

**UNCTAD Expert Meeting**  
**In Support of the Implementation and Follow-Up of WSIS:**  
**USING ICTs TO ACHIEVE GROWTH AND DEVELOPMENT**

**Jointly organized by UNCTAD, OECD and ILO**

**4 - 5 December 2006**

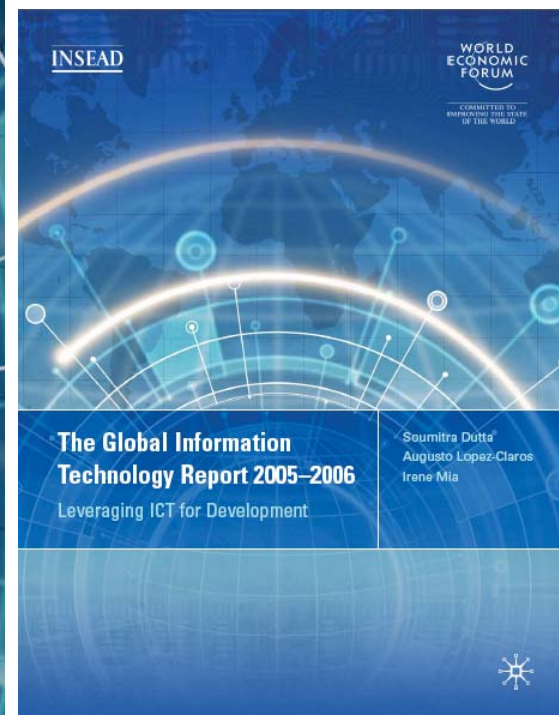
**The Global Information Technology Report**  
**2005-2006**  
**Leveraging ICT Advancements for Development**

**by**

**Dr. Irene Mia**

**Senior Economist, Global Competitiveness Network,  
World Economic Forum**

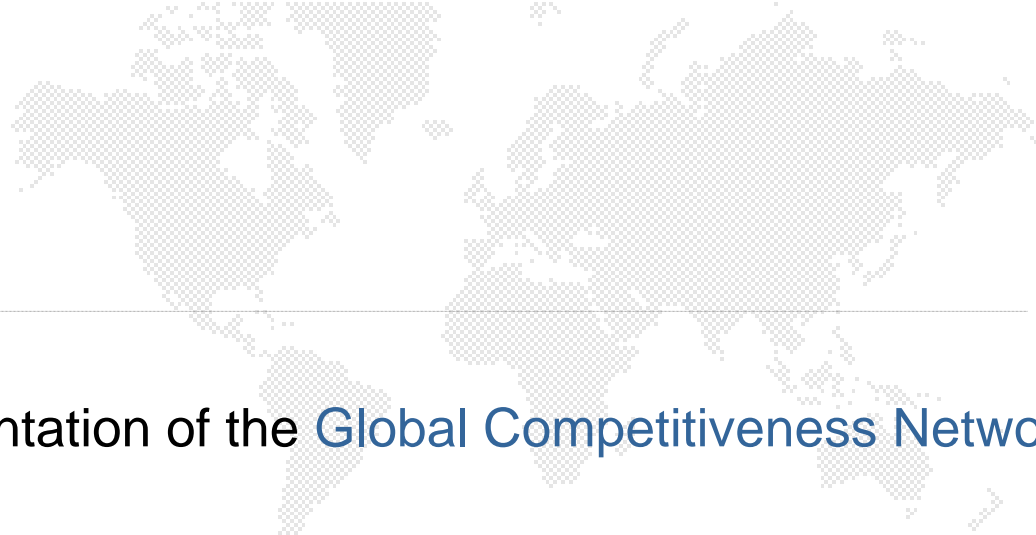
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# The Global Information Technology Report 2005-2006

## Leveraging ICT Advancements for Development

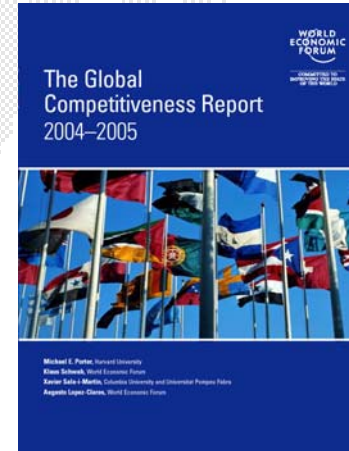
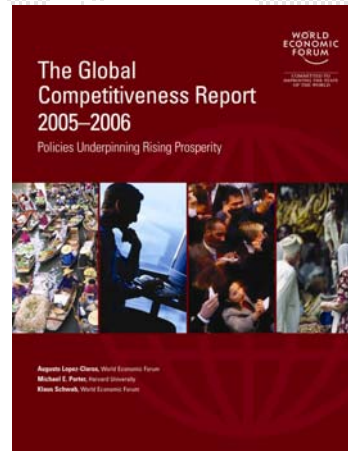
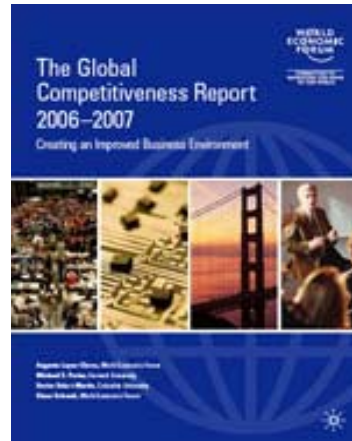
- **Irene Mia**  
Senior Economist  
Global Competitiveness Network, World Economic Forum
- UNCTAD Expert Meeting “In support of the implementation and follow-up of WSIS: Using ICTs to Achieve Growth and Development”
- Geneva, Palais des Nations, December 4<sup>th</sup>-5<sup>th</sup>, 2006



## Outline

- ▶ Presentation of the **Global Competitiveness Network**.
- ▶ The **Global Information Technology Report** series.
- ▶ The **Networked Readiness Index**: rationale and composition.
- ▶ The Networked Readiness **Rankings for 2005-2006**.
- ▶ Leveraging ICT for economic development: the case of Israel and Taiwan.

## Global Competitiveness Network



- ▶ Flagship product: Global Competitiveness Report
- ▶ Launched in 1979 covering **16 countries**
- ▶ The Report has since expanded its coverage to **125 countries**.
- ▶ 2006 marks our **27th anniversary of measuring competitiveness**

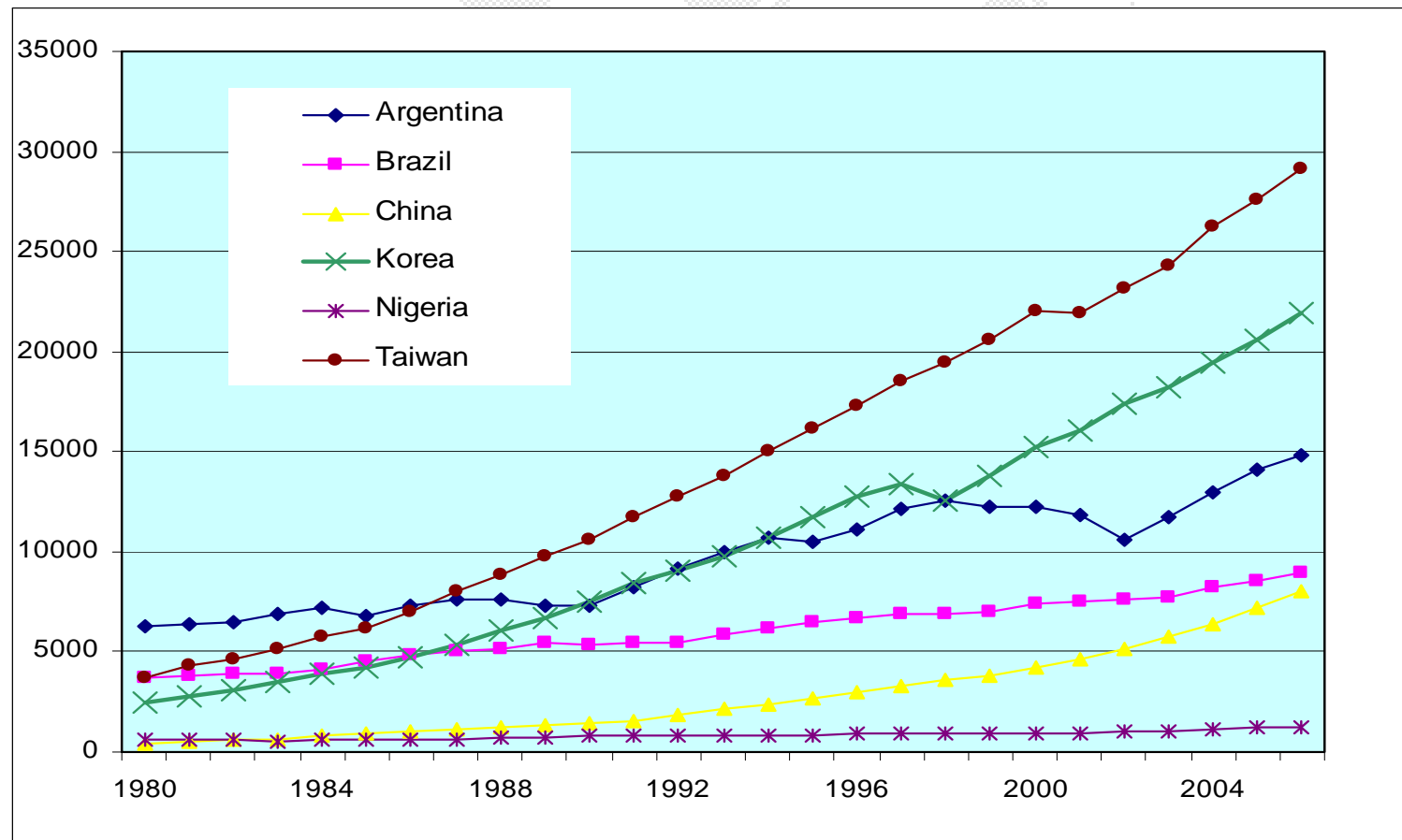
## Global Competitiveness Network

- ▶ The **most comprehensive data set** on competitiveness
- ▶ Assesses the **comparative strengths and weakness** of a large number of economies
- ▶ Produced in **collaboration with leading academics** worldwide and a global network of **partner (research) institutes**

# The Global Competitiveness Network

## What are we trying to achieve?

- GDP per capita\*



\*At PPP constant 2000 US\$. Source: World Bank, World Development Indicators, June 2006

## Global Competitiveness Network

### What do we mean by competitiveness?

- Competitiveness is defined as the set of factors, policies and institutions that determine the **level of productivity** of a country
- Because productivity is the **main driver of investment** in an economy and investment, in turn, unambiguously determines the rate of growth of the economy, we say that:
- A more competitive economy is one that is likely to grow faster over the medium to long run
- We try to shed light on “the factors, policies and institutions” that determine the sharply different growth experiences of 117 economies worldwide



## The Global Information Technology Report

- In today's interconnected world, the potential for countries' sustained competitiveness and growth depend more and more on the capability and propensity of governments and civil society alike to integrate knowledge in the production processes and in every day life.
- In particular, information and telecommunication technology (ICT) seems to have turned into the steam engine of our time, the "general purpose technology" able to transform production processes across sectors and industries, hence contributing to a substantial share of countries' overall growth rates.
- In this sense, leveraging, and taking profit of, ICT becomes an essential tool for countries and national stakeholders to ensure continued levels of prosperity for their people, irrespective of their development level.





## The Global Information Technology Report

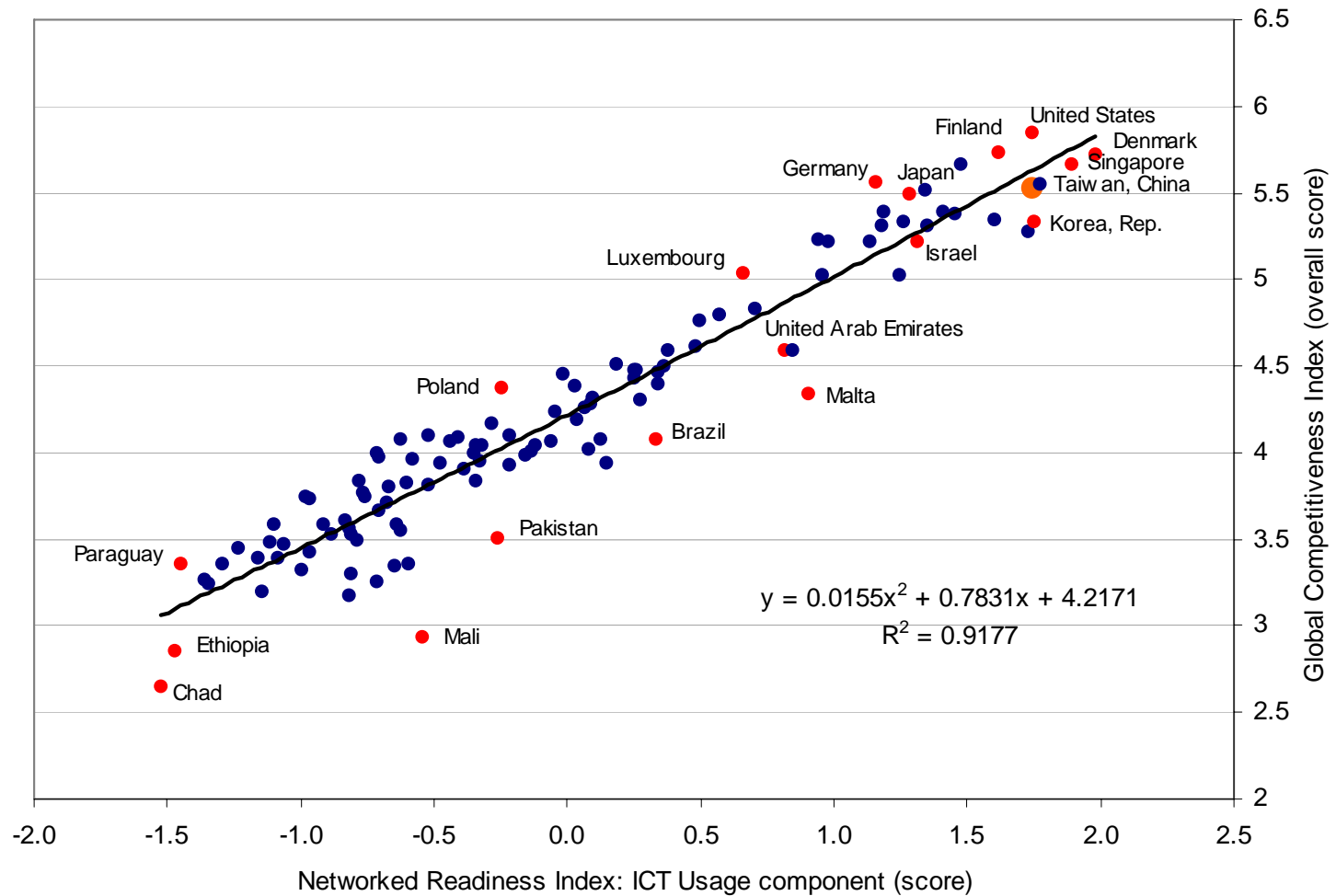
- Launched in 2001, at first, in collaboration with the Information Technologies Group of the Center for International Development at Harvard University and, from 2002, with INSEAD.
- Taking into account the crucial importance of information and communication technologies (ICT) for countries' development and growth, the GITR is a powerful tool for business leaders and policy makers in understanding the enabling factors of ICT advancement.
- The **Networked Readiness Index (NRI)** measures the propensity for countries/economies to exploit the opportunities offered by ICT and establishes a broad international framework mapping out the enabling factors of such capacity.

# The Global Information Technology Report Rationale

- We seek to:
  - Develop a quantitative framework to analyse such factors.
  - Identity best practices.
  - Study relationship between these factors and the evolution of the evolution of competitiveness.
  - Offer guidance for policy decisions.
- Without doubt, ICTs are key elements for competitiveness and successful economic development.

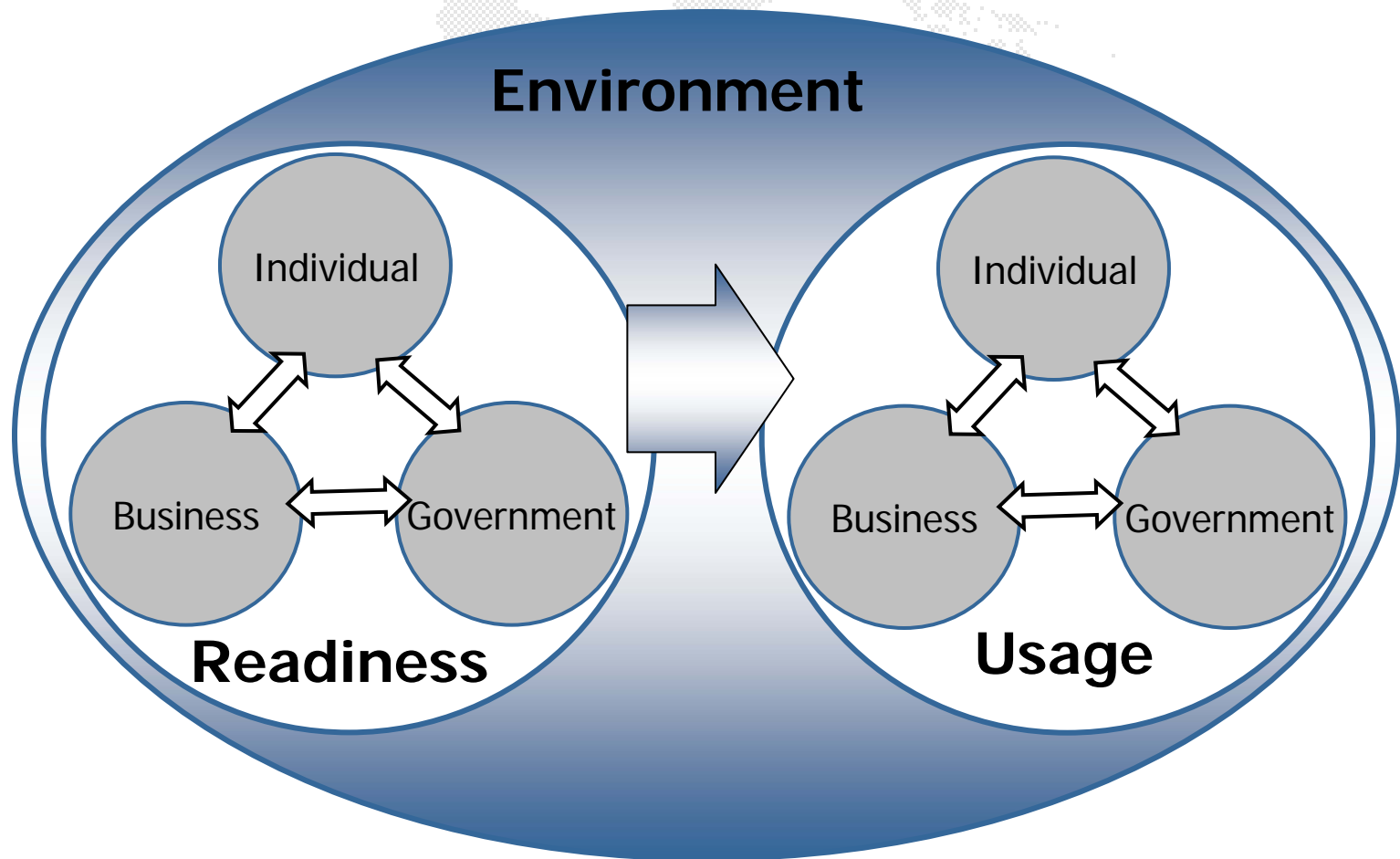
# The Global Information Technology Report

## Networked readiness is linked to competitiveness



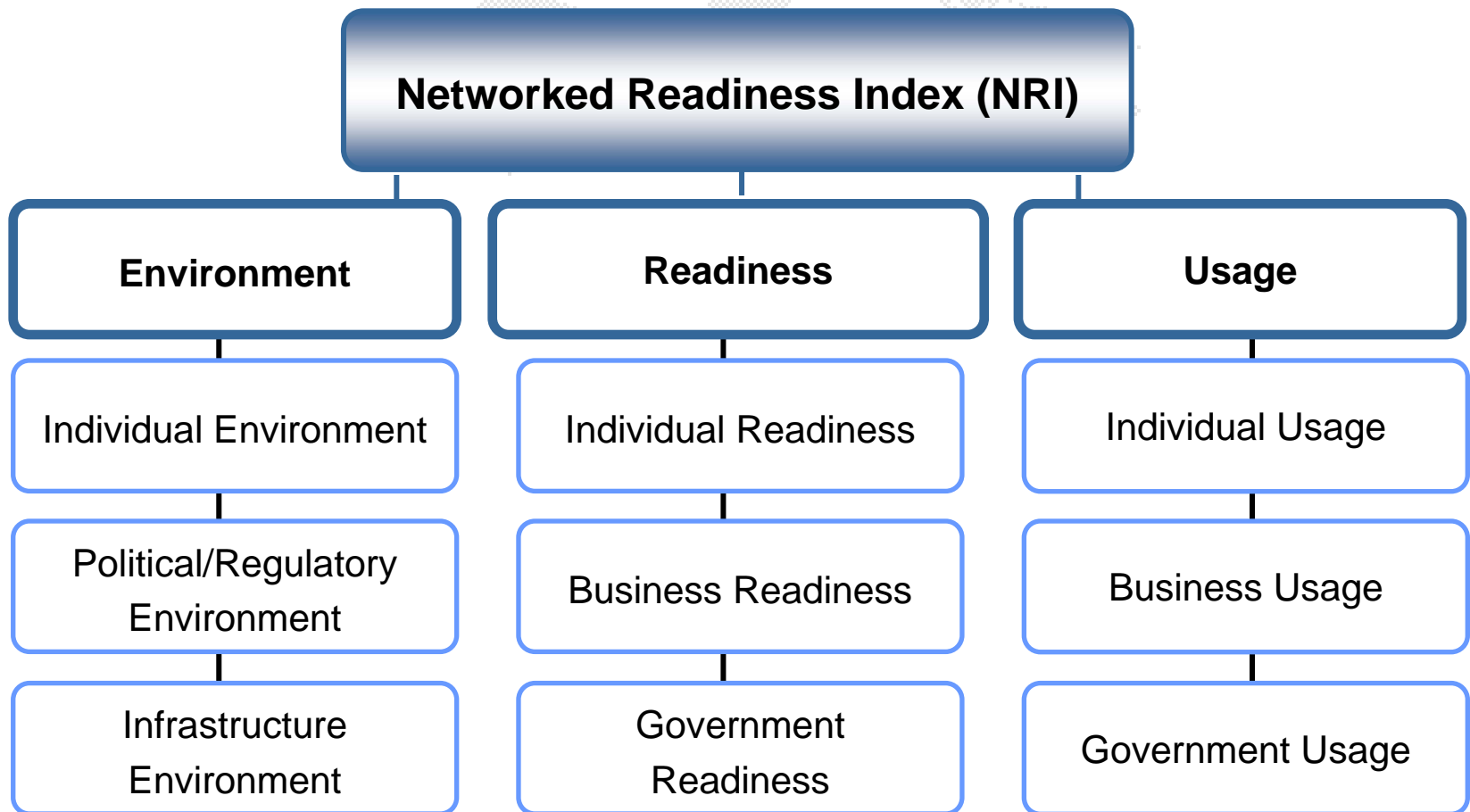
# The Networked Readiness Index

## Networked Readiness Framework



# The Networked Readiness Index

## Networked Readiness Framework



# The Networked Readiness Index

## Examples of variables used in the calculation

### Environment (24)

- Time required to start a business
- Burden of government regulation
- Tertiary enrollment
- Patents registration
- Judicial independence
- Sophistication of financial markets
- Availability of scientists and engineers
- Property rights
- Secure Internet servers

### Readiness (22)

- Internet access in schools
- Residential telephone connection charges
- Quality of math and science education
- Quality of management schools
- E-government readiness index
- Company spending on R & D
- Government procurement of ICT

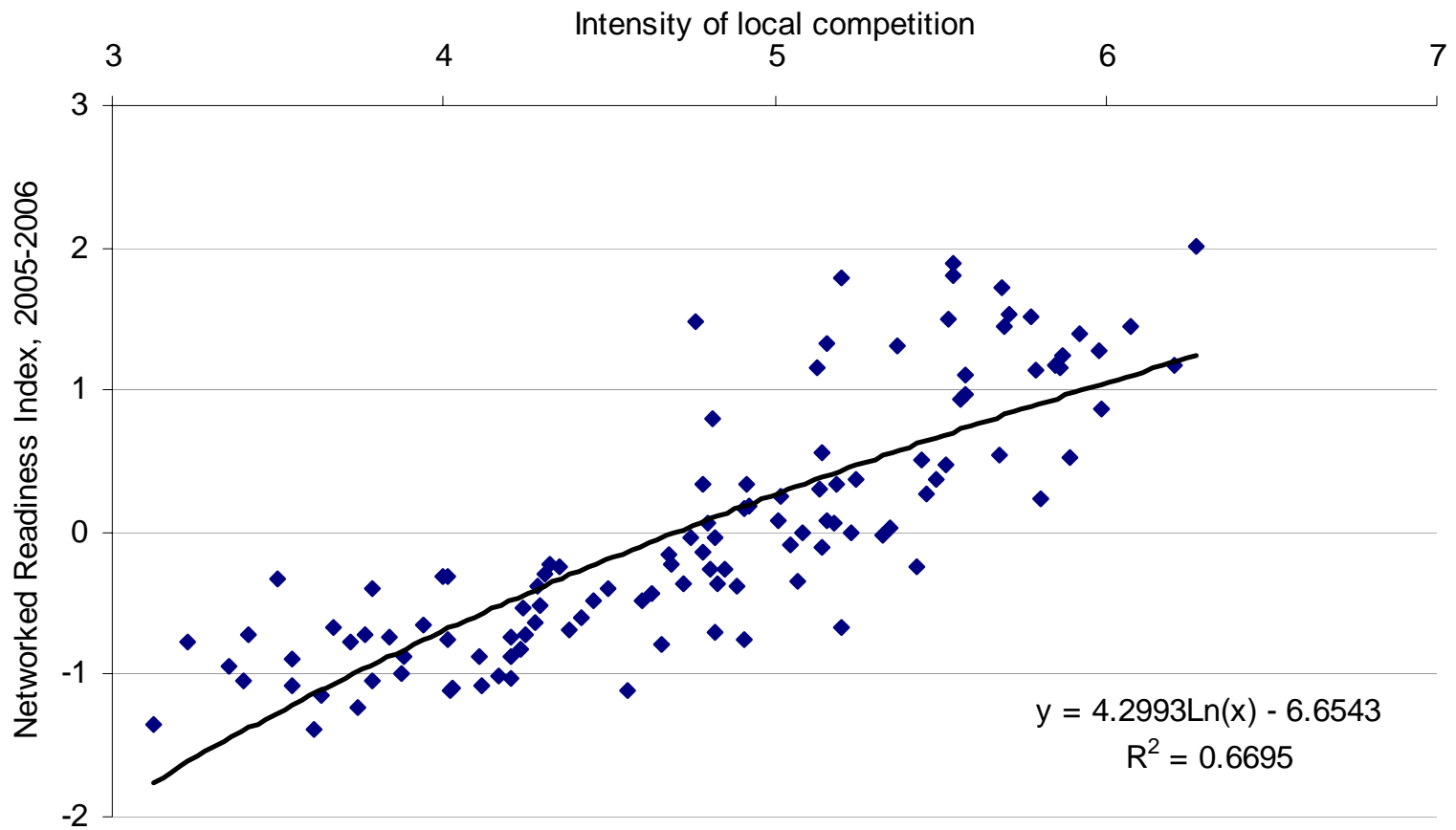
### Usage (20)

- Cellular mobile subscribers
- Telephone subscribers
- Personal computers
- Availability of online services
- Internet users
- Firm-level technology absorption
- Broadband DSL Internet subscribers

# The Networked Readiness Index

## Competition leads to higher levels of Networked Readiness

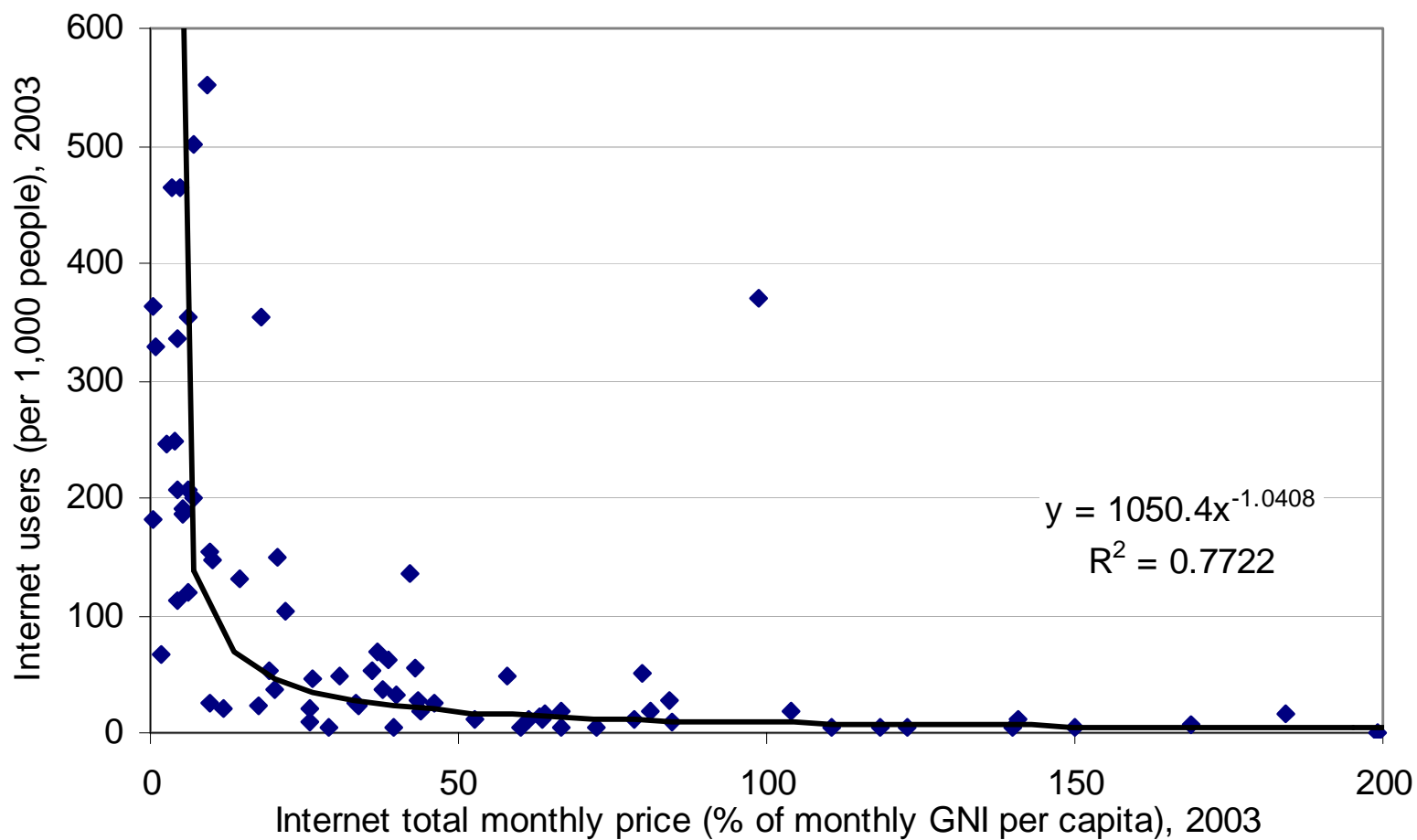
Networked Readiness Index versus competition



# The Networked Readiness Index

## Affordability boosts usage

Internet users versus Internet access cost

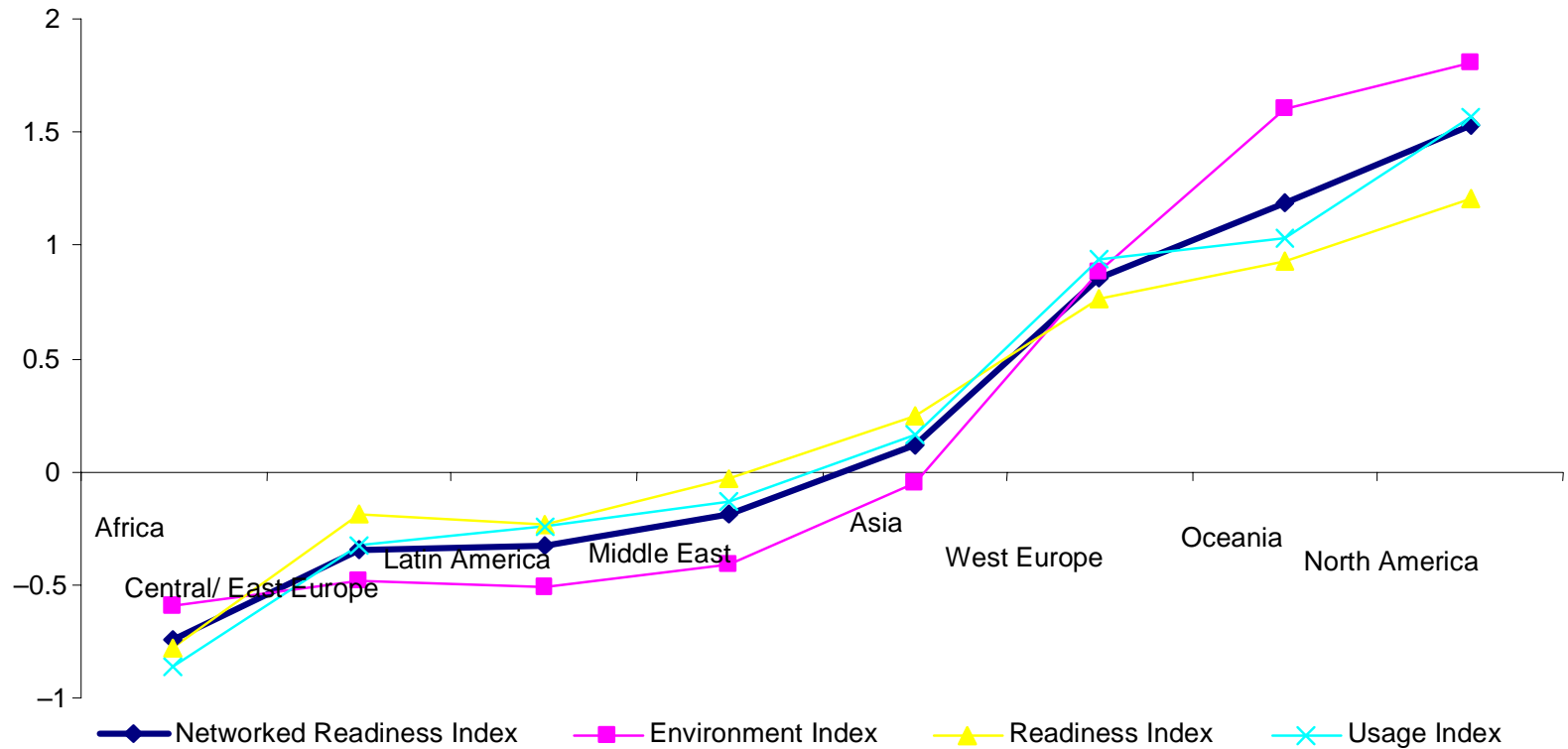




# The Networked Readiness Index

## Best regions have an excellent Environment

Networked Readiness Index and Sub-indexes by Region



## Unveiling the 2005-2006 results

### Top 20 performers (ranks out of 115 economies)

	NRI	Environment	Readiness	Usage
United States	1	2	2	6
Singapore	2	3	1	2
Denmark	3	5	4	1
Iceland	4	1	23	4
Finland	5	4	3	8
Canada	6	6	6	11
Taiwan	7	10	8	5
Sweden	8	14	12	3
Switzerland	9	8	11	10
United Kingdom	10	13	5	14
Hong Kong SAR	11	11	13	9
Netherlands	12	12	9	12
Norway	13	7	22	13
Korea, Rep.	14	25	7	7
Australia	15	9	18	20
Japan	16	18	14	16
Germany	17	20	10	21
Austria	18	19	19	17
Israel	19	21	16	15
Ireland	20	16	21	22

## Unveiling the 2005-2006 results

### Top 10 evolution (ranks out of 115 economies)

	Editions <b>2001-2002</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>
<b>Country coverage</b>	75	82	102	104	115
United States	1	2	1	5	1
Singapore	8	3	2	1	2
Denmark	7	8	5	4	3
Iceland	2	5	10	2	4
Finland	3	1	3	3	5
Canada	12	6	6	10	6
Taiwan	15	9	17	15	7
Sweden	4	4	4	6	8
Switzerland	16	13	7	9	9
United Kingdom	10	7	15	12	10

## Unveiling the 2005-2006 results

### Selected variables (ranks out of 115 economies)

	<u>Taiwan</u>	<u>Japan</u>	<u>Israel</u>	<u>Switzerland</u>	<u>India</u>	<u>United States</u>
Utility patents	3	2	6	4	56	1
Scientific and technical journal articles	24	19	3	2	75	12
Cellular telephones	2	34	8	19	107	40
DSL Internet subscribers	3	6	11	10	80	22
Internet users	12	14	33	23	95	6
Ease of new business registration	29	67	10	17	67	10
Burden of government regulation	4	31	38	13	74	20
Judicial independence	43	22	14	3	23	17
Quality of the educational system	7	24	17	6	25	18
Property rights	29	17	26	4	32	2

## Unveiling the 2005-2006 results

### Top 3 economies on selected variables

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>
Utility patents	United States	Japan	Taiwan
Scientific and technical journal articles	Sweden	Switzerland	Israel
Cellular telephones	Luxembourg	Taiwan	Hong Kong SAR
DSL Internet subscribers	Iceland	Korea	Taiwan
Internet users	Iceland	Sweden	Korea
Ease of new business registration	Australia	Canada	New Zealand
Burden of government regulation	Singapore	Hong Kong SAR	Malaysia
Judicial independence	Germany	Denmark	Switzerland
Quality of the educational system	Singapore	Finland	Ireland
Property rights	Germany	United States	Iceland

## Unveiling the 2005-2006 results Asia and the Pacific (ranks out of 115 economies)

	<b>NRI</b>	<b>Environment</b>	<b>Readiness</b>	<b>Usage</b>
Singapore	<b>2</b>	<b>3</b>	<b>1</b>	<b>2</b>
Taiwan	<b>7</b>	<b>10</b>	<b>8</b>	<b>5</b>
Hong Kong SAR	<b>11</b>	<b>11</b>	<b>13</b>	<b>9</b>
Korea, Rep.	<b>14</b>	<b>25</b>	<b>7</b>	<b>7</b>
Australia	<b>15</b>	<b>9</b>	<b>18</b>	<b>20</b>
Japan	<b>16</b>	<b>18</b>	<b>14</b>	<b>16</b>
New Zealand	<b>21</b>	<b>15</b>	<b>20</b>	<b>23</b>
Malaysia	<b>24</b>	<b>22</b>	<b>24</b>	<b>24</b>
Thailand	<b>34</b>	<b>38</b>	<b>32</b>	<b>34</b>
India	<b>40</b>	<b>40</b>	<b>29</b>	<b>46</b>
Mauritius	<b>45</b>	<b>51</b>	<b>40</b>	<b>45</b>
China	<b>50</b>	<b>52</b>	<b>50</b>	<b>49</b>
Pakistan	<b>67</b>	<b>76</b>	<b>67</b>	<b>61</b>
Indonesia	<b>68</b>	<b>63</b>	<b>61</b>	<b>75</b>
Philippines	<b>70</b>	<b>73</b>	<b>75</b>	<b>59</b>
Vietnam	<b>75</b>	<b>81</b>	<b>76</b>	<b>68</b>
Sri Lanka	<b>83</b>	<b>75</b>	<b>88</b>	<b>89</b>
Mongolia	<b>92</b>	<b>103</b>	<b>82</b>	<b>94</b>
Cambodia	<b>104</b>	<b>98</b>	<b>103</b>	<b>107</b>
Bangladesh	<b>110</b>	<b>93</b>	<b>113</b>	<b>109</b>

## Unveiling the 2005-2006 results

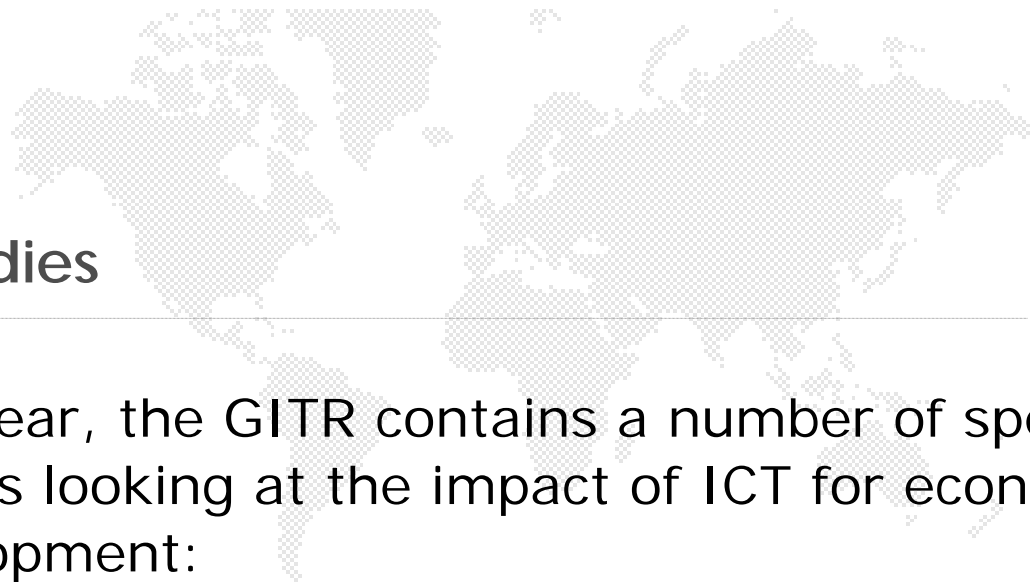
### Latin America (ranks out of 115 economies)

	<u>NRI</u>	<u>Environment</u>	<u>Readiness</u>	<u>Usage</u>
Chile	<b>29</b>	33	27	29
Brazil	<b>52</b>	80	46	38
Jamaica	<b>54</b>	54	64	48
Mexico	<b>55</b>	71	43	54
El Salvador	<b>59</b>	65	65	55
Colombia	<b>62</b>	70	45	70
Uruguay	<b>65</b>	56	73	64
Panama	<b>66</b>	64	69	67
Costa Rica	<b>69</b>	60	62	79
Argentina	<b>71</b>	83	57	69
Trinidad and Tobago	<b>74</b>	61	68	87
Venezuela	<b>81</b>	100	74	83
Peru	<b>85</b>	104	84	77
Dominican Republic	<b>89</b>	91	95	78
Guatemala	<b>98</b>	108	96	91
Honduras	<b>100</b>	95	94	103
Ecuador	<b>107</b>	114	102	105
Bolivia	<b>109</b>	112	107	104
Guyana	<b>111</b>	113	100	112
Nicaragua	<b>112</b>	110	111	106
Paraguay	<b>113</b>	105	112	113

## Unveiling the 2005-2006 results Middle-East and Northern Africa (ranks out of 115 economies)

	<b>NRI</b>	<b>Environment</b>	<b>Readiness</b>	<b>Usage</b>
Israel	<b>19</b>	21	16	15
United Arab Emirates	<b>28</b>	27	39	28
Tunisia	<b>36</b>	36	30	41
Qatar	<b>39</b>	28	53	39
Kuwait	<b>46</b>	32	66	53
Jordan	<b>47</b>	39	54	51
Bahrain	<b>49</b>	37	71	50
Egypt	<b>63</b>	59	72	58
Morocco	<b>77</b>	82	83	66
Algeria	<b>87</b>	97	81	88





## Case studies

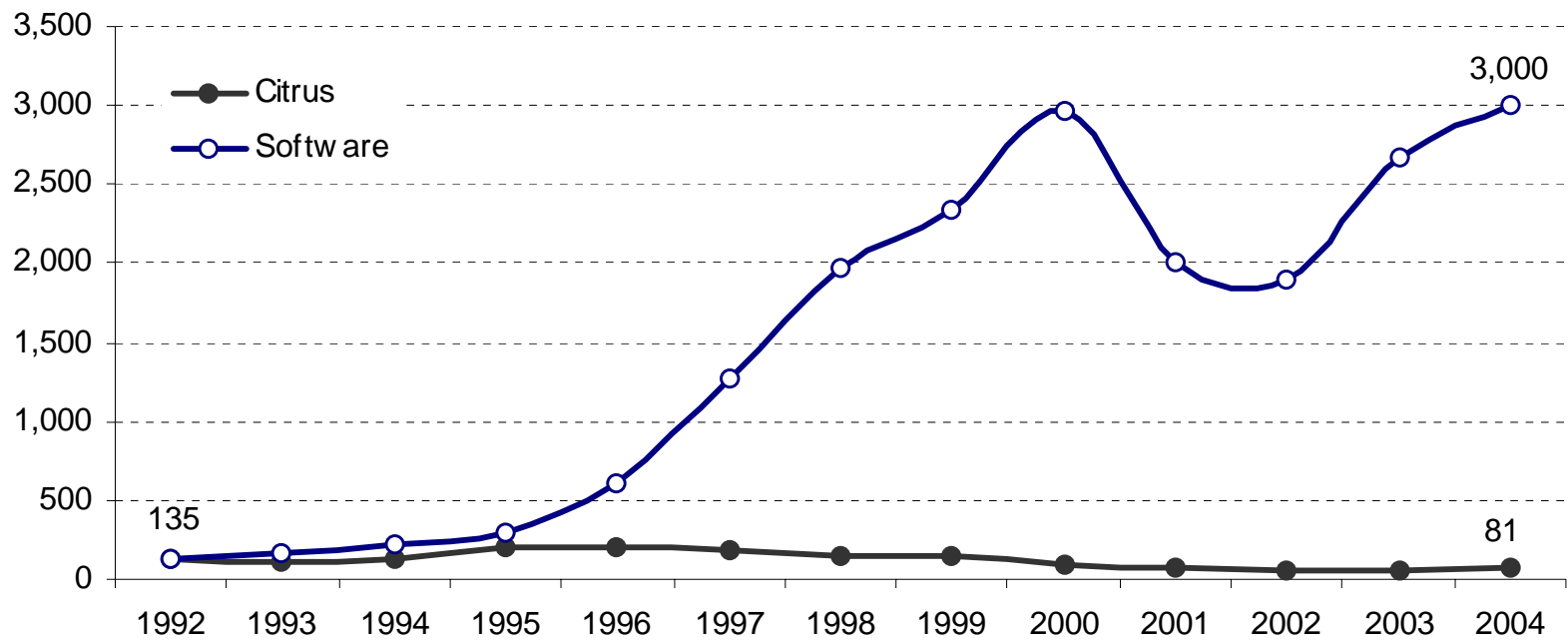
- This year, the GITR contains a number of specific case-studies looking at the impact of ICT for economic development:
  - **Israel:** Identifying factors critical for success in development of ICT.
  - **Chile:** How did Chile take the lead in Latin America?
  - **Mexico and Korea:** A comparative analysis of competitiveness-enhancing ICT strategies.
  - **Taiwan:** Assessing the impact of ICT on economic and social development.

## Case studies Israel (1/2)

- Government's role is crucial in the emergence of Israel as an "ICT powerhouse".
- Actions include:
  - Heavy investment in education along with policies encouraging immigration.
  - Heavy investment in R&D.
  - Incentives to attract FDI.
  - Incubator and venture capital programs to fill the funding gap between R&D and viable business.
- Also: macroeconomic stability, public sector downscaling

## Case studies Israel (2/2)

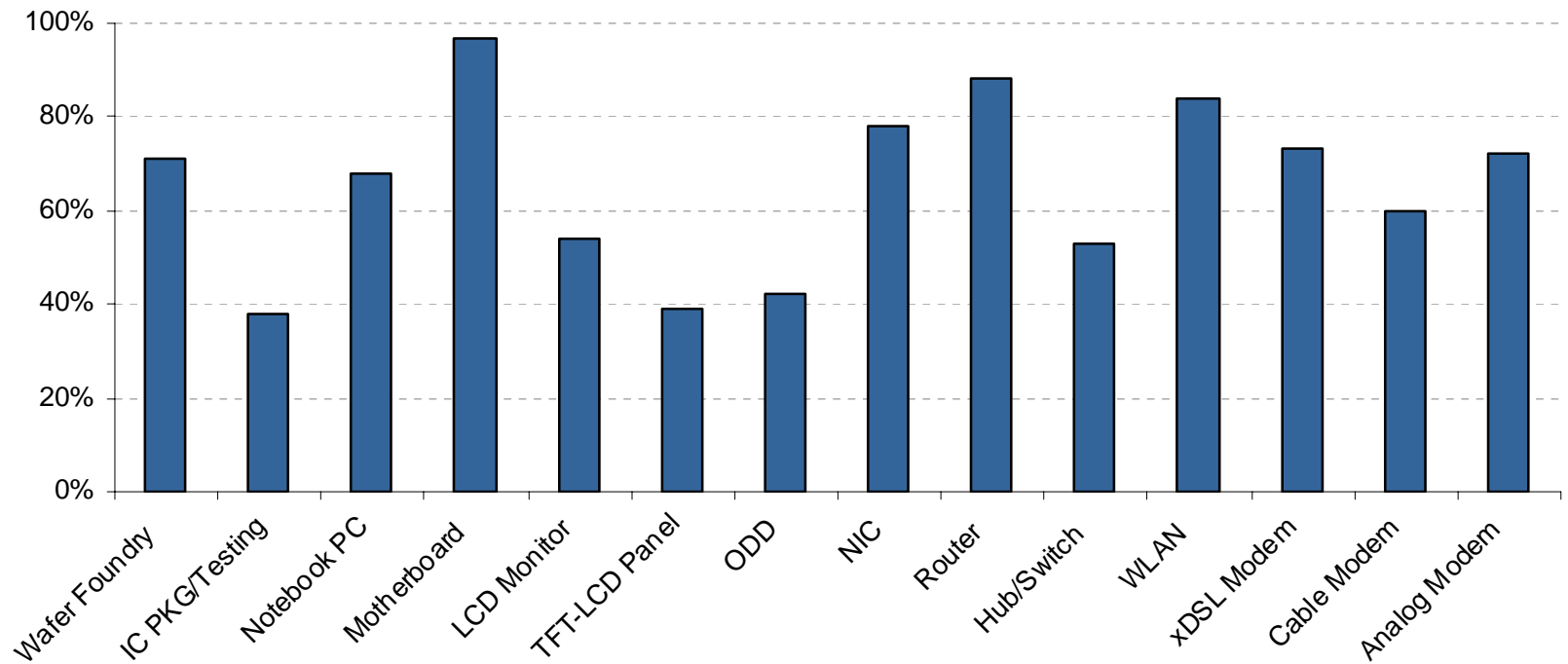
Israel's Exports of Software and Citrus (in million US\$)



Source: MATIMOP, Israeli Industry Center for R&D

## Case studies Taiwan (1/3)

- Taiwanese Global Share of ICT Products, 2003



## Case studies Taiwan (2/3)

- Taiwan represents one of the most compelling development stories of past half century, rising from a resource-poor agricultural society to a high-tech powerhouse in half a century.
- Today, it is ranked 3<sup>rd</sup> in the world in our Technology Sub-index and 5<sup>th</sup> in our Global Competitiveness Index.
- Exceptional strengths include:
  - Capacity for innovation,
  - Firm-level technology absorption,
  - University/industry collaboration,
  - Use of latest technologies (mobile, PCs, Internet).
- It can represent an important role model for other economies.

## Case studies Taiwan (3/3)

- Taiwan's success attributed to...
  - Government's key role in pursuing and funding long-term ICT strategic vision as public-private partnership.
  - Good government, sound macro management, outward-looking orientation, enabling tax environment and supporting infrastructure.
  - Emphasis on high quality science & tech education.
  - Reversal of brain drain of 1960/70s through incentives.
  - Successful incubation and venture capital support for high-tech SMEs.
  - High-tech science parks based on Silicon Valley model.
  - Access to large mainland Chinese market.



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