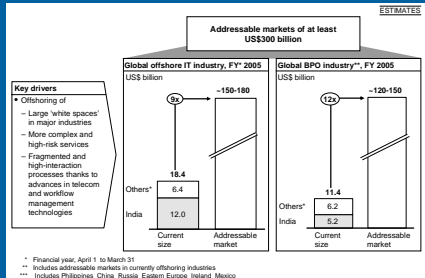


- Demand for traditional services remained strong
- Emerging service lines such as infrastructure outsourcing, software testing, etc., in IT outsourcing
- Analytics, research and functional outsourcing (F&A, CIS and HR) in ITES-BPO gained greater visibility
- Engineering and R&D services emerged as an independent segment

## ...increasing supply-side maturity...

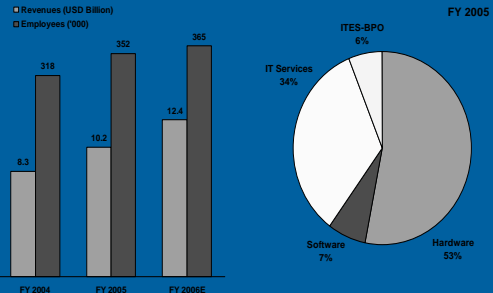


Significant headroom for growth, less than 10% of the export market captured till date...



Source: NASSCOM McKinsey Report 2005

Domestic market coming into its own, to grow by nearly 22% in FY 2006



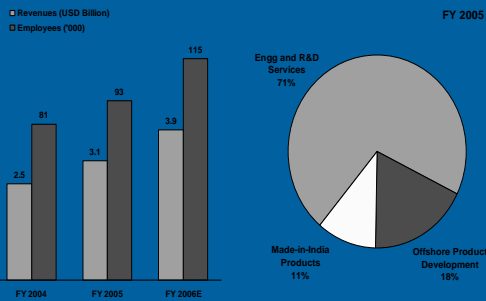
Source: NASSCOM

### Challenges

### Industry Risks

- Wage inflation - 10-15%
- Attrition
- Talent gap
- Indian rupee appreciation
- SLA expectations of clients
- Domain expertise
- Ability to move up the value chain
- Tax Holiday – Sunset clause in FY 2009-10

Engineering and R&D, software products hold significant opportunity for India - growing at 43% and 25% (CAGR FY 2003-06E), respectively

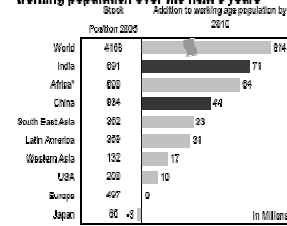


Source: NASSCOM

Demographics - Suggest Domestic Market Growth



India the largest contributor to growth in the working population over the next 5 years



Source: CBO, RBI, UN, Morgan Stanley Research, Morgan Stanley Research Estimates  
\*Note: Africa includes a group of 60 countries

## India as a Market



- ICT investments not restricted to services, over USD 5 billion committed towards manufacturing related investments in India by global ICT majors in 2005
- Global auto majors such as Hyundai, Ford, Skoda, Suzuki and Mahindra have made India a manufacturing base for particular models of cars
- Other multinationals such as Toyota, GM and Daimler Chrysler are making India a hub for components
- Engineering services, textiles, tourism, education - some of the newer/emerging sectors where India is expected to play a major role in the coming years

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## However...



- Low PC penetrations
  - 50-60 million
- Increasing mobile penetration
  - 120M subscribers
  - Adding 6/month
- A lab for m-commerce/3G
  - Spectrum becoming available in 2007
  - ISB-UMN team provided auction design!
- VC/PE activity growing in mobile space
- Yahoo India's slogan
  - "Internet on your mobile phone"
- Big impact possible at the **BOTTOM OF THE PYRAMID**
  - ICT changes lives!

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## CASE ICT Promoting Development ITC's e-Choupal

(With permission from Mr. S Sivakumar,  
CEO- ITC Agri Businesses)



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## Let's listen to a Farmer



- [Ramdeo Patel](#)
- Resigned to the fate? Ramdeo is not alone, he actually speaks for 110 million of his fellow farmers.
- A large majority of them are in the same situation even today
- Each of whom earn just a fifth of the average income of the rest of Indians

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## ...despite



- Excellent resources:
  - Plenty of arable land
  - Rich & diverse agro-climatic zones
  - Strong research system
  - Large & growing markets
- And legendary resourcefulness:
  - Works very hard (whole family is on the farm)
  - Takes risk (on weather, markets)
  - Is innovative (adapting technology, managing risk)

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## ...because of



- Small size (Average < 1.5 Ha)
  - × Resource-poor, weak bargaining power
- Geographical dispersion (> 600,000 habitations)
  - × Impacts access to real-time information
- Heterogeneity (agro-ecological conditions, knowledge, investment & risk-taking ability)
  - × High need for customisation
- Fragmented agri business industry
  - × Poor vertical coordination, not much value addition
- Weak infrastructure (Physical, Social, Institutional)
  - × Impacts access to markets, high transaction costs, increases risk (yields, prices)

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## Demands of the globalising trade



1. Transition from supply-driven to demand-driven value chains
  - Quality as per customer needs (& changing diets)
  - Traceability to farms & farm practices (SPS, TBT)
2. Competitiveness in Price / Value equation
  - Increased farm yields
  - Lower transaction costs along the chain
- ⤴ Further accentuating the need for...
  - Customised knowledge
  - Real-time & relevant information
  - Access to quality inputs at competitive prices
  - Effective vertical coordination of the value chain
  - Efficient Price discovery & risk management

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## Capabilities of IT



- ✓ Real-time multicasting
- ✓ Seamless workflow
- ✓ Storage & retrieval of data
- ✓ Broadband connectivity
- ✓ Convergence of multimedia
- ⇨ Unbundling & rebundling the components of a transaction
- ⇨ Collaboration & vertical coordination
- ⇨ Virtual aggregation
- ⇨ Decoupling back-end from front-end

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## Leveraging IT: ITC eChoupal Illustration-1



- The traditional mandi system for sale [Video](#)
  - Pressure to sell due to sunk cost of transportation
- eChoupal Price Discovery [Video](#)
- eChoupal Price Discovery Part II [Video](#)
- ⤴ That unbundled the price "information" from sales "transaction", leveraging the real-time multicasting ability of Internet, and empowered the farmer to decide on when & where to sell
  - And reduced the transaction costs too (by avoiding multiple handling that is necessary in mandi system)

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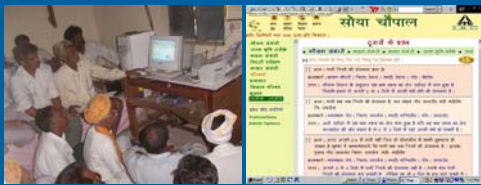
## Leveraging IT: ITC eChoupal Illustration-2



- Farm input transaction [Video](#)
- Again empowering the farmer, this time by bundling...
  - What to use (knowledge)
  - When to use (Information)
  - Supply chain (transaction)
- Through collaborative workflow across entities
- Decoupling 'source' of information & knowledge with 'delivery'

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## Leveraging IT: ITC eChoupal Illustration-3



- Web casting of best practices videos, and FAQs
  - access to knowledge with ease
- Interaction across villages through chatting & emails
  - Helps in knowledge sharing among themselves and brings meaning to the 'e' prefix to choupal

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## Leveraging IT: ITC eChoupal Illustration-4



- One-to-one interactive ability of Internet, together with relevant testing facilities (soil / water / virus)
  - delivers customized farming solutions

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- Broadband connectivity
  - For remote diagnostic of crops
  - And interactive extension

- For the farmer
  - Market aligned production, higher productivity, better farm-gate prices
- For ITC
  - Cost effective procurement of quality farm output & New Business Opportunities
- For other Partners
  - Cost effective reach (of various goods & services) to the huge market in rural India
- Above all, for the nation
  - Global competitiveness, without putting the small farmer at a disadvantage

Concluding Thoughts

- Outsourcing - A success
- Ability to scale - Well Demonstrated
- Suite of service offerings - Evolving
- Complexity - Medium - High
- Contract size and life - Small
- Businesses can be monetised - \$\$\$\$\$
  
- *Can we bring the benefits to the vast majority of the population?*
- *In chaos lies opportunity !!*