EVALUESERVE
Expert Knowledge Services

Moving Up The Value-Chain – From BPO to KPO

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Presentation Plan

- *IT off-shoring – Current & Future*
- *Business Process Operations (BPO) off-shoring – Current & Future*
- *Movement from low-end to high-end services*
- *Knowledge Process Operations (KPO) off-shoring – Current & Future*
- *Various off-shore destinations & concluding thoughts*

Note: Off-shoring services are those that are performed in one country but used in another (as services or software products). For example, services performed in Ireland and used in UK or those performed in Canada and used in the US.

Note: Countries using these services will be called higher-wage and those providing will be called lower-wage countries. Clearly, a low-wage country today can become a high-wage country tomorrow.

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In 2003, USA had 10.3 million IT professionals & is likely to have 13.1 million by 2010 – an annual increase of 3.5%

Job Description	Number of IT Professionals in the USA in 2003	Expected Number of IT Professionals in the USA in 2010
Programming/Software Engineering	2,144,377	2,918,200
Technical Support and help-desks	1,904,842	2,081,470
Enterprise Systems & Integration	1,113,883	1,515,800
Database Development & Administration	1,011,331	1,243,800
Web Development & Administration	885,070	1,088,530
Network Design and Administration	729,417	992,600
Digital Media, Multimedia, Animation	694,251	944,800
Technical Writing, Desktop Publishing	538,759	662,600
Miscellaneous	1,290,719	1,672,800
Total	**10,312,650**	**13,120,600**

Source: 2003 figures are from Info. Tech. Assoc. of America (ITAA) Survey.

The 2010 figures are from Evalueserve

IT off-shoring Revenues for Apr. 1, 2003 – Mar 31, 2004 were $17 Billion approximately

Country	Number of Export-focussed IT Professionals	IT Export Revenues (million $)
Canada**	30,000	2,100
China**	42,000	1,680
CIS & Eastern European countries	9,000	265
India*	212,000	7,560
Ireland**	60,000	3,840
Israel	15,000	900
Mexico, South Africa, Latin America	4,000	135
Russia	8,000	285
The Philippines	5,000	170
Total	385,000	16,935

*In addition, nearly 58,000 Indian IT professionals with H1B and L1 visas in US, UK etc. generate revenues of $3.88 Billion.

** For Canada, China, and Ireland, this number also includes those IT professionals who work in manufacturing and software producing companies that export products to other countries.
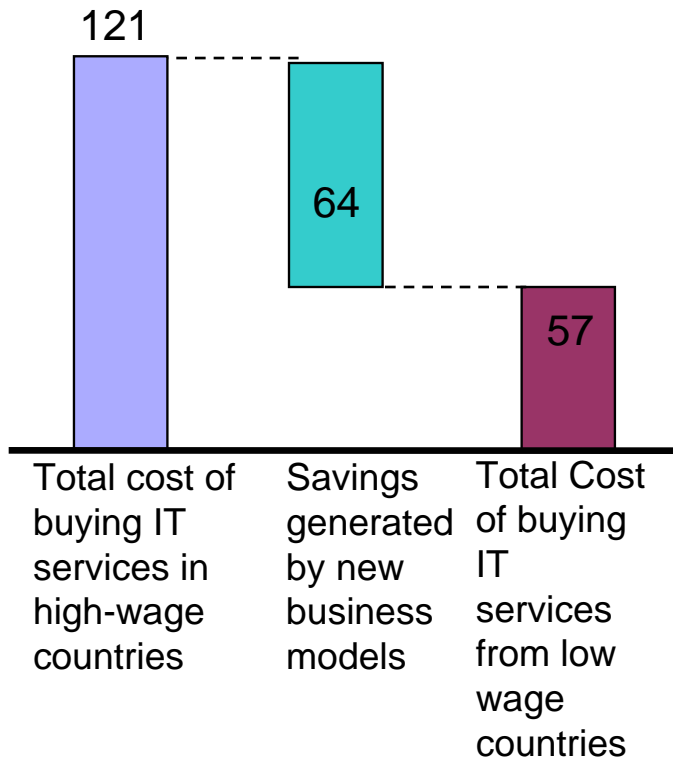
Source: Evalueserve

Slide 5

Expected Annual Revenue from IT Off-shore services will be $57 Billion by 2010

121

64

57

Total cost of buying IT services in high-wage countries

Savings generated by new business models

Total Cost of buying IT services from low wage countries

Source: Evalueserve

- The total global IT market in 2010 is likely to be $2.7 Trillion (including software development, maintenance, in-house work, outsourced, animation, web-design, tech-writing etc.).

- USA has 10.3 million IT professionals. Overall, high-wage countries have 21.2 million, & growing at 2.5% annually, by 2010 will have 25.2 million.

- Low-wage countries have 4.2 million IT professionals, growing at 15% a year & this figure will reach 11.2 million by 2010. Approx. 1.29 million of these will provide services to high-wage countries with 775,000 providing to the USA. **"M&S is included."**

IT services Off-shoring Revenues from US and UK are likely to be $38.6 Billion by 2010

• The UK IT industry is expected to grow from 1.72 million IT professionals in 2003 to 2.04 million professionals in 2010, and from $120.4 Billion in 2003 to $143.1 Billion in 2010. Finally, UK will offshore IT services from 35,000 jobs in 2003 to 110,200 jobs in 2010, and in revenue terms, UK will off-shore services worth $1.60 Billion in 2003 to $4.8 Billion in 2010.

• The US IT industry is expected to grow from 10.31 million IT professionals in 2003 to 13.12 million professionals in 2010, and from $928 Billion in 2003 to $1.20 Trillion in 2010. Also, US has off-shored 238,000 IT services jobs in 2000-2003 and this will increase to 775,000 by 2010. In revenue terms, US will off-shore services worth $9.2 Billion in 2003 to those worth $33.8 Billion in 2010.

• The number of IT professionals in India will increase from 656,000 in 2003 to 1.45 million in 2010, thereby, achieving 12% CAGR during 2004-2010. Also, the number of IT professionals providing offshore services will go up from 212,000 (plus 58,000 working on-site) in 2003 to 860,000 in 2010 – thereby achieving $37.5 Billion in export revenue in 2010. Lower end IT services are likely to move to countries like Philippines, Malaysia, Belarus, Ukraine, Vietnam, etc. by 2010.

Presentation Plan

- *IT off-shoring – Current & Future*
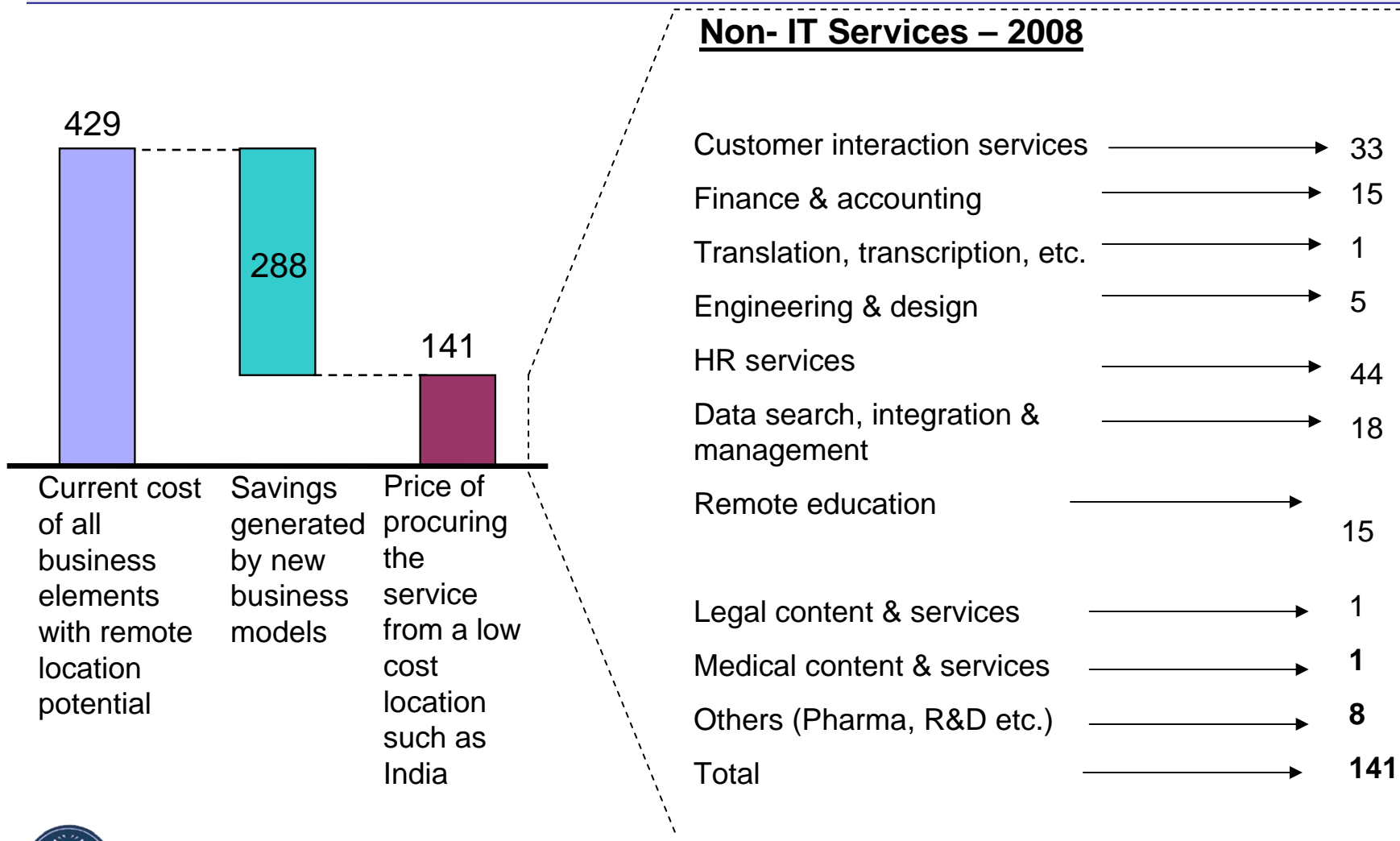- **BPO off-shoring – Current & Future**
- *Movement from low-end to high-end services*
- *Knowledge Process Operations (KPO) off-shoring – Current & Future*
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Prediction: Global off-shoring opportunity in business process (non- IT) operations will be $141 Billion by 2008

Non- IT Services – 2008

429

288

141

Current cost of all business elements with remote location potential

Savings generated by new business models

Price of procuring the service from a low cost location such as India

Service	Value
Customer interaction services	33
Finance & accounting	15
Translation, transcription, etc.	1
Engineering & design	5
HR services	44
Data search, integration & management	18
Remote education	15
Legal content & services	1
Medical content & services	1
Others (Pharma, R&D etc.)	8
Total	141

Source: NASSCOM-McKinsey Report, 1999

By 2010, 1.314 million BPO (non-IT) jobs are likely to be off-shored from the US, resulting in savings of $45.34 Billion

Job Category	Number of jobs	Revenues* (Billion $)	Savings** (Billion $)
Management	117,835	5.30	5.30
Business	161,722	5.82	7.12
Architecture	83,237	3.00	3.66
Life sciences	14,478	0.65	0.80
Legal	34,673	1.04	1.39
Art & design	13,846	0.42	0.42
Sales	97,321	2.92	2.92
Office (CRM, Back-end, etc.)	791,034	20.57	23.73
Total	**1,314,146**	**39.72**	**45.34**

*Revenues earned by firms located in low-cost destination such as India

**Savings for the US firms; computed by Evalueserve

Source: Forrester

By 2010: Companies in UK are likely to off-shore 201,100 BPO (non-IT) jobs, resulting in $5.34 Billion savings

Job Category	Number of jobs	Revenues* (Billion $)	Savings** (Billion $)
Financial services	40,100	1.44	0.85
BPO -- accounts, HR, data collection, contact centers, etc.	137,500	3.58	1.93
Market research, legal research, consulting and professional services	5,800	0.17	0.12
Architecture, engineering design, R&D	4,500	0.16	0.10
Life sciences, pharmaceuticals, biotechnology	2,500	0.11	0.07
Art, design, web-design, etc.	3,300	0.10	0.04
Sales lead generation and help desks	7,400	0.22	0.10
Total	**201,100**	**5.78**	**3.21**

*Revenues earned by firms located in low-cost destination such as India

**Savings for the UK firms

Source: Evalueserve

Bottom line: Only 39% of the total off-shoring opportunity is likely to be realized even by 2010

- According to Evalueserve, global off-shore BPO (non-IT) revenue in FY 2003 was $8.9 Billion and this industry will grow at 30% CAGR (during 2004-2010).

- According to NASSCOM- McKinsey report, the BPO (non-IT) opportunity for 2008 is $141 Billion but Evalueserve estimates that only $54.6 Billion will be realized by 2010, and 2.12 million people in low-wage countries will be thereby employed.

- About 1.07 million of these people will be employed in India by 2010.

Offshoring Opportunity and Realized Revenues   (bn USD)

39%

Total Offshoring Opportunity   Realized Revenue
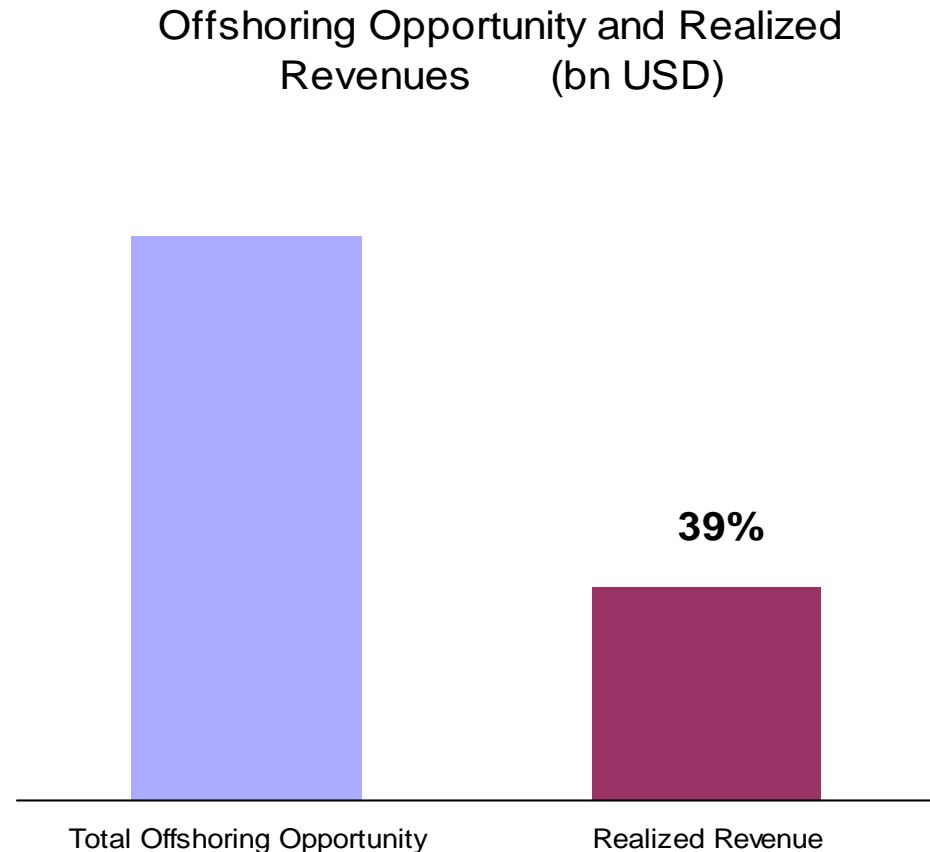
Source: Evalueserve

Revenues & Jobs Offs-shored from US & UK, March 2004

- According to EVS estimates, by the end of March 2004,

  - India had received 212,000 IT jobs from other countries and out of this, US has contributed approximately two-thirds and UK about two-fifteenths.

  - India had received 171,000 BPO jobs from other countries, with 83% being of the Call-centre kind (I.e., in-bound or out-bound calling, email help desk, technical help desk etc.). Out of this, US has contributed approximately 70% and UK approximately 15% jobs.

  - US has off-shored approximately 238,000 IT jobs with 60% going to India. Furthermore, US has off-shored approximately 136,000 BPO jobs – mostly in the Call-centre area – with eight-ninths going to India.

  - UK has off-shored approximately 35,000 IT jobs with 80% going to India and others to Ireland and East European countries. In addition, the UK has off-shored approximately 30,000 other BPO jobs – mainly in Call centres – with approximately five-sixths going to India and others to Ireland and East European countries.

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Companies have started moving up the value chain by providing higher-end services

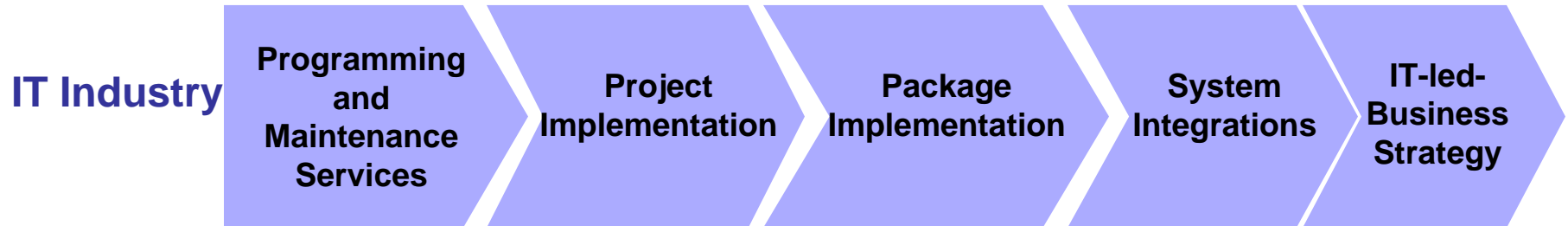|	PAST	CURRENT & NEAR FUTURE
IT	• **Application Development and Maintenance** • **Simple coding and porting from one language to another** • **Fixing the Y2K problem**	• **IT Consulting** • **Product Development** • **R&D** • **Engineering Design Services**
Non-IT	• **Customer Contact Services** • **Transaction Services** • **HR Data Processing** • **Medical Transcription**	• **Insurance underwriting, risk assessment, and equity research** • **Intellectual Property Research** • **Data Mining, Financial Analytics** • **Business and Market Research**

Examples of two industries -- low end to high end

IT Industry

| Programming and Maintenance Services | Project Implementation | Package Implementation | System Integrations | IT-led-Business Strategy |

Insurance

Industry

| Contact Centers & Customer Support | Claims Processing & Policy Servicing | Underwriting & Asset Management |

Knowledge Process Operations: Domain Expertise required

100% off-shoring possible

80:20 or (100-x) : x delivery model

Intellectual property research is one such example of Knowledge Process Operations' Off-shoring

- Writing patent applications in the US is quite expensive. A typical application costs about $10,000-$15,000 to draft and file with the United States Patent and Trademark Office (USPTO).

- An Intellectual Property Specialist (in an off-shore location) produces a preliminary draft of a patent application, which is reviewed by a registered US patent attorney and then filed with the USPTO.

- Cost savings from off-shoring even a portion of the patent drafting process can save up to 50% - 60% of the cost for the end client.

- Law firms such as Patent Metrix (of Irvine, California), Cantor-Colburn (of Hartford, Connecticut) and Schwegman, Lundberg, Woessner & Kluth, have already set up offices in India.

- Intellectual Property (IP) overlap , IP landscaping of technology domains, IP licensing and IP commercialization services are some of the other services provided in the IP domain. Evalueserve provides all services mentioned above.

Off-shoring R&D in the Hi-tech industry

- *Pharmaceuticals and Biotechnology*
  - Clinical research organizations are being widely used by pharmaceutical companies.
  - The global contract research market is estimated to grow to $20 Billion by 2004.
  - Destinations such as India offers significant cost advantages (as much as 40-60%) in the areas of contract research and clinical trials.
  - Recently companies such as AstraZeneca and GSK have set up drug discovery centers at low-cost destinations to off-shore R&D activities.

- *Chip Design and Embedded Systems*
  - All major integrated design manufacturers (IDM), including Motorola, Intel, Analog Devices, National Semiconductor, IBM, Cisco, Cypress Semiconductor, Nokia, and Philips have off-shore design centers.
  - Compensation for a chip design engineer with a master's degree and five years' experience is about $7,000 per month in the US and about $1,200 per month in India.

Companies are now beginning to offer Network Management Solutions

- Network maintenance is generally done after office hours. Indian companies can easily do this because of the time difference. Network Optimization requires substantial amount of Analytical/Operations Research expertise, which countries like Russia, India, China have in substantial numbers.

- There are many companies providing IT infrastructure solutions:

  - **Wipro**
    - It has revenues of $44 million from IT infrastructure solutions with 650 people and 95 customers and has a few large orders, including one for $20 million from Thames Water in the UK.

  - **HCL Comnet**
    - It has 1,000 people and earns about $31 million from IT infrastructure solutions and also has big orders, including one for $50 million from AMD.

  - **Infosys Technologies**
    - It has 250 people and 17 customers dedicated to this area.

  - **Cognizant**
    - It has 150 people and 10 customers in this area.

Analytical and Data Mining Services are beginning to be off-shored

- Companies can significantly save on analytics and inventory management costs (as much as 60-70% after taking into account the cost of off-shoring) by off-shoring them.

- Companies like Evalueserve, GE Caps, MarketRx have set up centers at low-cost destinations to provide these services.

- Destinations such as Russia and India are ideal for these services because a large pool of engineers and PhDs are available at a low cost. The cost differential between PhDs/Engineers in the US and India is almost $60,000 - $80,000 – the same is true of US and Russia.

- In Russia, Boeing has about 400 engineers conducting analytics and simulation using various mathematical models, formal models and statistical engines.

- Demand and channel planning, manufacturing scheduling, transport planning etc., are some of the supply-chain management solutions provided by using mathematical programming and simulations, among other techniques.

Off-shoring high-end services offers significant advantages to service providers and to buyers

Advantages:

- High-end services companies inherently have barriers to entry.
- Buyers save more in the higher-end services than in the lower end.
- Services are generally non-synchronous in nature; hence an "80-20" or a "70-30" model may have to be used – this is not easy for others to follow.

Challenges:

- The low-brand and low-quality image of lower-wage countries still persists.
- There is a need of creating a good professional work environment.
- Infrastructure problems (e.g., acquiring land) can still pose problems.
- There is a lack of good mid-level management and project management expertise.
- Accreditation of colleges, hospitals and training schools is almost a necessity.
- Since the model is typically (100-x):x, good partnerships across continents is usually an important requirement.

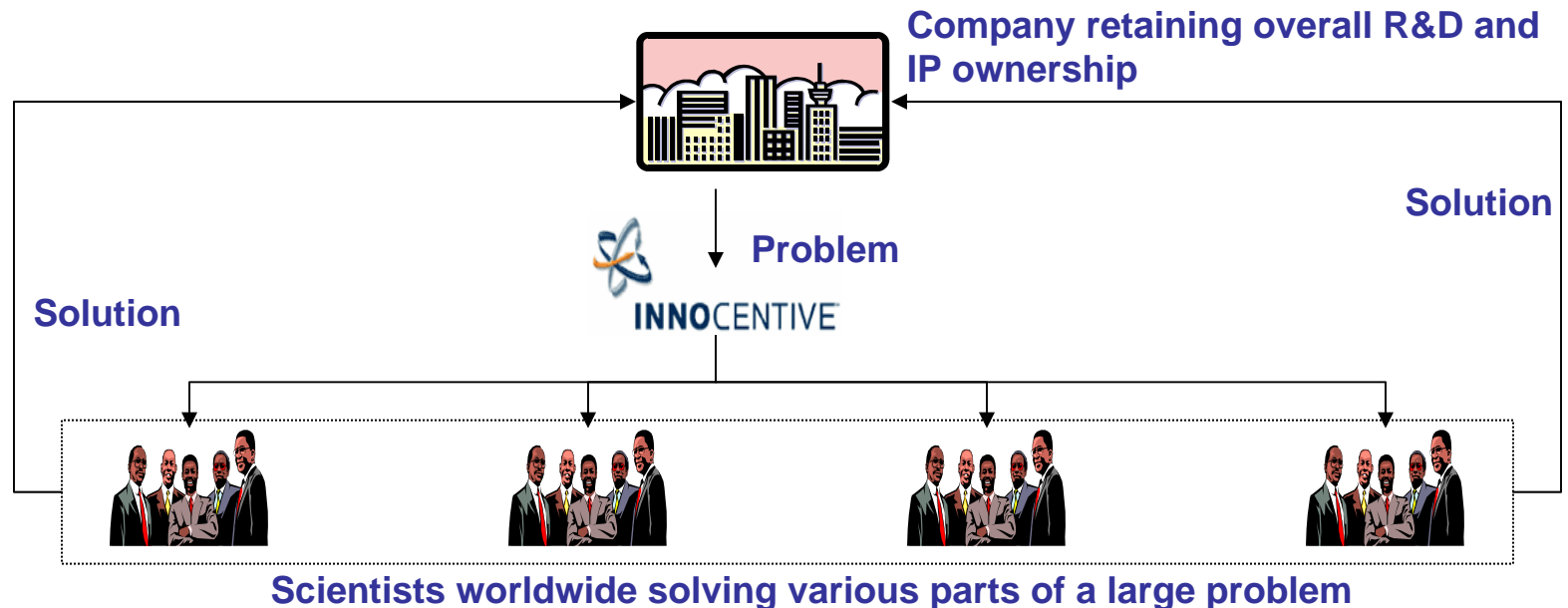# Medical Tourism -- Labour-cost arbitrage of an entirely different kind

- The UK healthcare system is not able to cope with the large number of patients seeking treatment. The NHS faces a shortage of almost 100,000 employees in the UK. Critical areas, such as emergency services and operation theatre nursing, face severe staffing problems.

- In 2002, over 1,000 UK patients were treated outside the UK, and 42% of the patients expressed their willingness to travel outside the UK for treatment.

- After the September 11 incident, people from the Middle East have started going to India, Thailand and Malaysia for treatment.

- The Indian Diaspora consist of 20 million -- with a per capita annual income of $15,000 – and spends about $30 Billion in Health-care.

- Thailand, India, Poland and Malaysia are destinations offering world-class facilities at a fraction of the UK cost. Thailand, Poland, Malaysia and India have a large number of world-class hospitals and offer up to 78% cost savings and can provide recuperation in exotic resorts (e.g., Goa in India).

Knowledge Process Outsourcing of a different kind – Solving problems (in your home) for Dollars - Anyone?

- InnoCentive is an independent venture launched by Eli Lilly and Co. which enables companies to utilize the talents of the global scientific community.

- Companies contract with InnoCentive in order to become 'Seekers', which allows them to post R&D problems to InnoCentive.com.

- Scientists from across the world can access and evaluate challenges and submit solutions.

Company retaining overall R&D and IP ownership

Solution

Problem

INNOCENTIVE

Solution

Scientists worldwide solving various parts of a large problem

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Low-end services are likely to grow from 7.7 Billion in 2003 to $39.8 Billion by 2010

Opportunities	Description	2003	2010	CAGR
Customer Interaction Services	Call centers -- Helpdesk, telemarketing, sales support	5.4	17.8	18%
Finance & Accounting	Data entry, mortgage, claims processing, payroll processing, receivables	1.5	13.0	36%
HR Services	Recruitment processing, payroll processing	0.5	8.0	49%
Translation & Transcription	Medical transcription, translation of foreign language documents	0.3	1.0	31%
Total ($Billion)		**7.7**	**39.8**	**26%**

Source : Evalueserve

Knowledge Process Outsourcing likely to grow from $1.2 Billion in 2003 to $16 Billion by 2010

Opportunities	Description	2003	2010	CAGR
Equity, Financial, Insurance Research	Equity research, Accounting reports	0	0.4	N/A
Data Search, Integration & Management	catalog and database creation, updating & mgmt.	0.3	5.0	50%
Research and Information Services in Human Resources	Compensation, modeling and benchmarking	0	0.2	-
Market Research, Competitive Intelligence	Industry reports & data	0.02	0.4	54%
Engineering & Design	CAD/CAM, plant designs	0.4	2.0	29%
Animation and simulation services	E.g. simulation of new designs for cars, engines	0.1	1.4	46%
Paralegal Content & Services	Research in case law etc.	0	0.3	N/A
Medical content and services	Remote diagnosis, etc.	0	0.3	N/A
Remote Education, Publishing	Professional education, etc.	0	2.0	N/A
Biotech & Pharmaceuticals	CROs, drug discovery etc.	0.28	3.0	40%
Research & Development	Other non-IT areas	0.1	1.0	39%
Total ($Billion)		**1.2**	**16.0**	**45%**

Source : Evalueserve

India is likely to earn about one-third in higher end services and so may other countries…

India provided $3.5 Billion of BPO and KPO (but non-IT) services in 2003 and is expected to grow at a CAGR of 36% during 2004-2010. Hence, it is likely to earn $30 Billion in 2010 by providing these services.

Services	Low-end Services	High-end Services
Price per hour	$11	$24
Total Annual Revenue per professional per annum (every 2000 hours)	$22,000	$48,000
Total Employment Opportunity	820,000	250,000
Total Revenue Generated	$18 Billion	$12 Billon

Source : Evalueserve

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Russia, Israel and Ireland have a small but talented labor pool available for high-end services

- **Russia**
  - Russia has a very strong university system.
  - It has a workforce of former scientists & engineering professionals.
  - It has a talented labor pool, with the third-highest pool of engineers and scientists per capita in the world.
  - Russia has the capability to offer specialized engineering applications.
  - It also has the capability to offer applied mathematics application and complex optimization projects.

- **Ireland**
  - Ireland has a small but talented labor pool, which is proficient in English and is compatible with western culture.
  - Irish companies do not compete with other low-cost destinations and they have targeted niche software products and services.
  - Ireland offers packaged applications, product development and high-end systems.

- **Israel**
  - Although Israel has a small population, it has performed exceptionally well in the high-skill technology areas.
  - The Israel software industry has targeted niche software products and services and primarily develops products for the security and anti-virus software markets.

China has the potential of offering high-end services

- China produces 700,000 technical graduates every year.

- The government has initiated "2/11 campaign" and an "Elite university program" to boost the quality of Chinese universities.

- The government is also assisting large companies in establishing technology development centers.

- China has technical competence, especially in Linux, bio-informatics and anti-virus software.

- Lack of English-speaking capabilities is a barrier to the growth of off-shoring industry.

The labor pool in India has technical competence and English-speaking abilities

- India has the world's largest number of scientific and technological personnel after the USA.

- In India, six times more people go to universities than in China.

- There are over 221 universities with 10,555 affiliated colleges, with 330,000 teachers, and 3,100,000 graduating students (with Bachelor's degrees) every year. About half of these universities teach courses in the English medium.

- India has a huge pool of English-speaking (about 71 million according to Evalueserve) and computer literate manpower, and this number is growing at 12% annually *(Evalueserve estimate)*.

A large number of engineers, doctors and MBAs graduate every year in India

- *Computer Education*
  - 160 universities and 500 institutes provide computer education at the degree level.
  - Every year 120,000 engineering graduates in India specialize in Information Technology (as compared to 75,000 engineering graduates from US schools).
  - There are 70,000 private training institutes for computer education.
  - 550,000 professionals are trained annually.

- *Engineering Schools*
  - There is an annual output of 200,000 engineering graduates from government and private-run colleges in India.
  - The Ministry of Science and Technology is increasing the intake of people into the IITs. The number of IITs has increased from five to seven in five years, and the number of students admitted to them have increased substantially too.
  - The top 2% of the engineers graduate from the 30 tier 1 schools (4,000 to 6,000 per year).

- *Management Schools*
  - Management institutes produce 40,000 management graduates annually
  - The top 3-4% of the MBAs graduate from the 15 tier 1 institutes (about 3,000 per year).
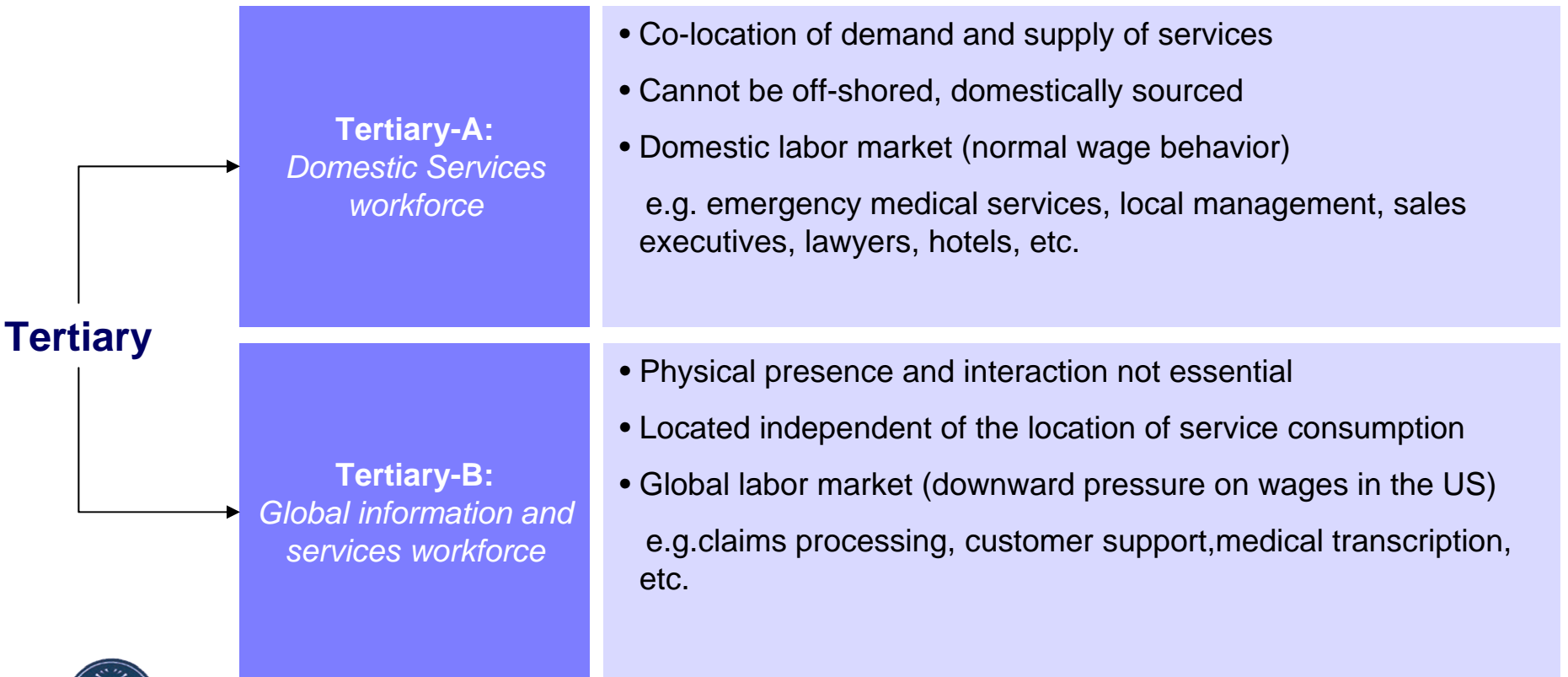
- *Medical Colleges*
  - Indian colleges produce about 120,000 trained doctors annually.

Concluding Thoughts -- Off-shoring is likely to restructure the global workforce

The emergence of a strictly onshore services workforce as part of Tertiary-A and a global information and services workforce as part of Tertiary-B.

Tertiary

Tertiary-A: *Domestic Services workforce*	• Co-location of demand and supply of services • Cannot be off-shored, domestically sourced • Domestic labor market (normal wage behavior) e.g. emergency medical services, local management, sales executives, lawyers, hotels, etc.
Tertiary-B: *Global information and services workforce*	• Physical presence and interaction not essential • Located independent of the location of service consumption • Global labor market (downward pressure on wages in the US) e.g.claims processing, customer support,medical transcription, etc.

Source: Evalueserve

…Concluding Thoughts……

- Globalization of services has just started

- Commodotization of low-end services is bound to happen because their potential barriers to entry are close to zero. Hence, not clear whether the Venture Capital industry or the Entrepreneurs will be able to make money (although they will certainly create wealth for the human society)

- New Business models will be created; some older ones destroyed. Next level of productivity improvements may come from this "creative destruction" of the current "supply chain of services"

- Many new business models will rely on re-arranging the supply chain of a given "process" and using Information Technology to enhance productivity

- By 2010, India may have become too costly to provide low-end services at competitive costs. The "Cheese" may move to Ukraine, Belarus, Vietnam, etc.