IIT D

'Center-for-global' or *'local-for-global'*

R&D centers of IT MNEs in *India*

P. Vigneswara Ilavarasan

IIT Delhi

http://web.iitd.ac.in/~vignesh

Funded by the TIFAC, Dept. of Science & Technology, Govt. of India.

Agenda

IIT D

- MNEs, Developing Countries, R&D
- Indian ICT Industry
- Questions?
- Secondary Data & Tele-interviews
- Trends
- Policy suggestions

MNEs, Developing Countries, R&D

IIT D

- MNEs in National Innovation Systems
- Market / labor arbitrage → collaborator
- Low skill → high skill work
- Export enclaves / employment → Tech. initiator

Indian ICT Industry

- Impressive growth – $ 64 b
- Growing high end segment -
  - $ 2.9 (2004) to $ 8.5 (2008) Data
- Direct employment - 2 m
- From foot soldier to chieftain(?)
  - Increasing no. of MNC R&D centers after mid 2000s.
  - 594 in 2008 (Zinnov, 2009)
- Rhetoric or reality?

IIT D

Questions

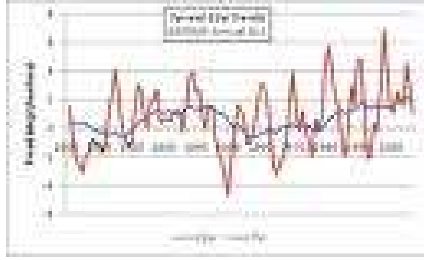
- To explore the nature and impact of R&D centers of IT MNEs in India
- Archibugi & Pieterobelli's Glob. of Tech.
    - ➢Center-for-global
    - ➢Local-for-local
    - ➢Local-for-global

Methods

- Secondary data / Content analysis
  - Database of 160 firms
  - Trade press, PROWESS, Newspapers

- In-depth telephone interviews with MDs / Vice Presidents (40)

Trends

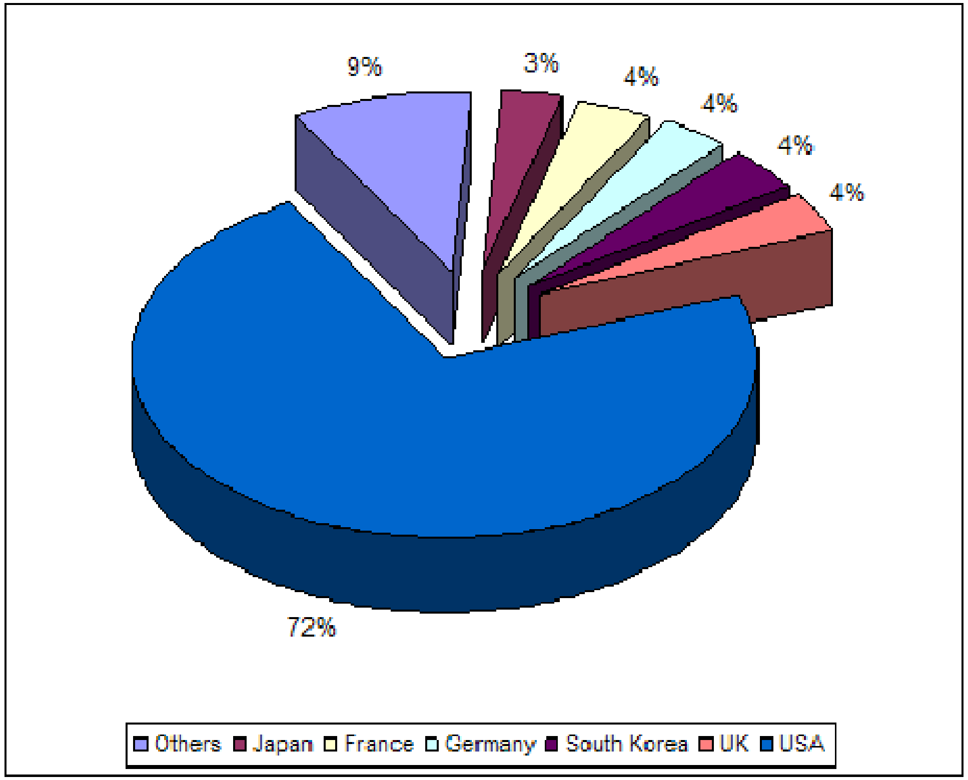


- Investment & personnel data not available.
- Zinnov report – Reliable? (Data)

Headcount (Employees)	Revenue (USD Million)			
	1-100 [48]	100-200 [9]	200-500 [13]	500+ [31]
10-50 [29]	23	3	1	3
50-100 [23]	14	2	2	5
100-200 [21]	7	2	5	8
200+ [27]	4	2	5	15

Source: Adapted from Zinnov (2009). Figures in [] show the percentage of firms within each category.

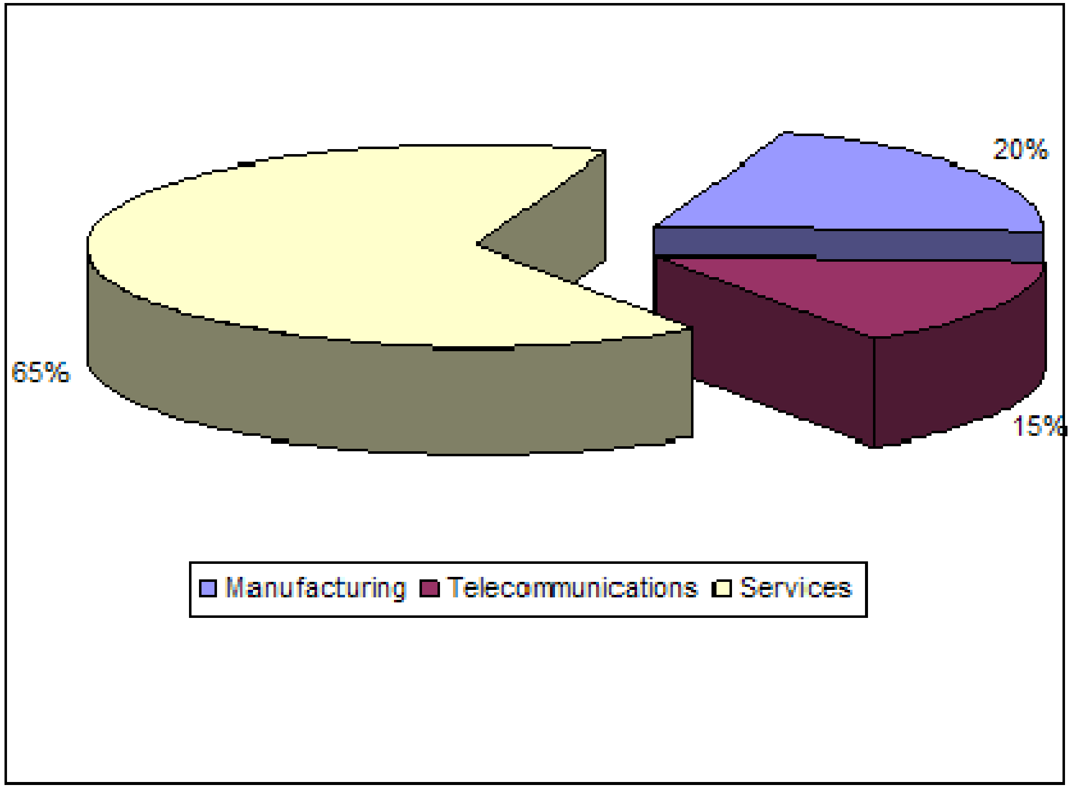
Home Country



- Led by US firms
- Historical reasons – Y2K; Migration
- Demonstration effect of SW outsourcing

Technological Domain

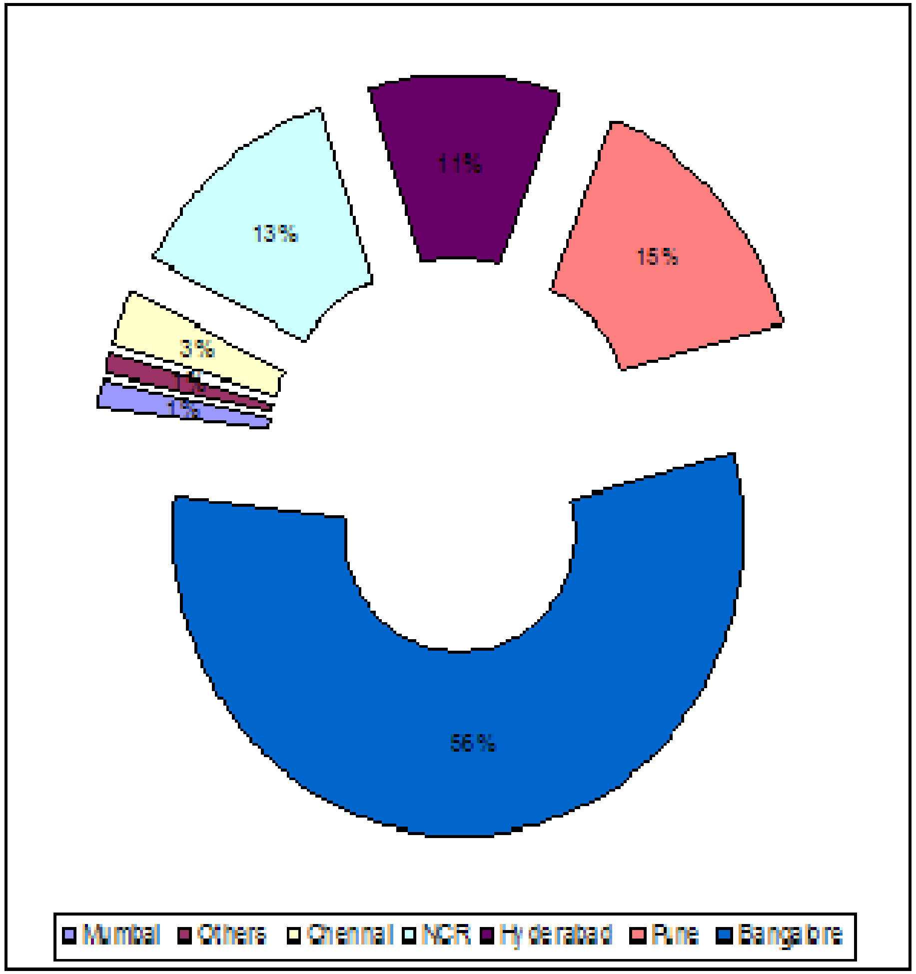
IIT D



- OECD Classification of ICT
- Predominantly Services
- Following success of SW exports
- Inadequate HW mfg infrastructure
- Not so supportive policy

Location

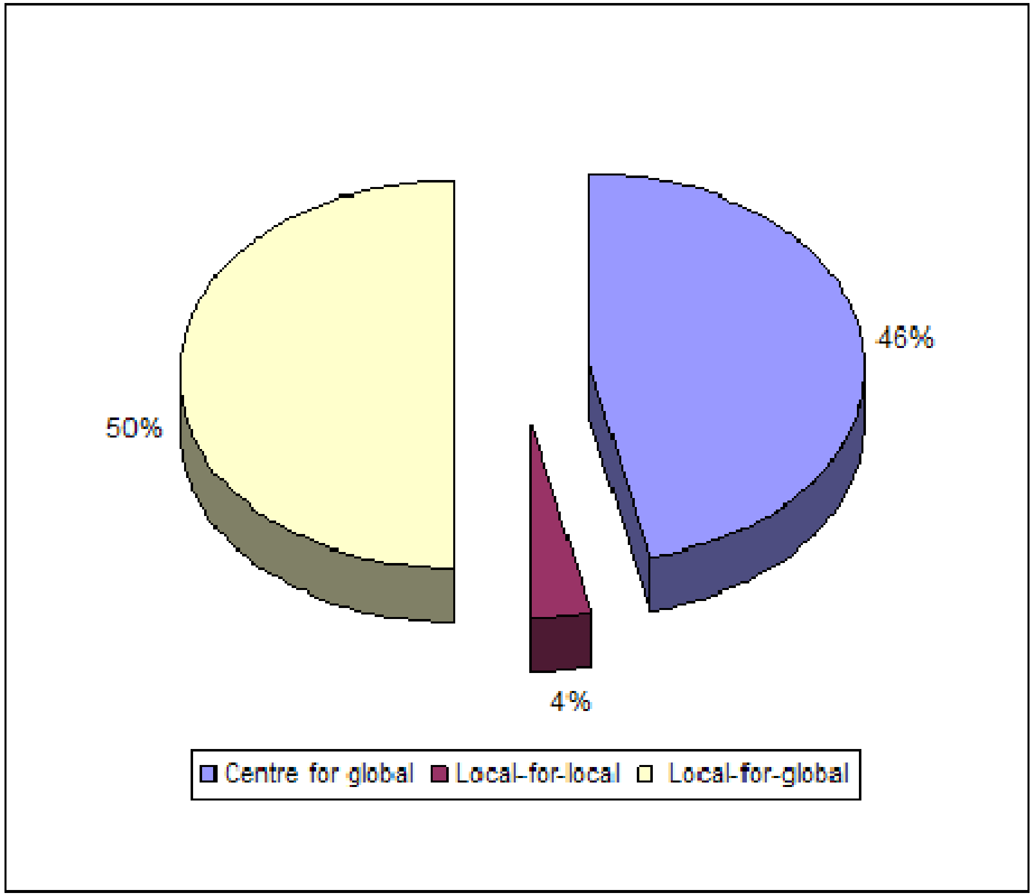
IIT D



- Bangalore → Pune
- *Positive agglomeration effects*
- *Negative agglomeration effects*
- Psychological closeness
- Tier II less likely

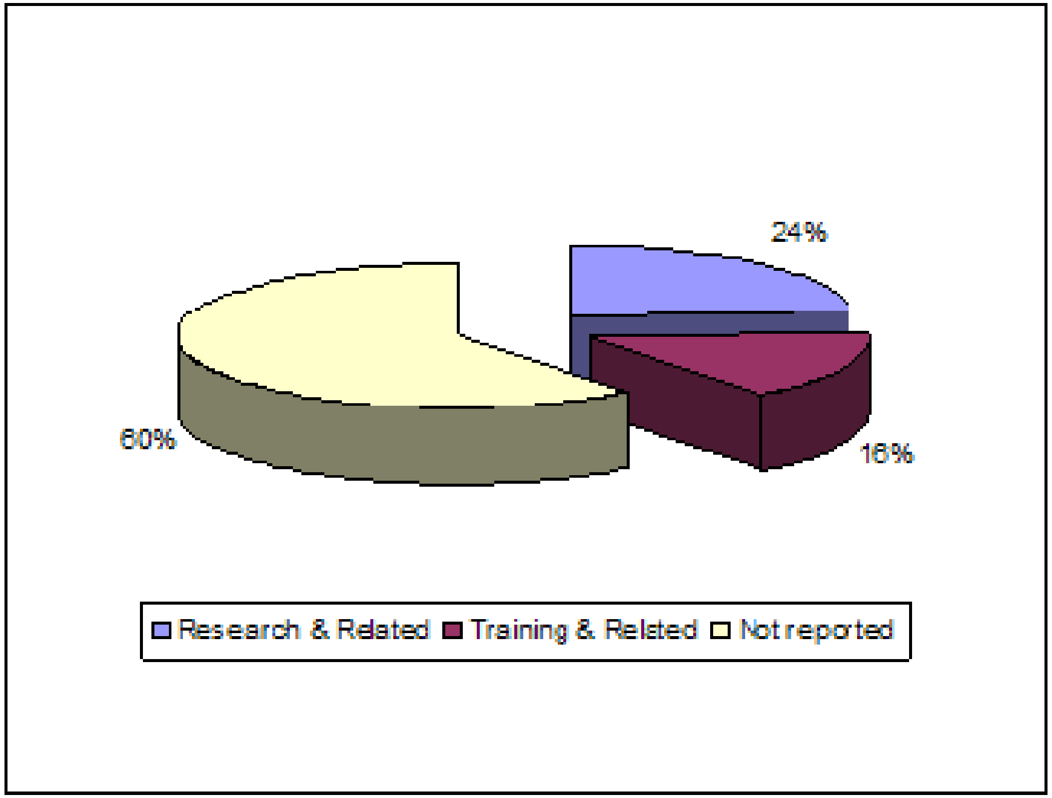
Brains or Arms?

IIT D



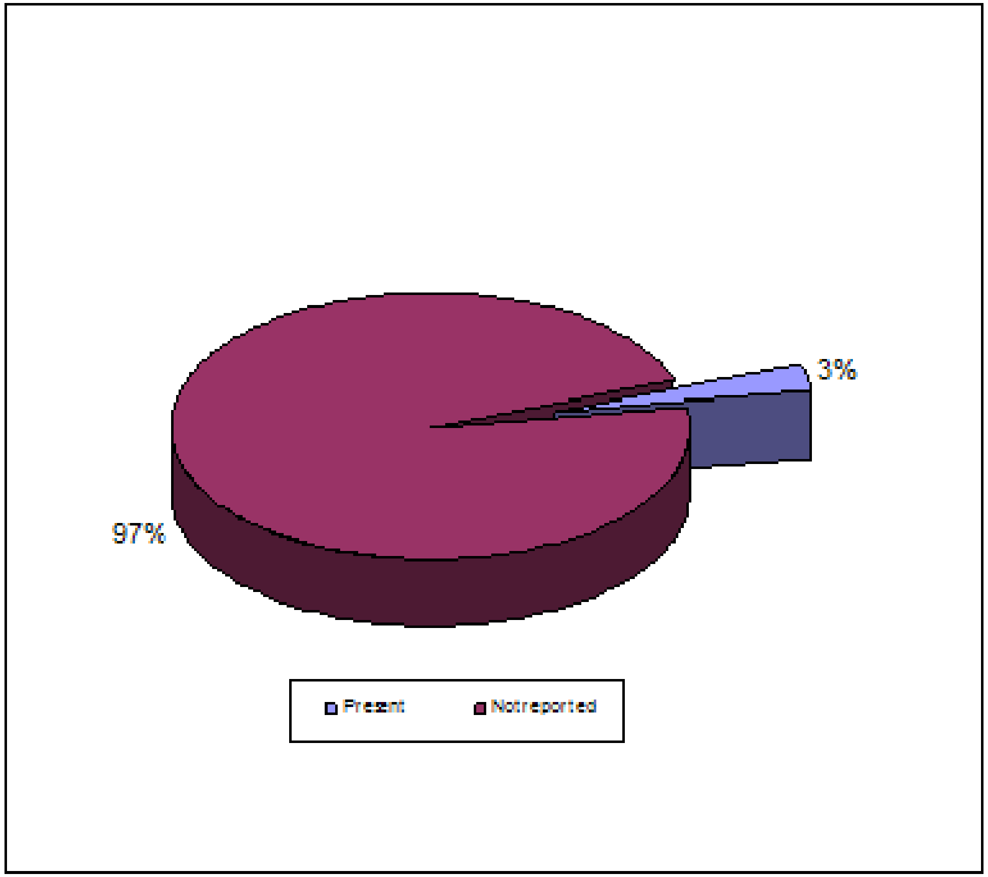
- Content analysis
- Split into halfs
- Start as 'center-for-global' to become 'local-for-global'
- Period ~ India Center capabilities
- Local-for-local
  - Mkt not attractive
  - Size & cost

Spillover – Univ & Ind Linkages



- Poor linkages
- More of a training
  - Placement
- Quality issues with skill
- Faculty
  - Less PhD
  - Few for industry
  - Slow to respond
  - No applied research
  - Inadequate signals

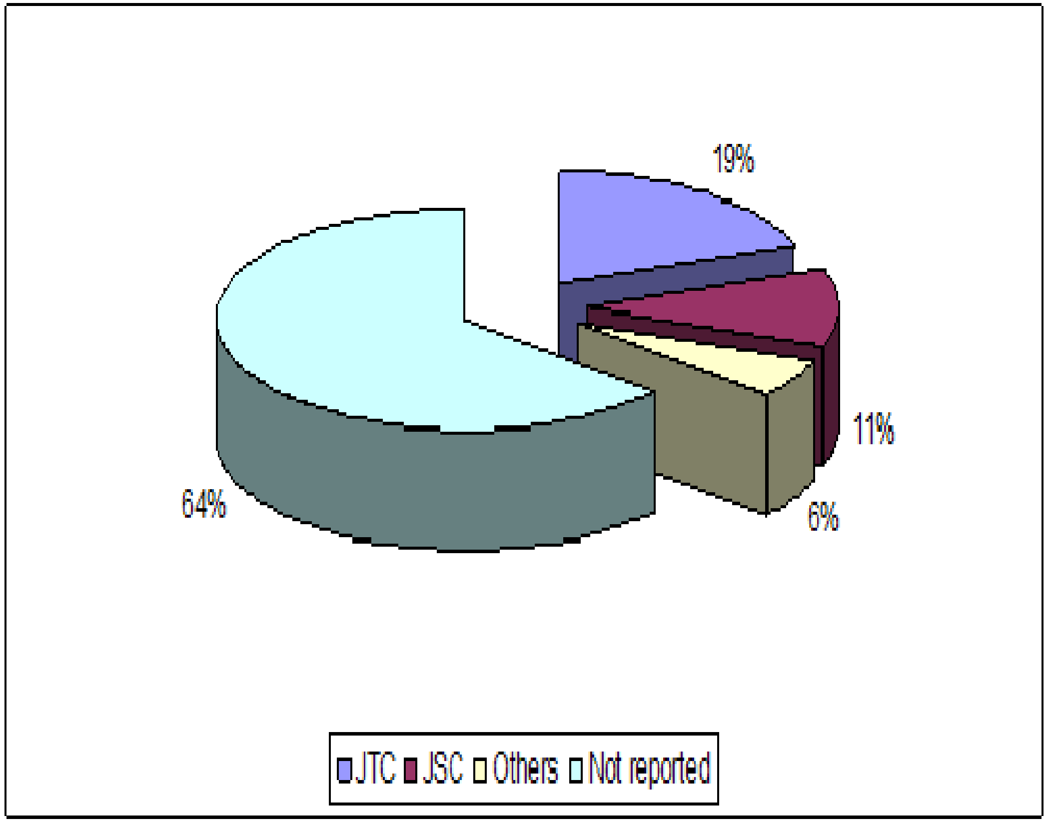
With govt. R&D Labs



- Minimal linkages
- Labs still opening for collaborations
- No info on labs' capabilities
- Labs driven by Univ. culture / public scientists

Linkage with local firms

IIT D



- Poor linkages
- To protect IPs
- Large firms are preferred
  – Dedicated centers
- Low tech capabilities of SMEs.

Diffusion thru labor mobility

IIT D

- Highest form of knowledge diffusion
- In-house training
- Attrition - personnel mobility
- Transnational work teams
- At least one foreigner or NRI in India centers.

Policy suggestions

IIT D

- Statistical framework needed – Frascati Manual
- Incentives for R&D less known by the MNEs – increase the awareness → university linkages
- Establishment of SW Research Center
- Capabilities @ govt. labs & Univ → Virual register to signal
- Industry collaboration as part of incentive structure for public scientists
- Even-out quality differences among labour.
- Policy to encourage to have local partners (successful case – Maruti Suzuki Autos)

Q & A

IIT D

http://web.iitd.ac.in/~vignesh

Data – Industry

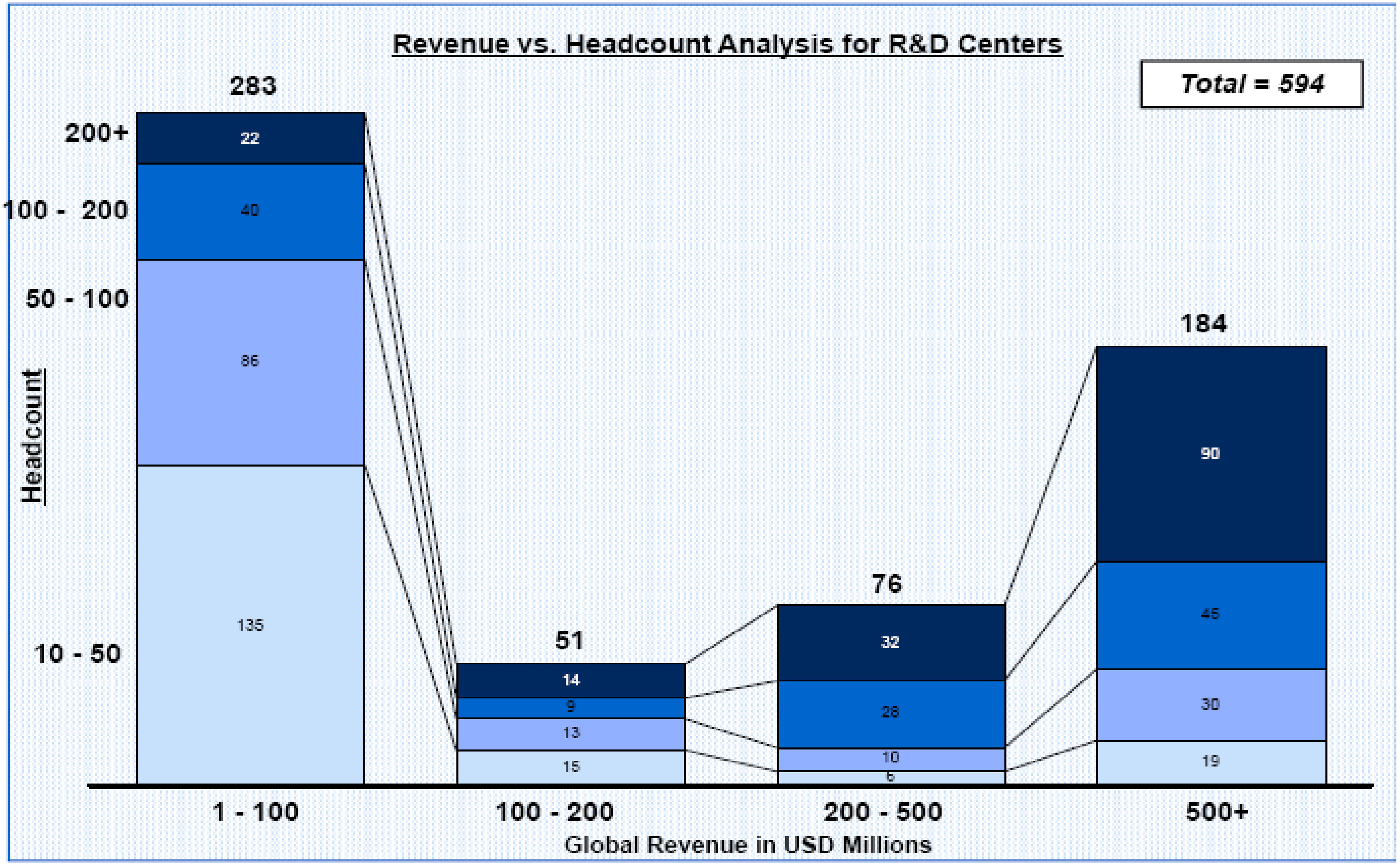
IIT D

Key Highlights of the IT-BPO sector performance in FY 2007-08

IT Industry- Sector-wise break-up

USD billion	**FY2004**	**FY2005**	**FY2006**	**FY2007**	**FY2008 E**
IT Services	**10.4**	**13.5**	**17.8**	**23.5**	**31**
Exports	7.3	10	13.3	18	23.1
Domestic	3.1	3.5	4.5	5.5	7.9
BPO	**3.4**	**5.2**	**7.2**	**9.5**	**12.5**
Exports	3.1	4.6	6.3	8.4	10.9
Domestic	0.3	0.6	0.9	1.1	1.6
Engineering Services and R&D, Software Products	**2.9**	**3.8**	**5.3**	**6.5**	**8.5**
Exports	2.5	3.1	4	4.9	6.3
Domestic	0.4	0.7	1.3	1.6	2.2
Total Software and Services Revenues of which exports are	**16.7** / **12.9**	**22.5** / **17.7**	**30.3** / **23.6**	**39.5** / **31.3**	**52** / **40.3**
Hardware	**5**	**5.6**	**7.1**	**8.5**	**12**
Exports	n.a.	0.5	0.6	0.5	0.5
Domestics	n.a.	5.1	6.5	8	11.5
Total IT Industry (including hardware)	**21.6**	**28.2**	**37.4**	**48**	**64**

Zinnov



Source: Zinnov Research