Samuel Neaman Institute
FOR ADVANCED STUDIES IN SCIENCE AND TECHNOLOGY
Technion Israel Institute of Technology

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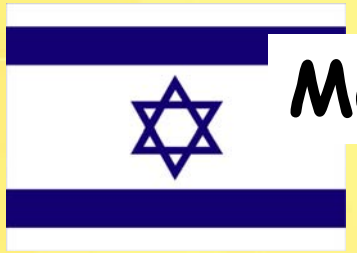
Ministry of Industry Trade and Labor
Office of the Chief Scientist

"India and Israel: R&D as a Strategic Bridge"

Aug. 15/47



May 15/48

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Academic Director-TIM Tel Aviv

Points for Discussion

1. Israel & India: rapid economic growth

2. Israel & India: key R&D complementarities

3. Globalization of R&D: implications

BASIC FACTS

Capital	Jerusalem
Population (millions)	6.74 (2003)
Land area (km^2 '000)	21.0 (2003)
Exchange rate (per $)	4.55 (2003)
GDP ($ billions)	107.8 (2003)
GDP per capita ($)	15,978 (2003)
Real GDP growth (%)	1.3 (2003)
Consumer Price Inflation (%)	-1.9 (2003)
Unemployment rate (%)	10.70 (2003)
Labor force (millions)	2.61 (2003)
Current Account Balance ($ bn)	-6.0 (2003)
Direct Investment	
Stocks Inward ($ billions)	24.75 (2002)
Flows Inward (% of GDP)	1.61 (2002)

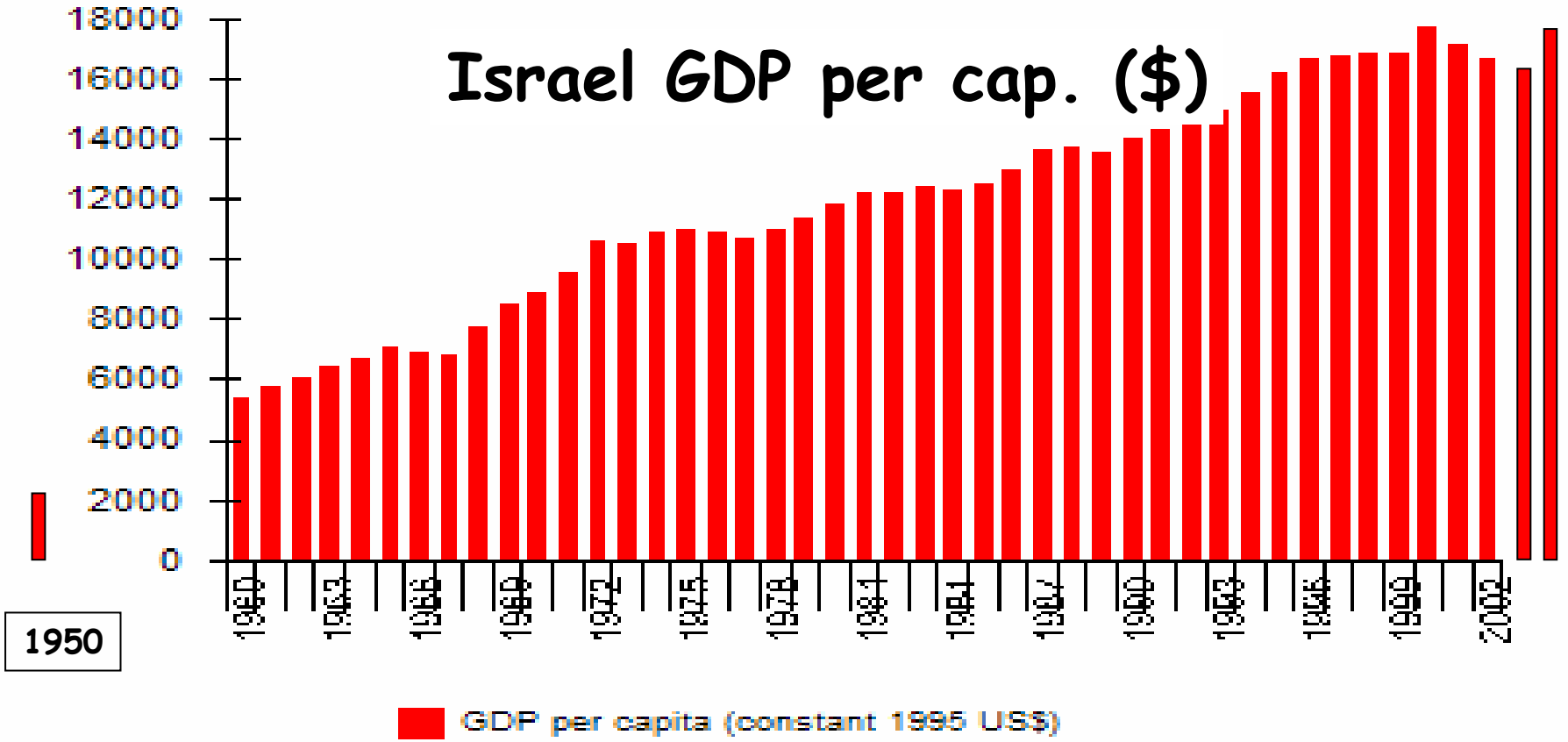
BASIC FACTS

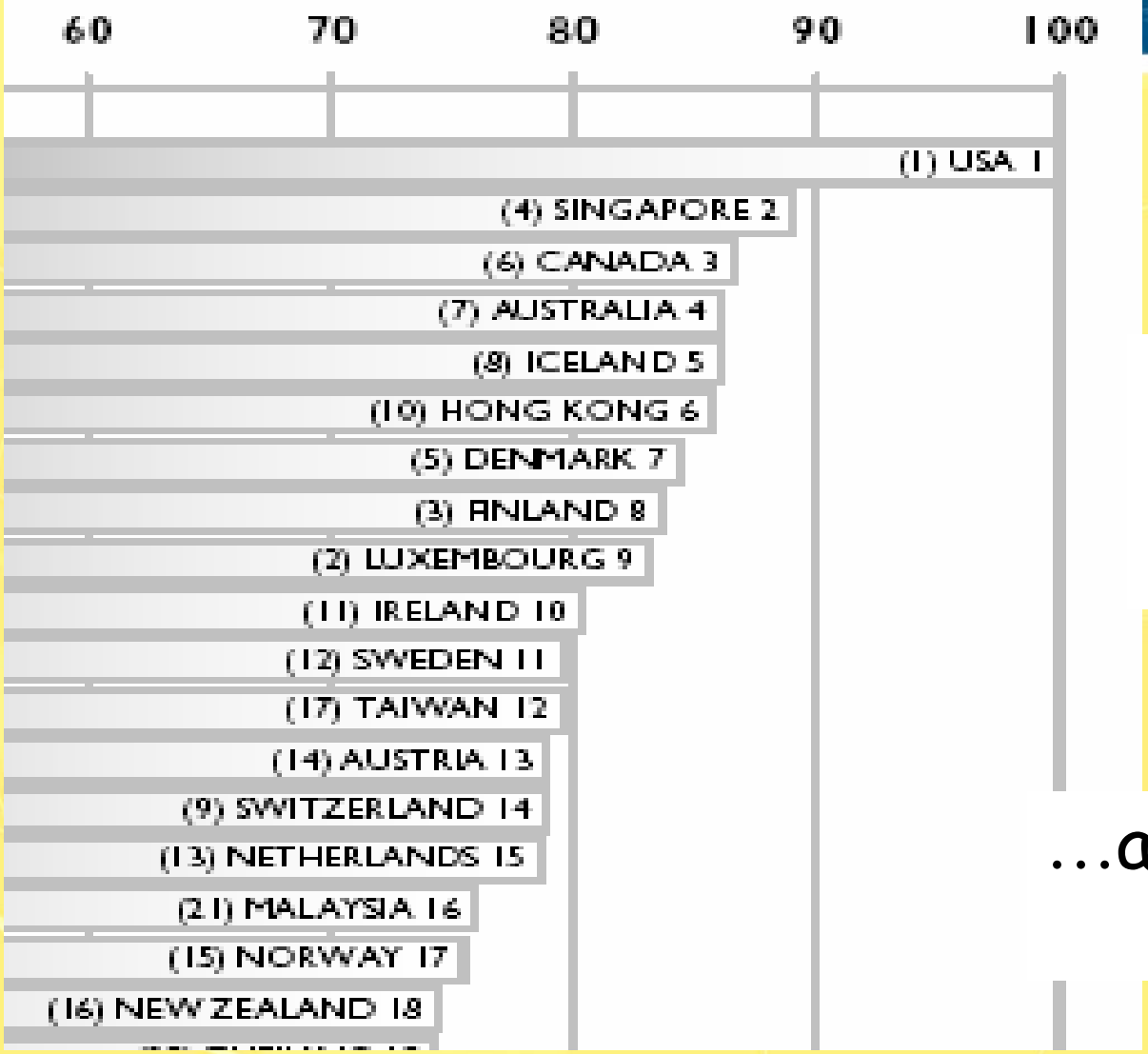
Capital	New Delhi
Population (millions)	1,048.57 (2003)
Land area (km^2 '000)	3,166.4 (2003)
Exchange rate (per $)	45.98 (2003)
GDP ($ billions)	547.4 (2003)
GDP per capita ($)	522 (2003)
Real GDP growth (%)	8.1 (2003)
Consumer Price Inflation (%)	3.9 (2003)
Unemployment rate (%)	10.34 (2001)
Labor force (millions)	444.11 (2001)
Current Account Balance ($ bn)	5.1 (2003)
Direct Investment	
Stocks Inward ($ billions)	25.41 (2002)
Flows Inward (% of GDP)	0.65 (2002)

India GDP per cap

Israel

Israel GDP per cap. ($)





Overall ranking

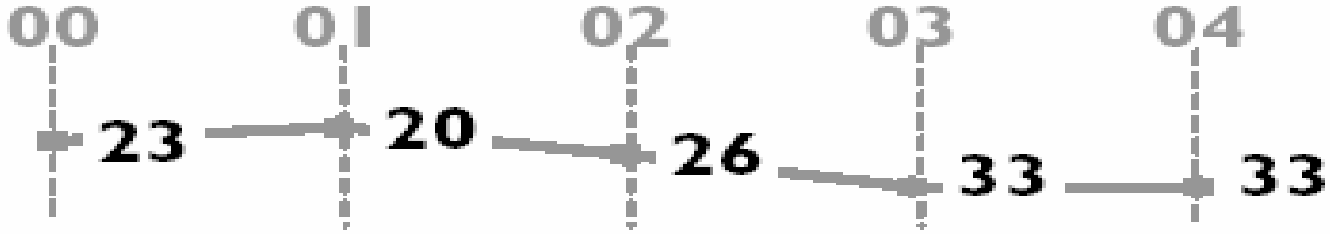
IMD World Competitiveness

16 of the top 18 most competitive countries...

...are small, or even *very* small

World Competitiveness Yearbook 2004

OVERALL PERFORMANCE



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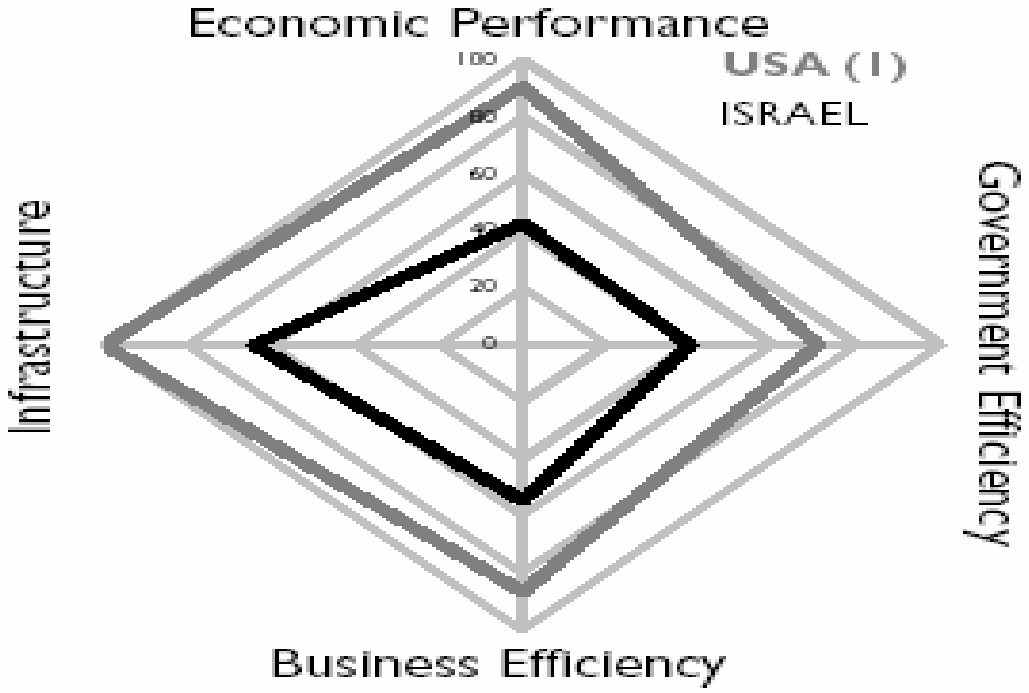

	2004
Basic Infrastructure	37
Technological Infrastructure	23
Scientific Infrastructure	15
Health and Environment	21
Education	12

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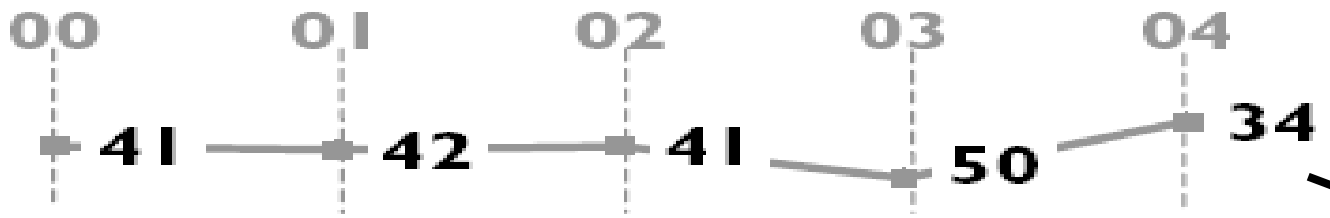
These criter… Strongest Criteria by Factor identified by taking the biggest value differences from the averag… …onomies.

4.5.13 Knowledge transfer is highly developed between companies and universities (Survey)

4.3.03	**Total expenditu…**	…rcentage of GDP
4.2.04	**Mobile telephone su…**	…mber of subscribers per 1000 inhabitants
4.5.01	**Total public expenditure**	… Percentage of GDP
4.1.21	**GDP and energy consumptio…**	…owth minus energy consumption growth
4.5.08	**University education** meets the nee…	…itive economy (Survey)
4.3.09	**Total R&D personnel in business per …**	… work equivalent (FTE) per 1000 people
4.5.12	**Qualified engineers** are available in your labor …	…)
4.3.22	**Legal environment affecting R&D** does not restra…	…elopment (Survey)
4.5.13	**Knowledge transfer is** highly developed between compa…	…sities (Survey)
4.2.14	**Development and application of technology are** supporte…	…nvironment (Survey)

OVERALL PERFORMANCE



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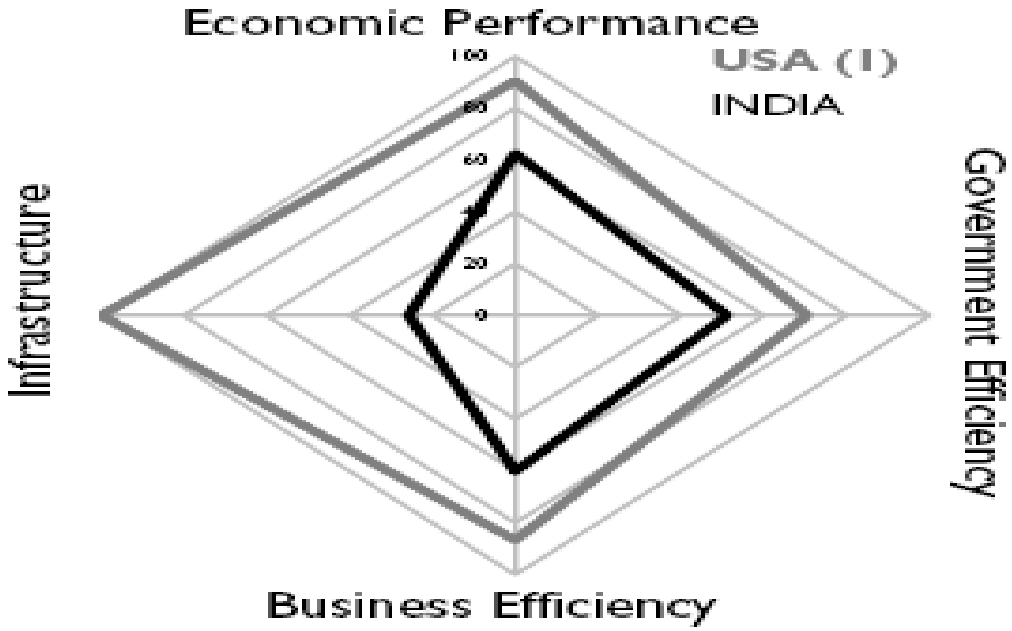

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This section highlights the economy's 20 strongest criteria, that is those with the highest standardized values (STD values).*

1.3.13 RELOCATION THREATS OF PRODUCTION

(Survey) Relocation of production is not a threat to the future of your economy

1.3.14 RELOCATION THREATS OF R&D FACILITIES

(Survey) Relocation of R&D facilities is not a threat to the future of your economy

1.3.15 RELOCATION THREATS OF SERVICES

(Survey) Relocation of services is not a threat to the future of your economy

4.3.14 INTEREST IN SCIENCE AND TECHNOLOGY

(Survey) Interest in science and technology is strong among the youth

4.5.12 QUALIFIED ENGINEERS

(Survey) Qualified engineers are available in your labor market

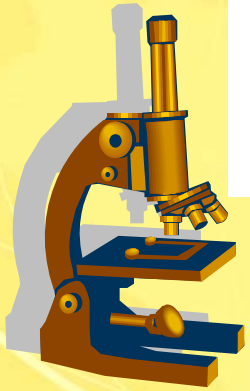
4.3.13 SCIENCE IN SCHOOLS

(Survey) Science in schools is adequately taught

1.1.21 RESILIENCE OF THE ECONOMY

(Survey) Resilience of the economy to economic cycles is strong

Israel's R&D Budget is Among the Highest in the World (as % of GDP) - 4.6 %....

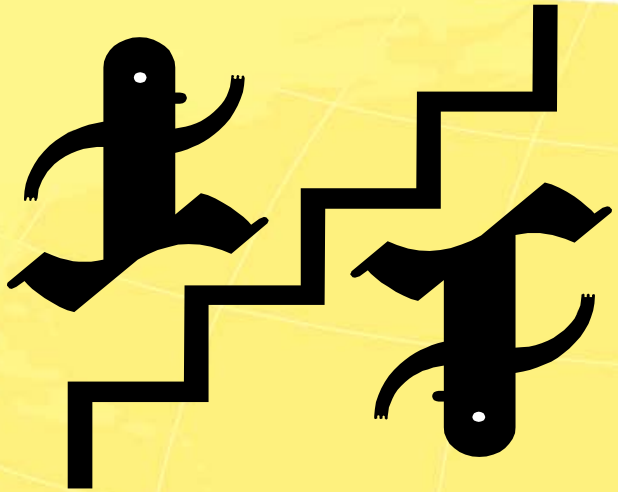


...and yet is smaller in $ than that of large multinational firms like IBM

Narayana Murthy, founder of the global software giant Infosys:

"The development of a product or service might typically be split among countries, with experts in America defining the customer requirements; the British defining the product attributes; the Australians defining the technology architecture; the Indians doing the software development; the Germans or the Japanese doing the manufacturing; and the Taiwanesedoing the packaging. <u>This new business model will distribute high-quality jobs around the world and deepen international collaboration.</u>"

R&D Value Chain



Process development

Product development

Applied research

Basic research

In which of the following countries does your company plan to spend the most on R&D in the next three years (excluding your domestic market)? Please choose the top three countries.

(% respondents)

China	39
United States of America	29
India	28
United Kingdom	24

Israel	4
New Zealand	4
Norway	4
Poland	4
Slovakia	4

Which of the following aspects of the local R&D environment are most important in your choice of R&D destination? Please rate the following options 1-5, where 1 is unimportant and 5 is of critical importance.

(% respondents)

	Unii	5 Critically important
1. Size of country's existing R&D sector		7
2. Local specialised manufacturing expertise		11
3. Existence of R&D concentrations (eg industrial parks, local hubs)		14
4. Local R&D expertise in your industry		27
5. High degree of collaboration with research institutions		10
6. Availability of R&D scientists with appropriate skills		23
7. Cost of labour for R&D		20
8. Availability of local managers with expertise		17
9. Links between firms and academia		11

Source: The Economist Intelligence Unit

Two Proposed "Bridge" Topics

University-Business Technology Transfer

R&D Global Value Chain