



Pharmaceuticals Outsourcing & Offshoring Opportunities - India

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and

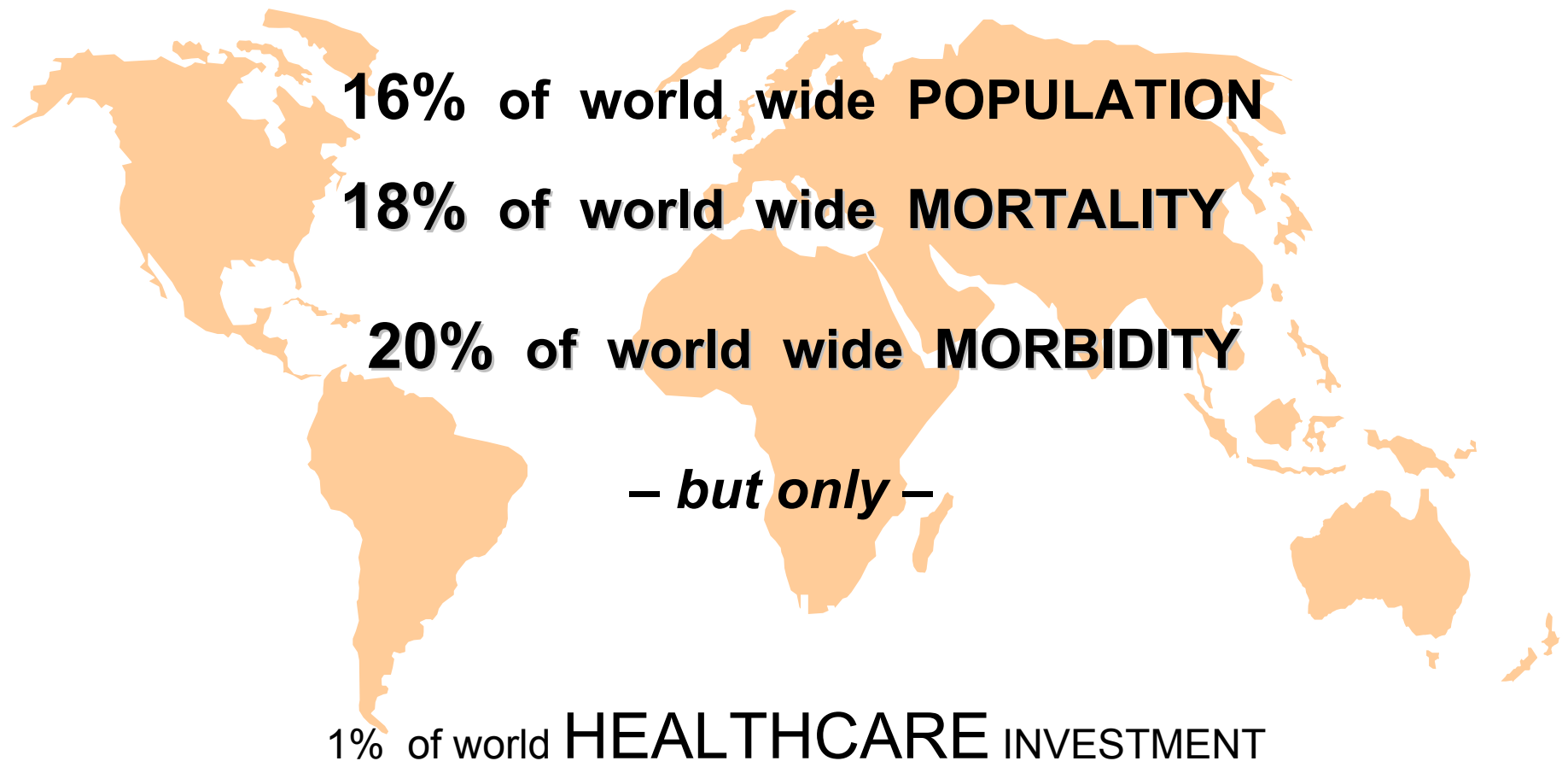
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2 October 2009

India – Opportunities for Pharmaceuticals



Disease Burden in India



Indian Pharmaceutical Industry

- Globally Indian Pharma Industry ranks 4th in volume and 14th in value
- Total size of the Indian Pharma market is ~INR 35,000 crore (~USD 7 bn)
- Highly fragmented with 5,000+ units; predominantly branded generics market with ~25,000 brands
- ORG – IMS tracks 432 companies
- MNCs account for ~ 19% (USD 1.6 bn) of Pharma market
- Prices controlled but gradually de-regulated from 347 in 1979 to 74 at present
- World class manufacturing facilities :
over 110 US FDA approved facilities – largest number outside of USA

Industry has a Strong Value Proposition

**Mortality
improvement**



- Saving lives

**Morbidity
reduction**



- Innovative treatments
- Shortened duration of disease

**Improved
quality of life**



- Decrease in chronic disability
- Improved efficacy / side effect profiles

**Positive
economic
impact**



- Reduction in overall healthcare costs
- Improvement in worker's productivity

Two Sides To India

Face 1 – an emerging giant

- Large Population base with fast growing income and aspirations
- Fourth largest economy in PPP terms
- IT Hub for the world, Largest Milk producer, Largest Aluminium manufacturer, Automobile leader, fastest growing economy....many others
- 2nd fastest growing large economy after China
- Per capita income growth up from \$120 in 1991 to \$960 in 2007
- 44% population < 21 years of age : potential consumers who have global aspirations with good disposable income
- Important destination as a future market for global companies

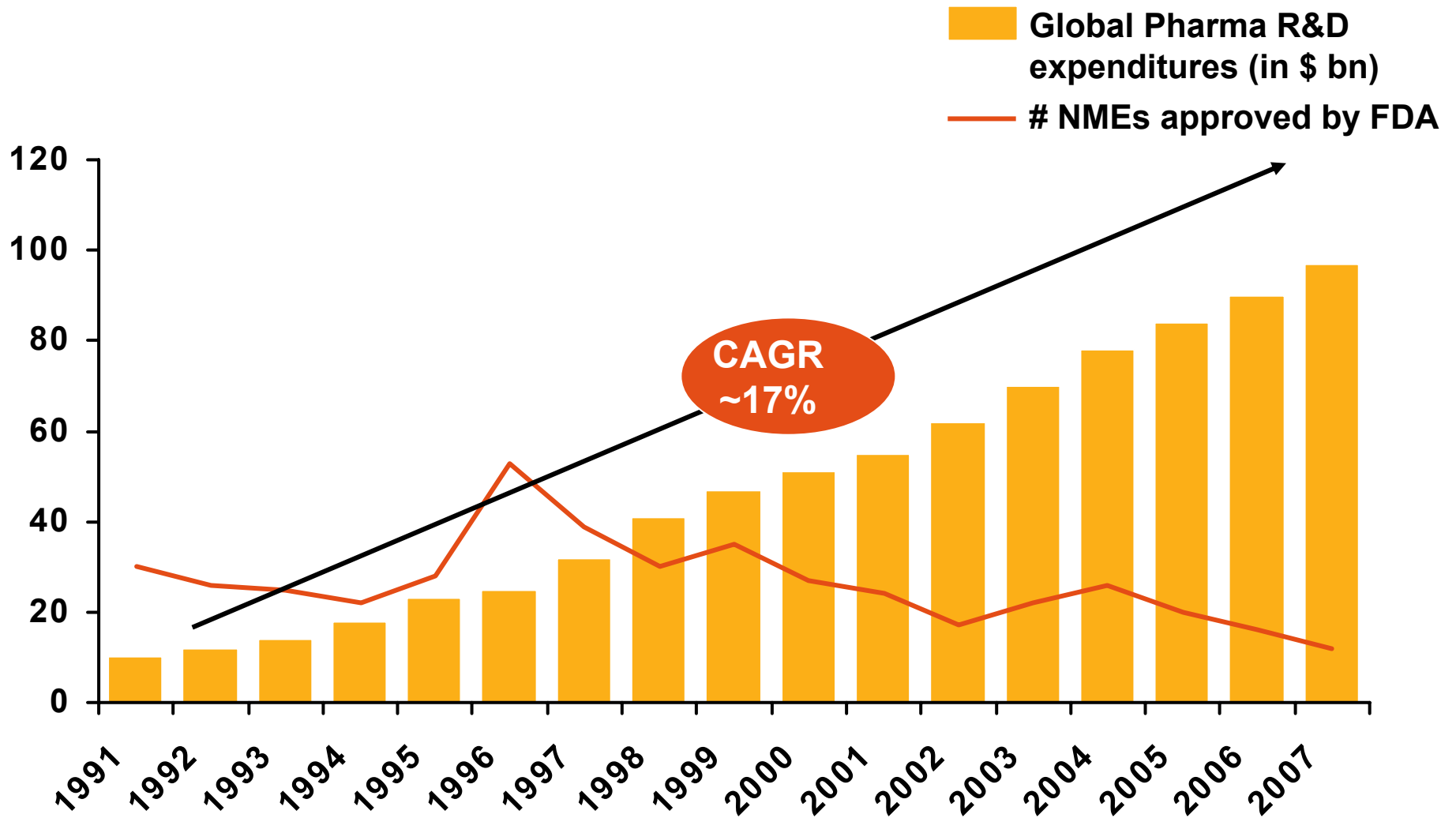
Two Sides to India

Face 2 – ‘not-so-privileged India’

- 80% live on less than USD 3/day (50% at < USD 1/day)
- 25% live below poverty line (2005)
- 65% have limited/no access to medicine; mostly among poor rural/ ‘bottom-of-the-pyramid’¹
- Education, infrastructure and access to quality healthcare are key hurdles in national development
- Lowest healthcare spend (per capita p.a. in USD): India 47 / China 90 / South Africa 255
- Significant effects of poverty on health and vice-versa
- 30% have access to potable water; Only 19% have access to sanitation
- Only 34% of child deliveries attended by trained person
- 49% of children fully vaccinated with 47% still undernourished

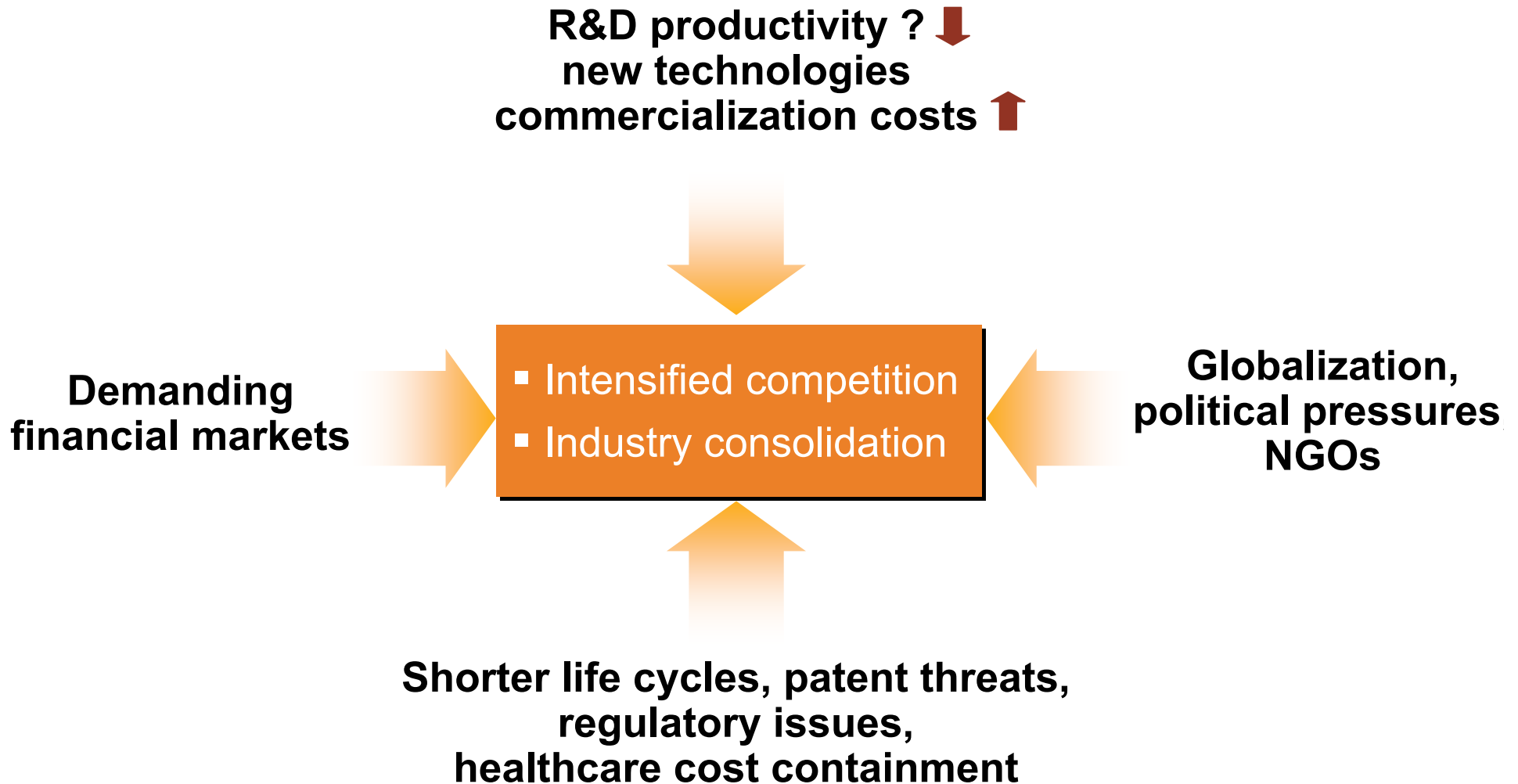
¹ Source: WHO – Diseases of poverty and the 10/90 Gap, International Policy Network, November 2004)

Industry spends more to get less



Source: FDA CDER & CBER; Evaluate

Pharma Industry Operates in a Challenging Environment















Reducing existing costs is only one of the drivers for companies offshoring activities to India

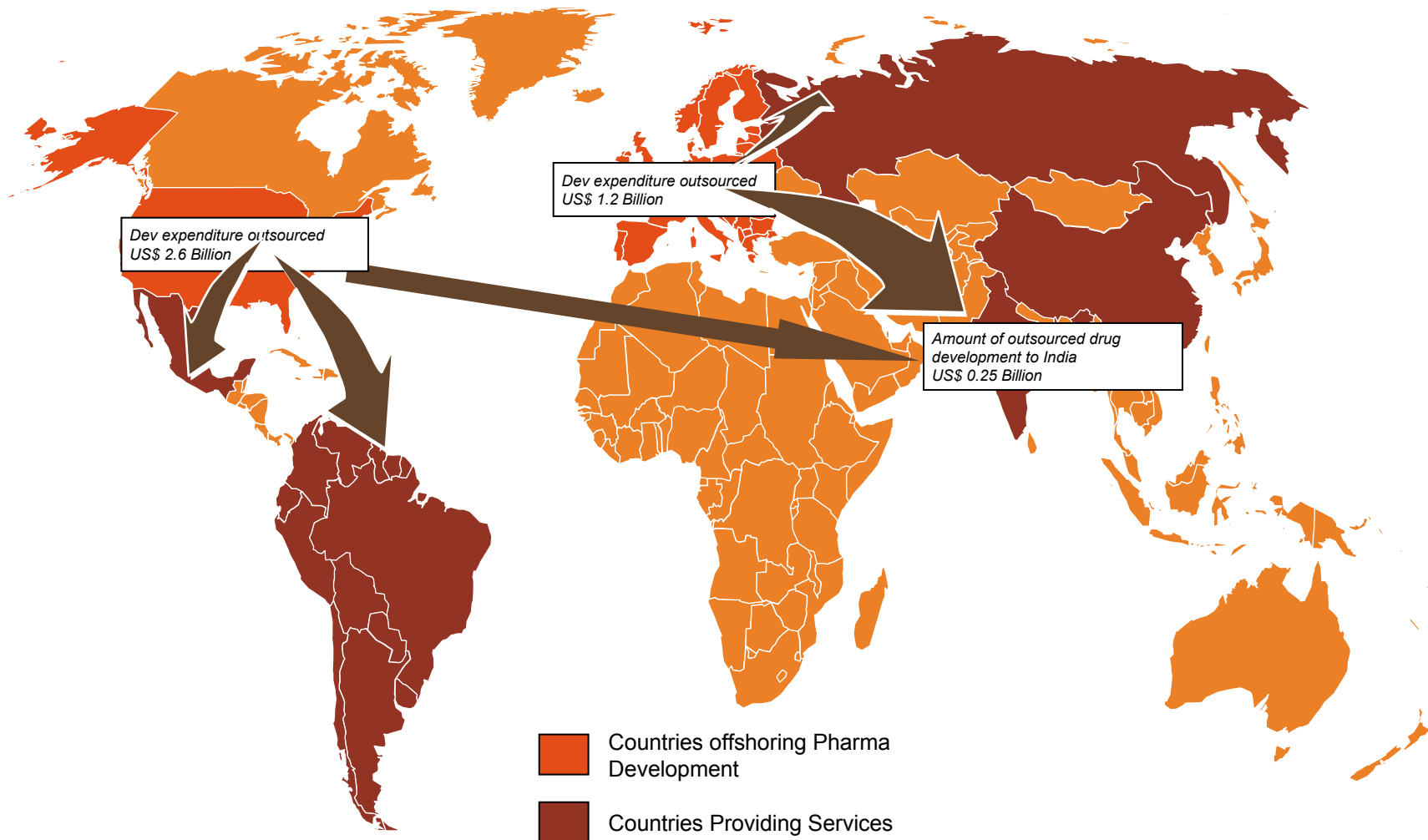


Companies offshore initially for cost,
but stay and expand for
quality and enhanced competitiveness

Outsourcing and Offshoring offer many strategic benefits

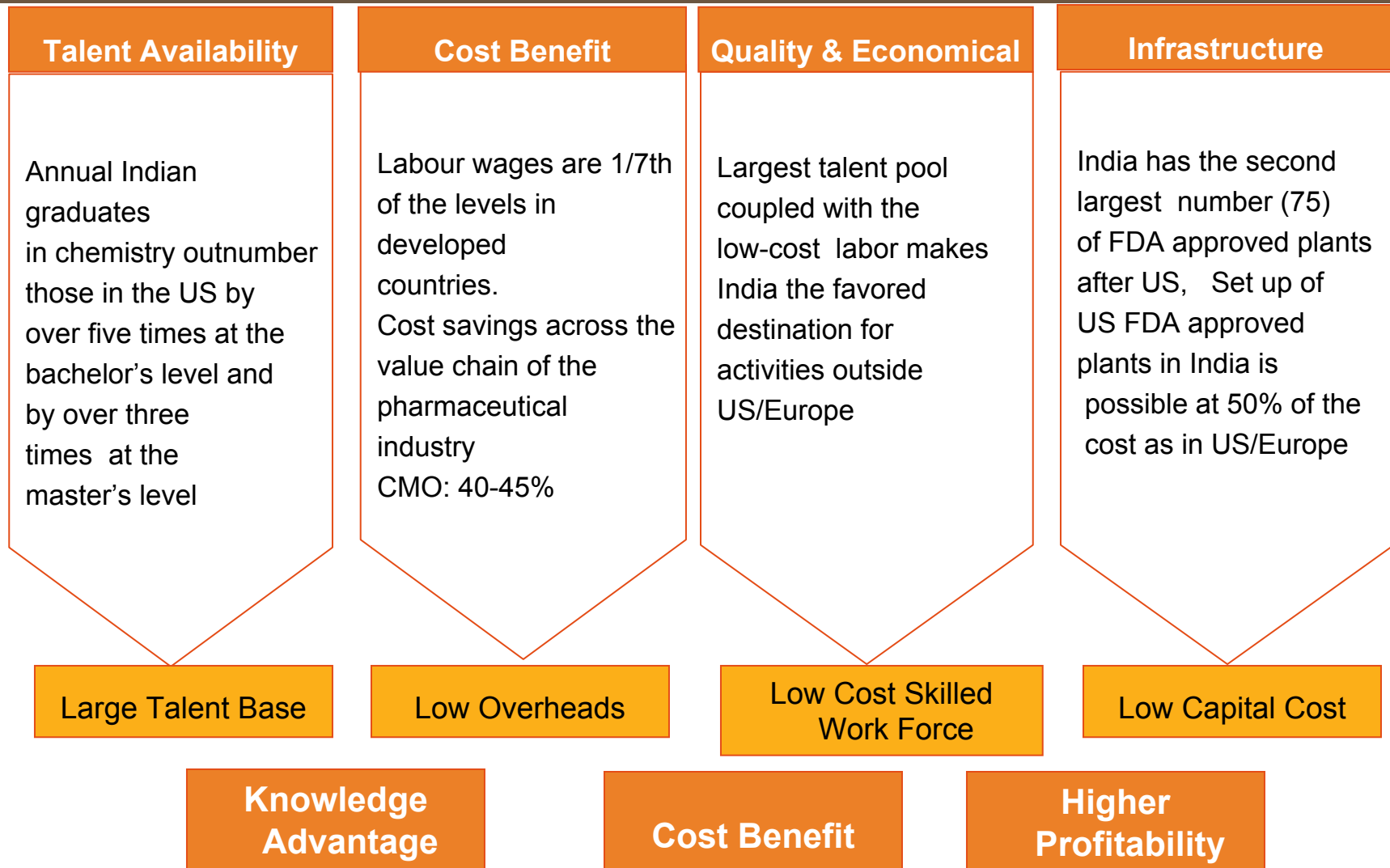
Levers	Description	Example
<p>1. Cost savings</p> 	<ul style="list-style-type: none"> Vendor often guarantee savings of 10-20% (onshore) to 40-60% (offshore) from current cost base 	 <ul style="list-style-type: none"> Lowered support costs 80% by moving to India and Malaysia
<p>2. Capital cost avoidance</p> 	<ul style="list-style-type: none"> Permits customers to leverage vendor infrastructure (e.g., IT systems, faculties) and variabilise cost 	 <ul style="list-style-type: none"> Avoided \$20+ million HRIS capital outlay by outsourcing HR
<p>3. Quality/ perform improvement</p> 	<ul style="list-style-type: none"> Vendors/managers are process experts and can often deliver superior performance 	 <ul style="list-style-type: none"> Reduced critical “code line” errors on checks to 4 defects/million
<p>4. Revenue generation</p> 	<ul style="list-style-type: none"> Lower factor costs permit more aggressive revenue accounting, auditing, and collections 	 <ul style="list-style-type: none"> £50 million/year through revenue audits -- interline, agent, and used tickets
<p>5. New products and services</p> 	<ul style="list-style-type: none"> Cost structure permits service offerings that were earlier infeasible 	 <ul style="list-style-type: none"> Provides live customer support for \$40 application
<p>6. Resolve skills shortage</p> 	<ul style="list-style-type: none"> Enables reach into broader talent pools 	 <ul style="list-style-type: none"> Now has 25% of development team in China, India, Hungary, and other offshore sites

Rising costs are compelling organizations in the US and EU to look for new emerging destinations such as India



Note:1. Drug Development Outsourced Market Size based on Outsourced Market Size of Clinical Trials, Medical Writing and CDM & Bio-Statistics

India preferred destination for offshore manufacturing



Business Process Outsourcing and Offshoring (BPO&O) has undergone exponential growth

Demand side forces

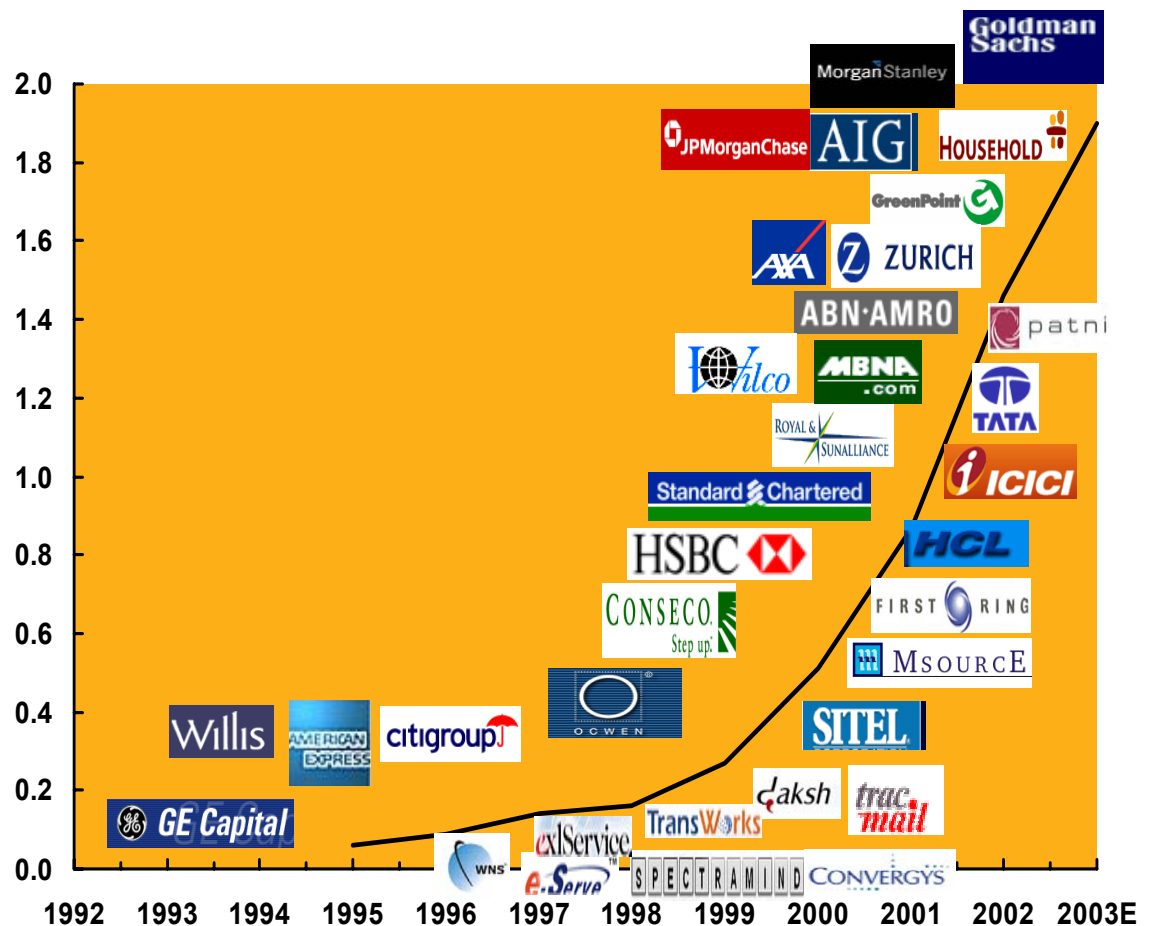
- Encouraging track record of early movers
- Demanding U.S market environment
- Successful track record of I/T offshoring

Supply-side enablers

- Telecom costs down by 90% in the last 3 years; world-class reliability
- Over 2.5 million low-cost talented workers in countries such as India and Philippines
- Emergence of a credible vendor community
- Favorable regulatory environment

BPO total revenues- India example

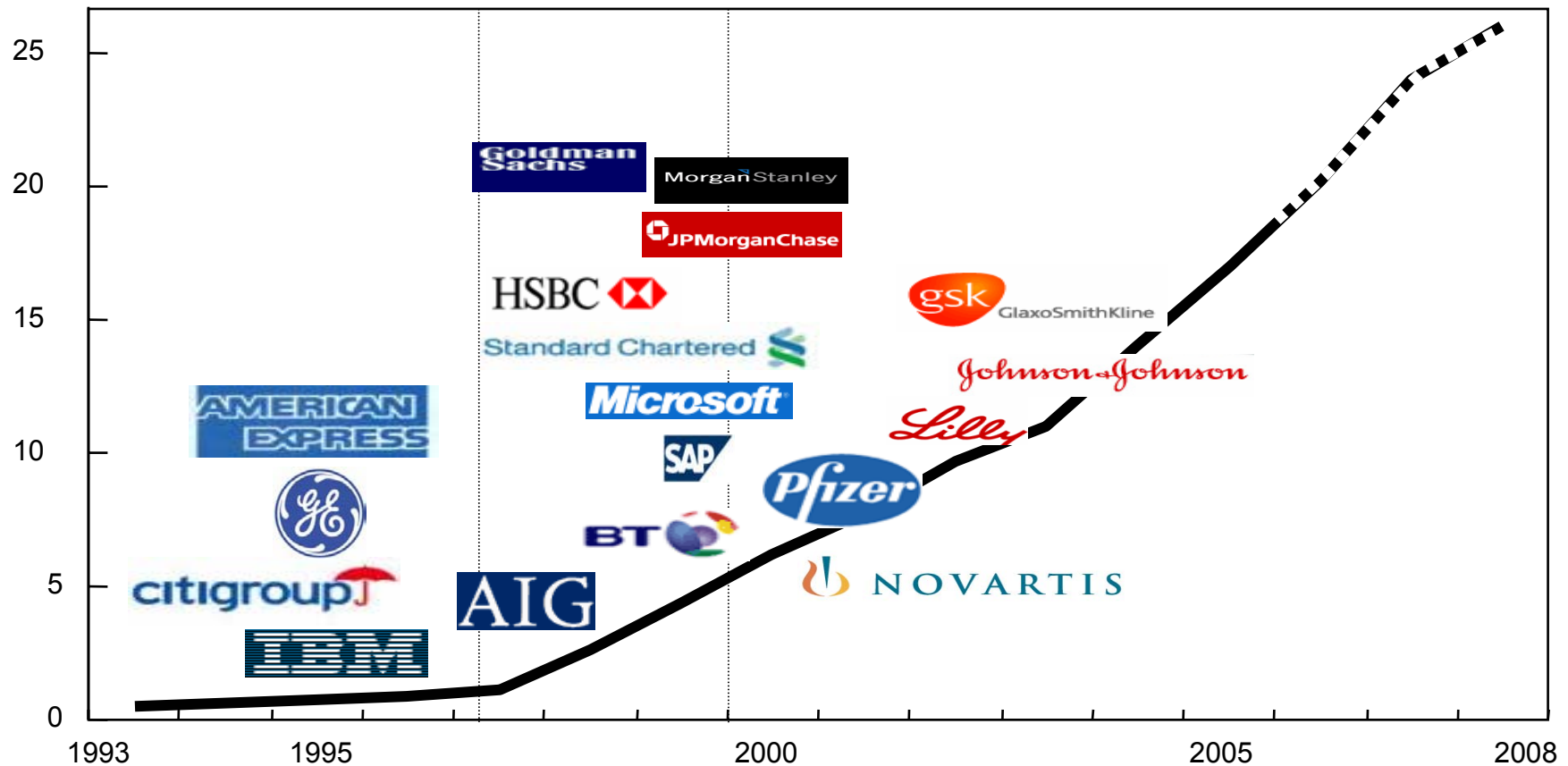
USD billion



Pharmacos have started to pursue O&O opportunities later than other industries

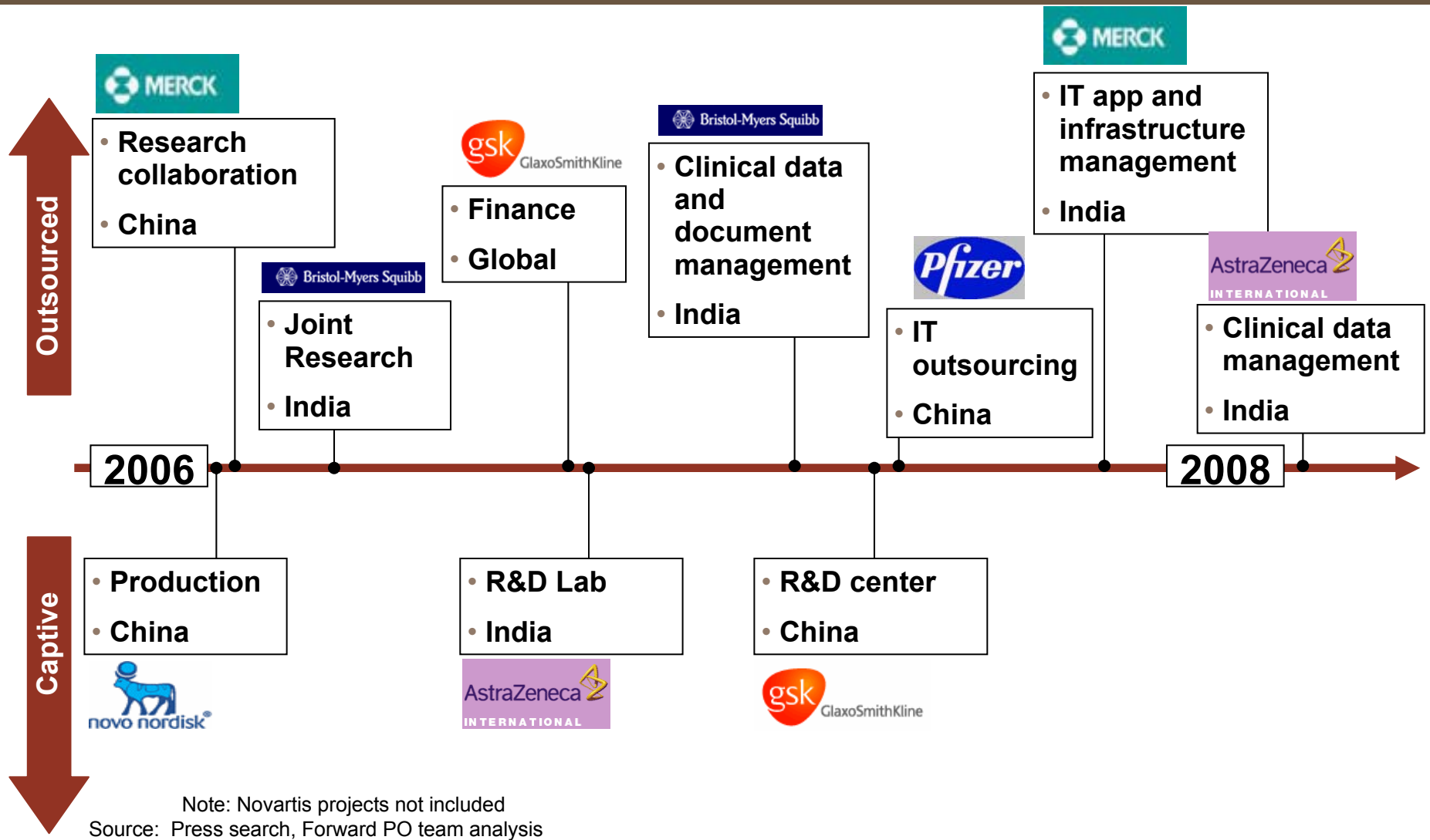
Indian IT industry growth and estimated growth potential

\$ billion



Sources: McKinsey BPO&O Initiative, Nasscom-McKinsey Report, 2002

But Pharmacos have been particularly active over the past two years



India remains most attractive shared services destination

Best alternative is China, followed by several Tier 2 destinations

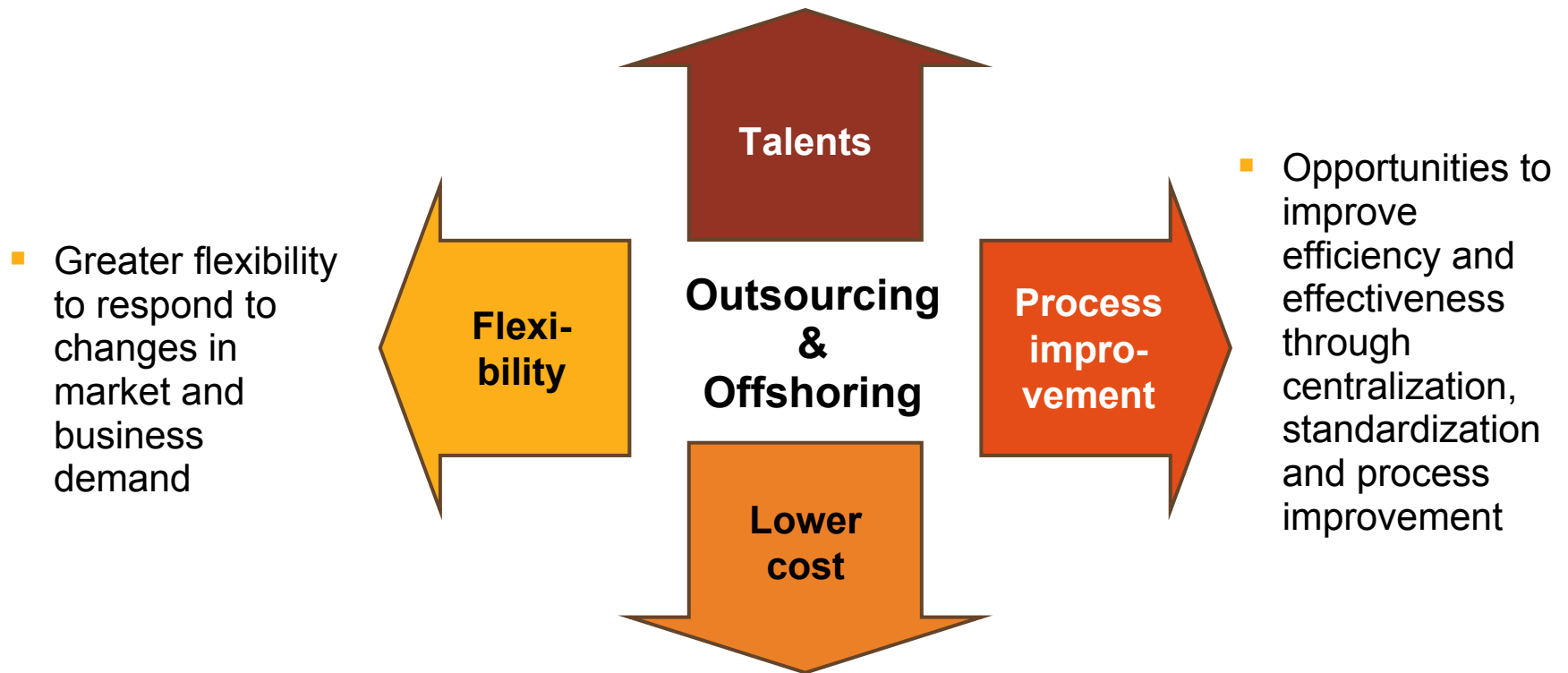


	Overall	Talent	Cost efficiency	Business environment	Vendor capability	Country stability
India	High	High	High	Low	Low	Low
China	Low	High	Low	Low	Low	Low
Malaysia	Low	Low	Low	Low	Low	Low
Thailand	Low	Low	High	Low	Low	Low
Brazil	Low	Low	Low	Low	Low	Low
Philippines	Low	Low	High	Low	Low	Low
Mexico	Low	Low	Low	Low	Low	Low
Vietnam	Low	Low	High	Low	Low	Low
Russia	Low	Low	Low	Low	Low	Low
Turkey	Low	Low	Low	Low	Low	Low

Source: AT Kearney Global Services Location Index, 2007, AM Best country risk rating, Transparency Internations

Multidimensional Benefits of Offshoring & Outsourcing

- Growing pool of well educated and ambitious talent in emerging markets, particularly India and China

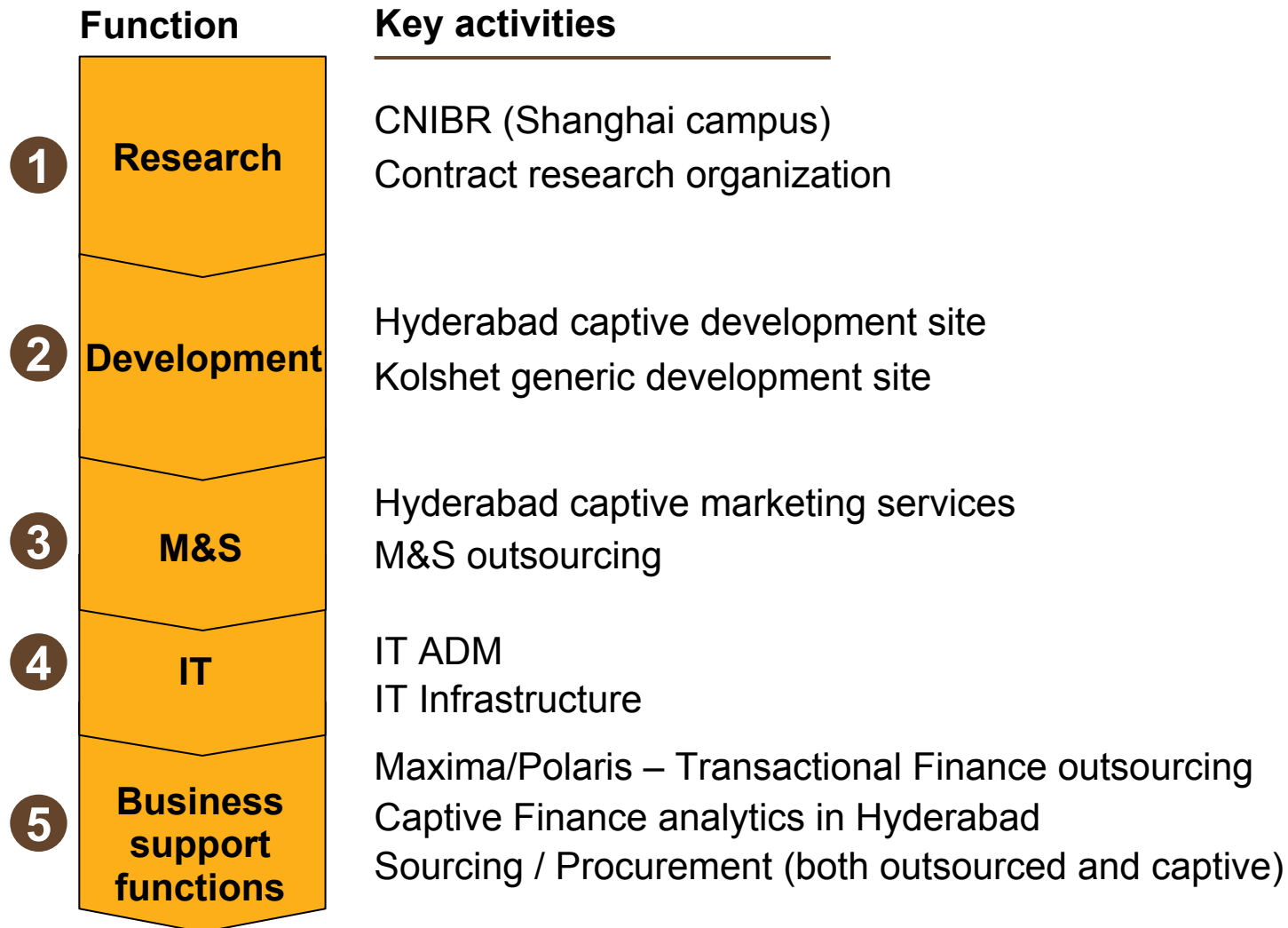


Offshoring Model

Ownership model	Captive	Outsourcing	Joint venture
Description	<ul style="list-style-type: none"> • Activities off-shored to own sites in low-cost locations 	<ul style="list-style-type: none"> • Activities outsourced to 3rd-party vendors offshore 	<ul style="list-style-type: none"> • Activities off-shored in a joint venture setup
Major Novartis offshore projects	<ul style="list-style-type: none"> • Hyderabad (Pharma) for <ul style="list-style-type: none"> – Development – M&S • Kolshet (Sandoz) for Development • Shanghai campus (NIBR) for Research • OTC R&D Centre Thane 	<ul style="list-style-type: none"> • Maxima/Polaris (Pharma, NCH) for Transactional FRA • IT application development and maintenance (ADM) 	<ul style="list-style-type: none"> • None

Source: Forward PO team

Novartis is today offshoring / outsourcing activities along its entire value chain

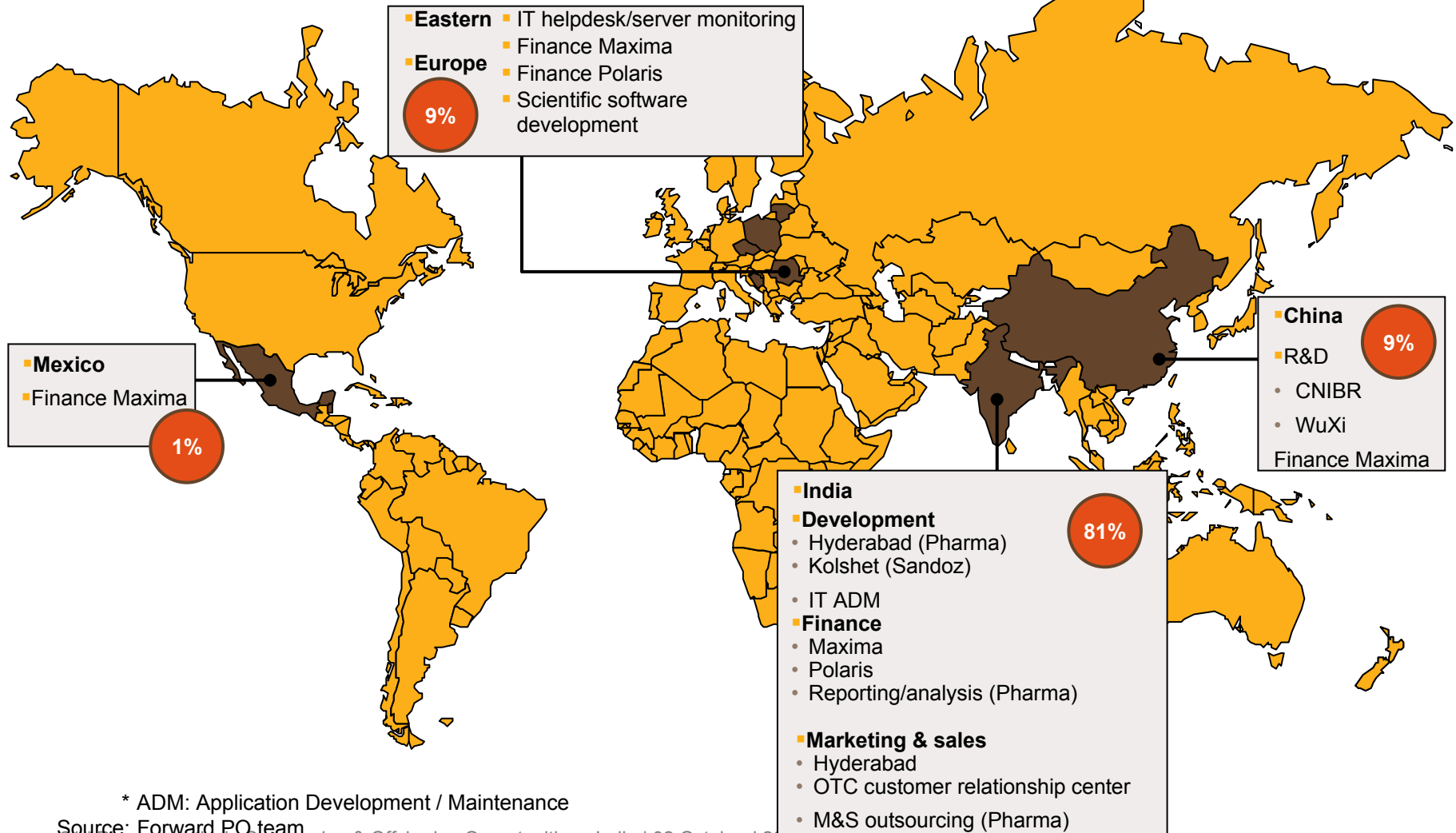


Source: Forward PO team

With a main focus on India

Own and 3rd-party FTEs

xx% % of total offshored workforce

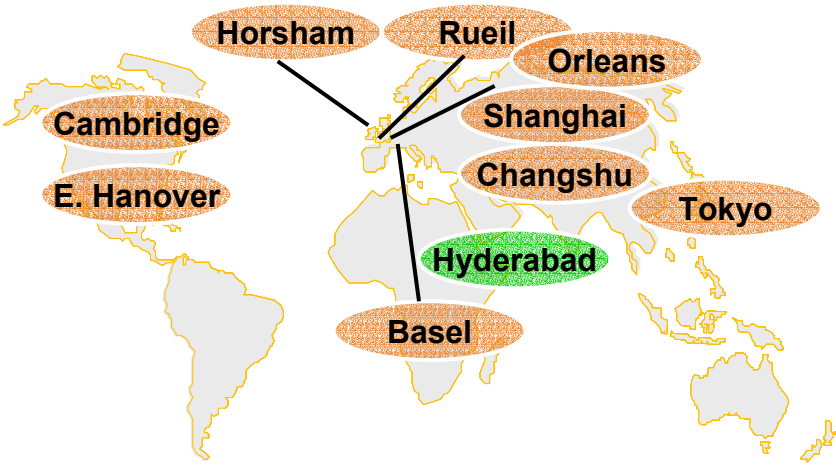


* ADM: Application Development / Maintenance

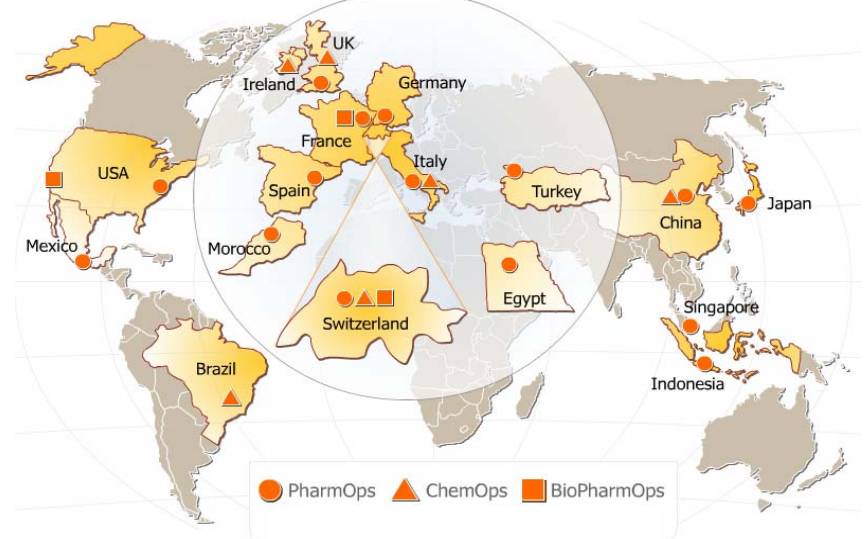
Source: Forward PO team

Hyderabad is part of the Global Novartis footprint

Development



Manufacturing



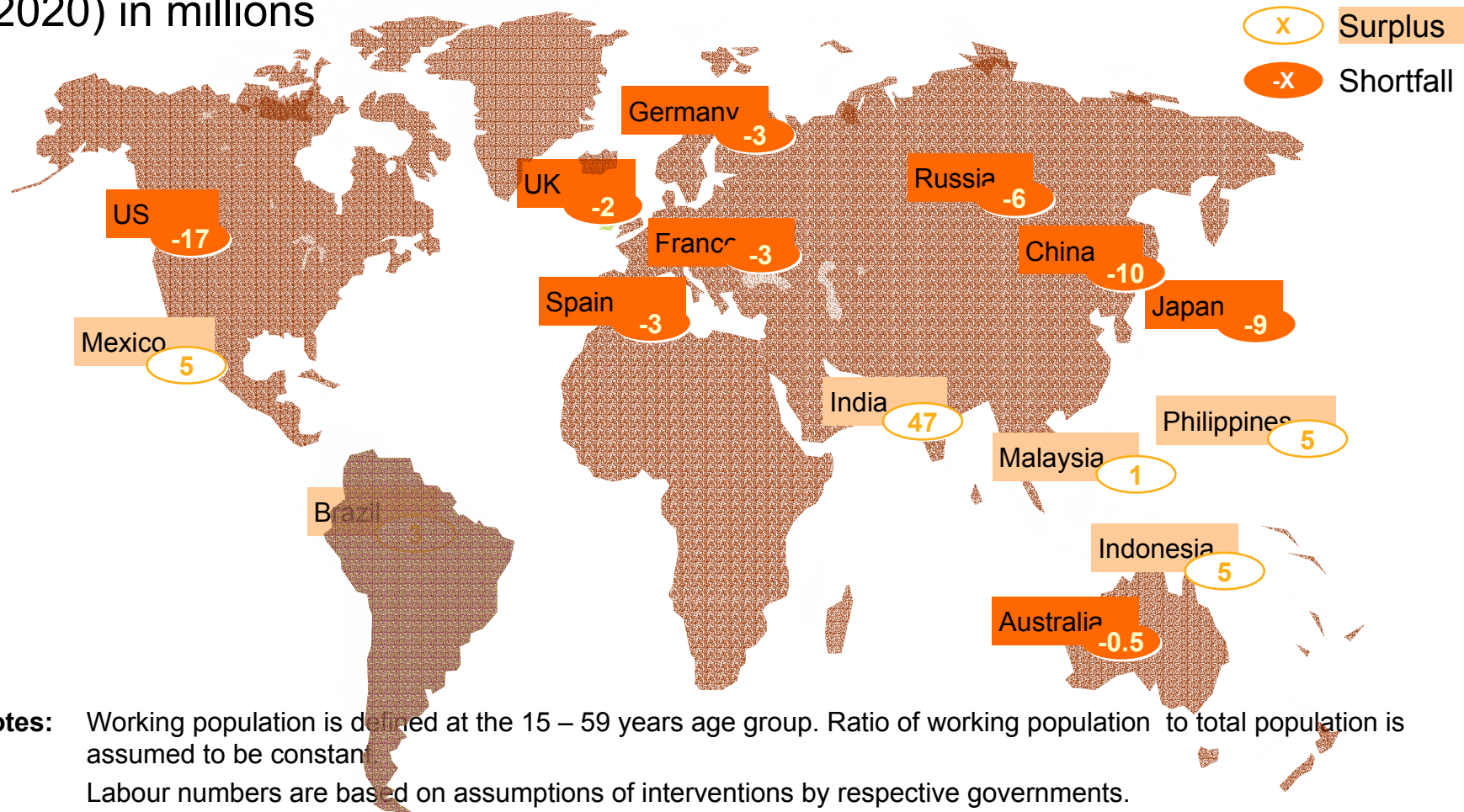
Commercial

140 countries



Vision 2020: Global availability of human resource

Potential surplus / shortage in working age group across the world (2020) in millions

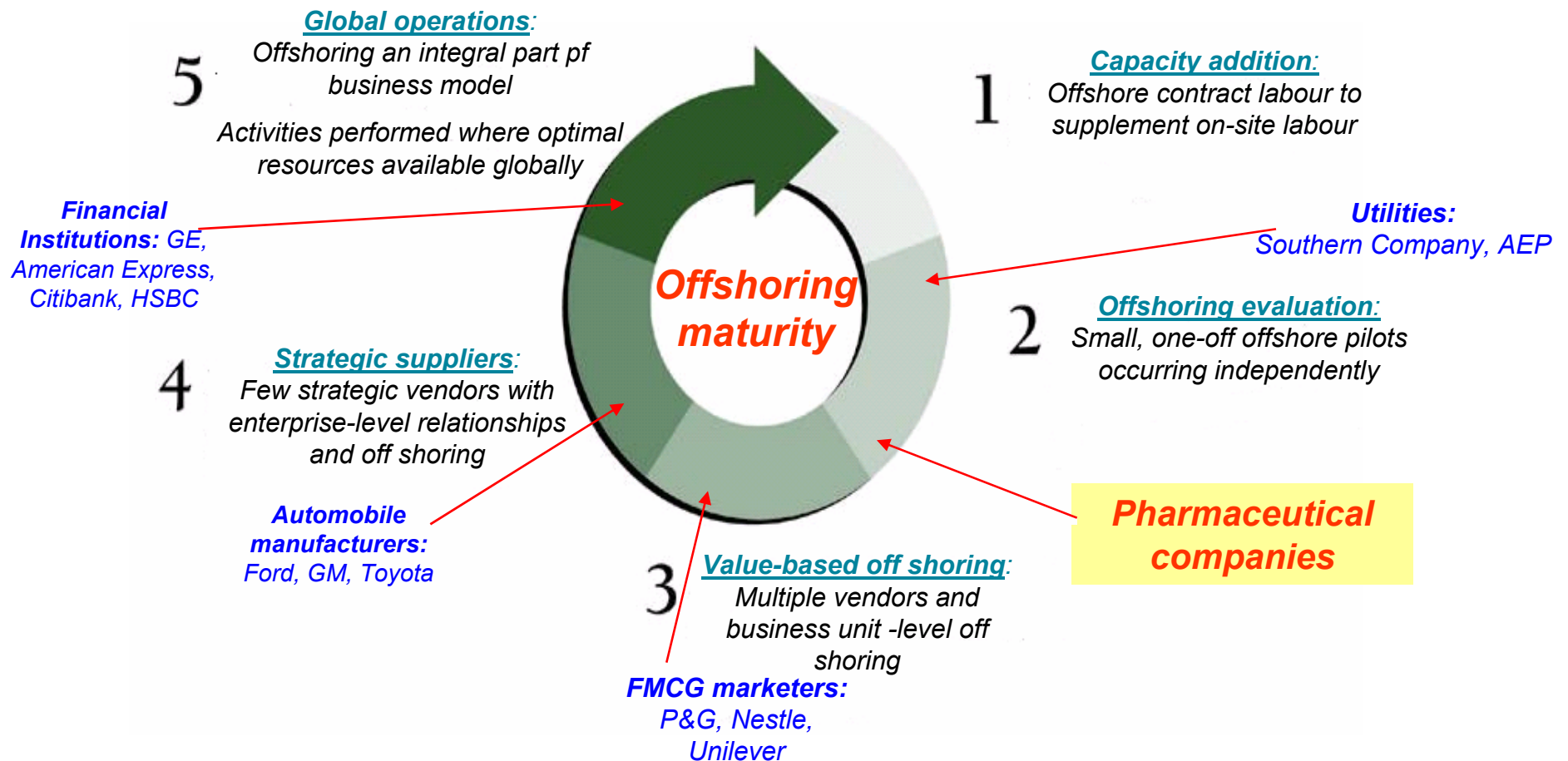


Notes: Working population is defined at the 15 – 59 years age group. Ratio of working population to total population is assumed to be constant.

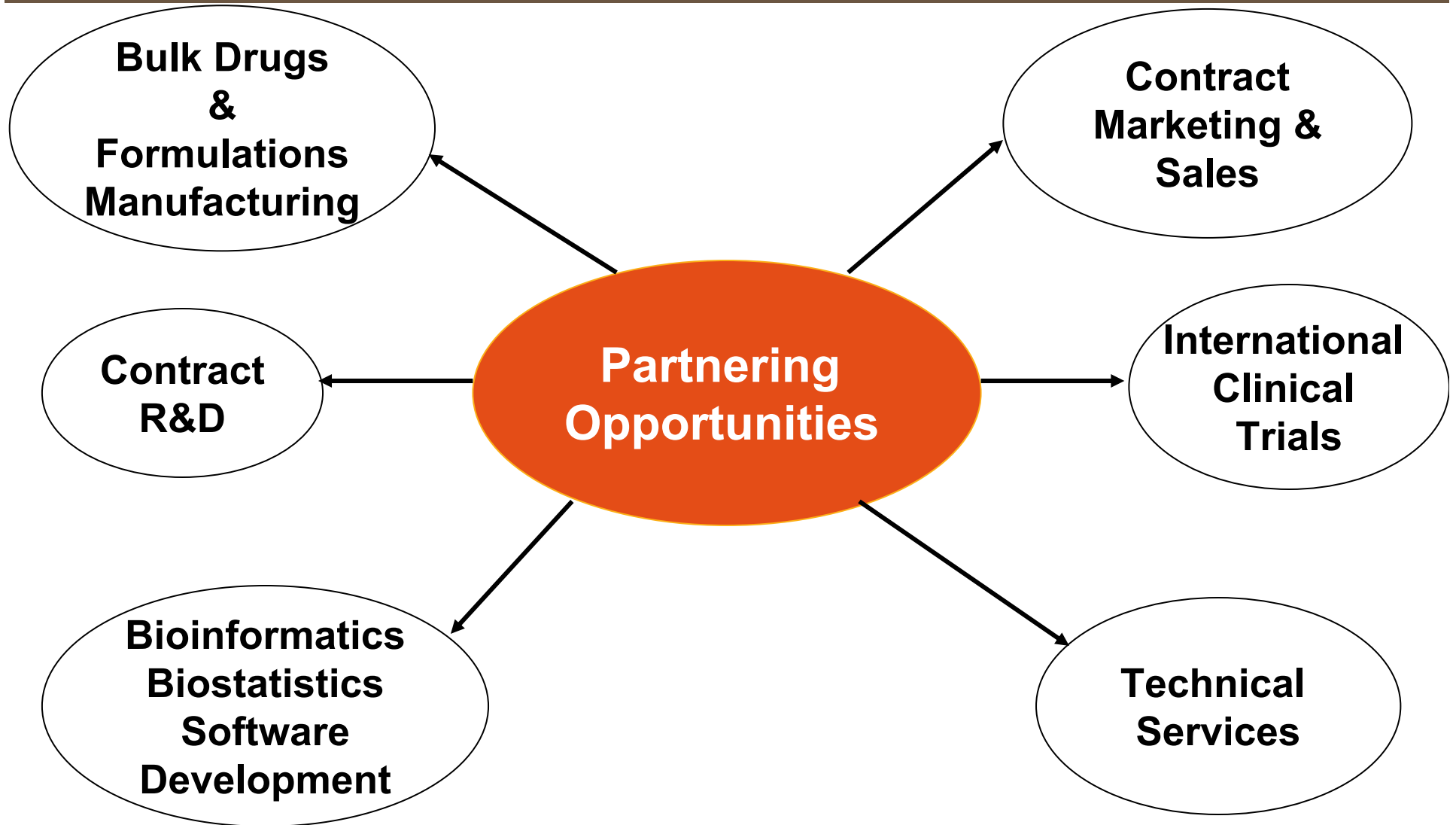
Labour numbers are based on assumptions of interventions by respective governments.

Source: US Census Bureau. BCG. 2002.

While other industries like the financial services sector have moved to global sourcing, the pharmaceutical industry is at the off shoring evaluation stage



Partnering Opportunities in a Changing Landscape



Generic Opportunity for India

- Highest number of US FDA approved manufacturing facilities outside USA
- Well Trained Scientific and Technical Manpower
- Cost Competitiveness
- Over 400 APIs (Active Pharmaceutical Ingredients)
- Out of total DMFs filed with U.S. FDA in last quarter 2007, India accounted for 47.6%

Advantage India

- An abundance of English speaking scientific and technological brainpower
- Large and diverse patient base for conducting international clinical trials
- Strong base of bulk drug manufacture (400 APIs)
- 15-16% R&D scientists in U.S. Pharmaceutical Industry are of Indian origin - hence strong networking
- World class entrepreneurial skills
- Cost effectiveness (Intellectual Capital per USD)
- Well developed ancilliary industry

The Outsourcing Imperative

- Drug Discovery cost ballooning to U.S.\$ 1 Bn per molecule
- R&D productivity is declining. Only 36 new molecules approved by U.S. FDA in 2004
- In past 10 years R&D cost is tripled but output is stagnant
- Effective patent life is reduced to just one or two years
- Consumer pressure on pharmaceutical pricing is on the increase
- Unprecedented wave of patent expiration in next few years (estimated U.S.\$ 80 Bn)
- Governments all over the world are reducing healthcare costs
- Demographic changes – increase in life expectancy
- Cost containment has become a core issue for Pharmaceutical Industry

