

Innovation, knowledge competitiveness and development

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The World Bank

Who we are & What we do

A Comprehensive Global Practice



Focusing on 3 strategic themes...

1. ACCESS

Information Infrastructure

2. MAINSTREAMING

Delivery of public and private services

3. INNOVATION

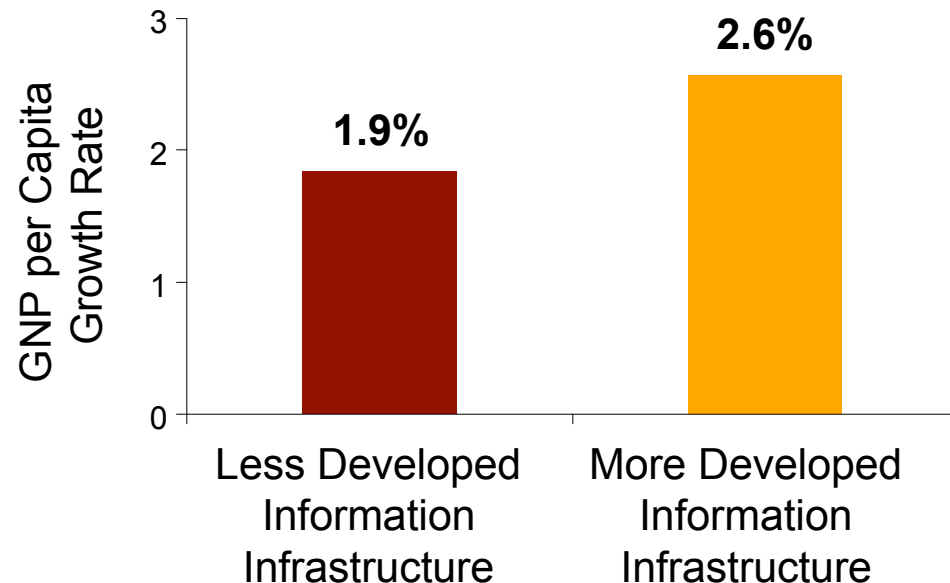
Information based industries

ICT and Economic Growth

An increase of **10** mobile phones per **100** people boosts GDP growth by **0.6%**

A **1%** increase in the number of Internet users increases total exports by **4.3%**

Countries with better Information Infrastructure have higher GNP per Capita Growth



Preface

Globalization, Information and the Knowledge Economy

A World of Growth ... and Inequalities

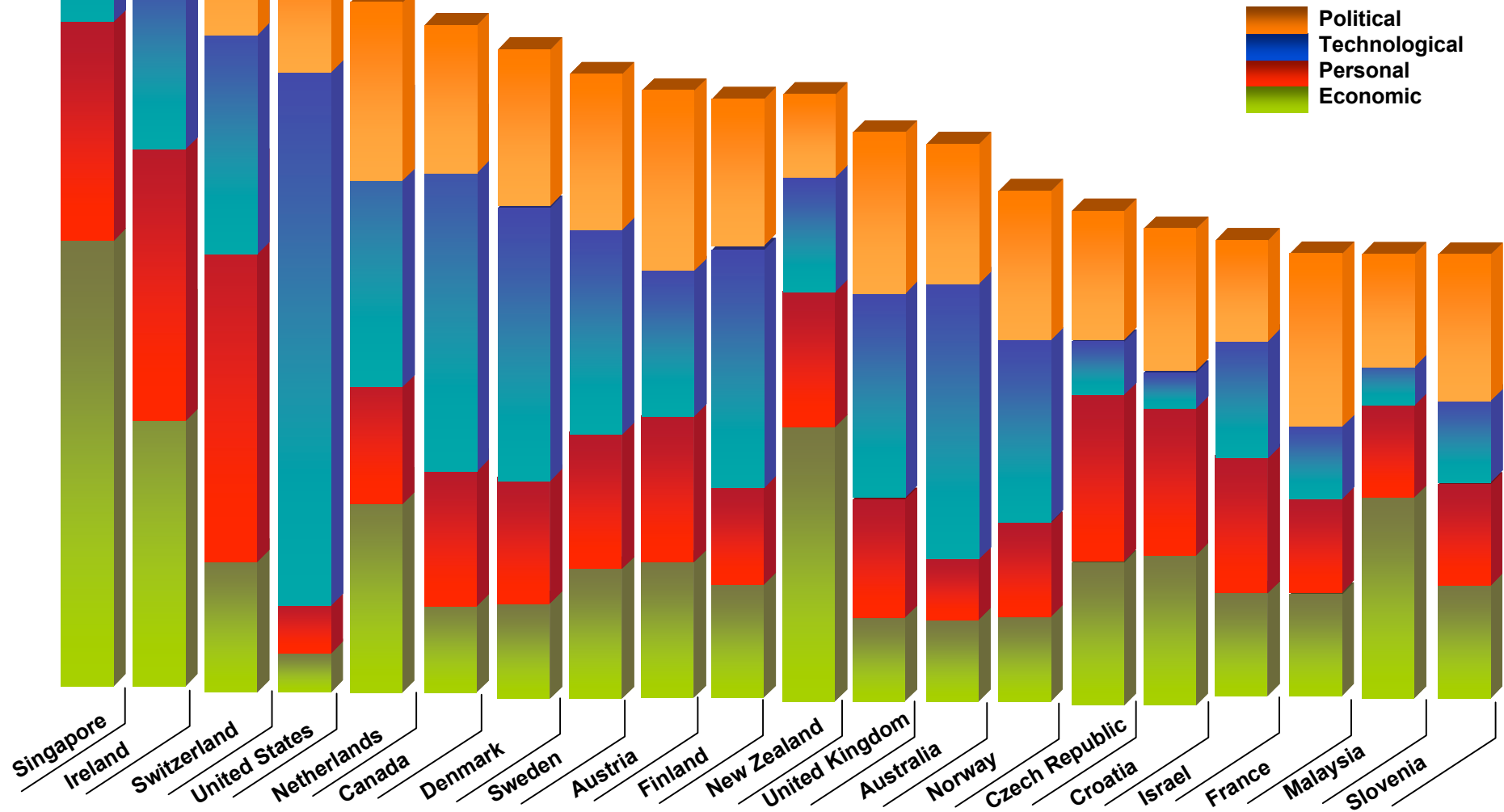
A more prosperous world. but still an unequal one

Human Development Index, 2004

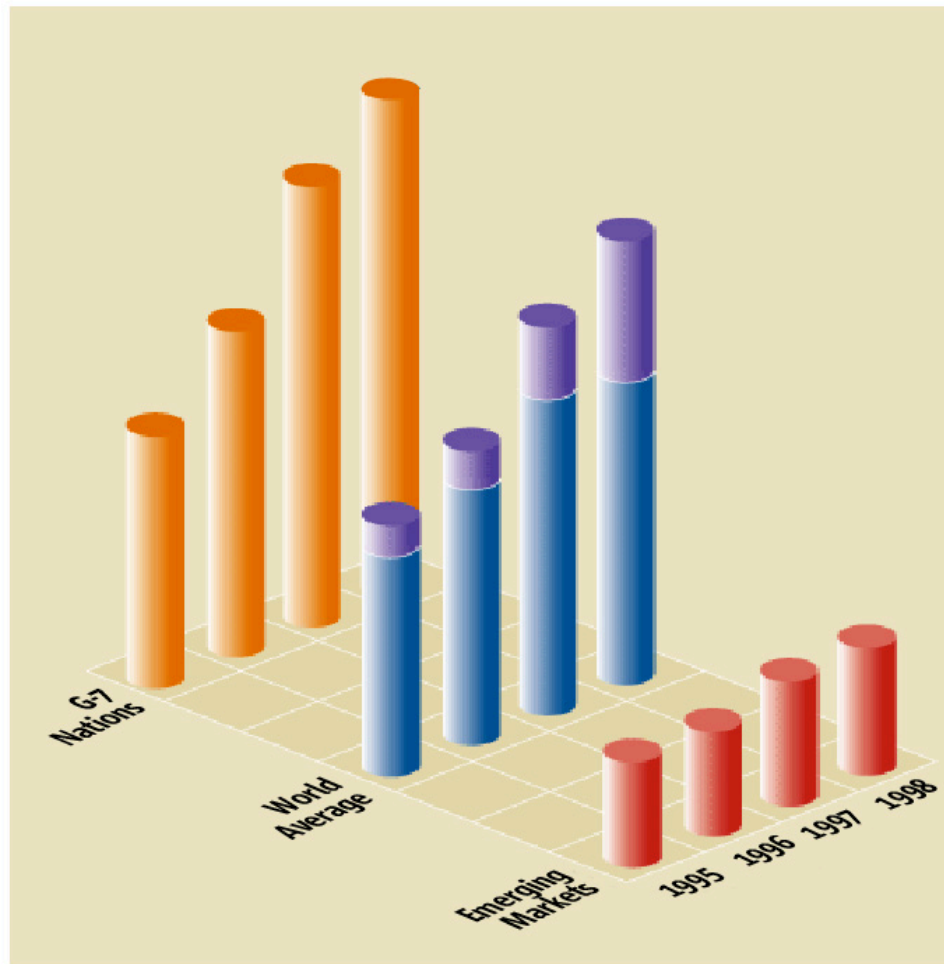


Globalization on 4 Cylinders

Source: Foreign Policy and A.T. Kearney
(data for year 2004)





Is Globalization Slowing Down?

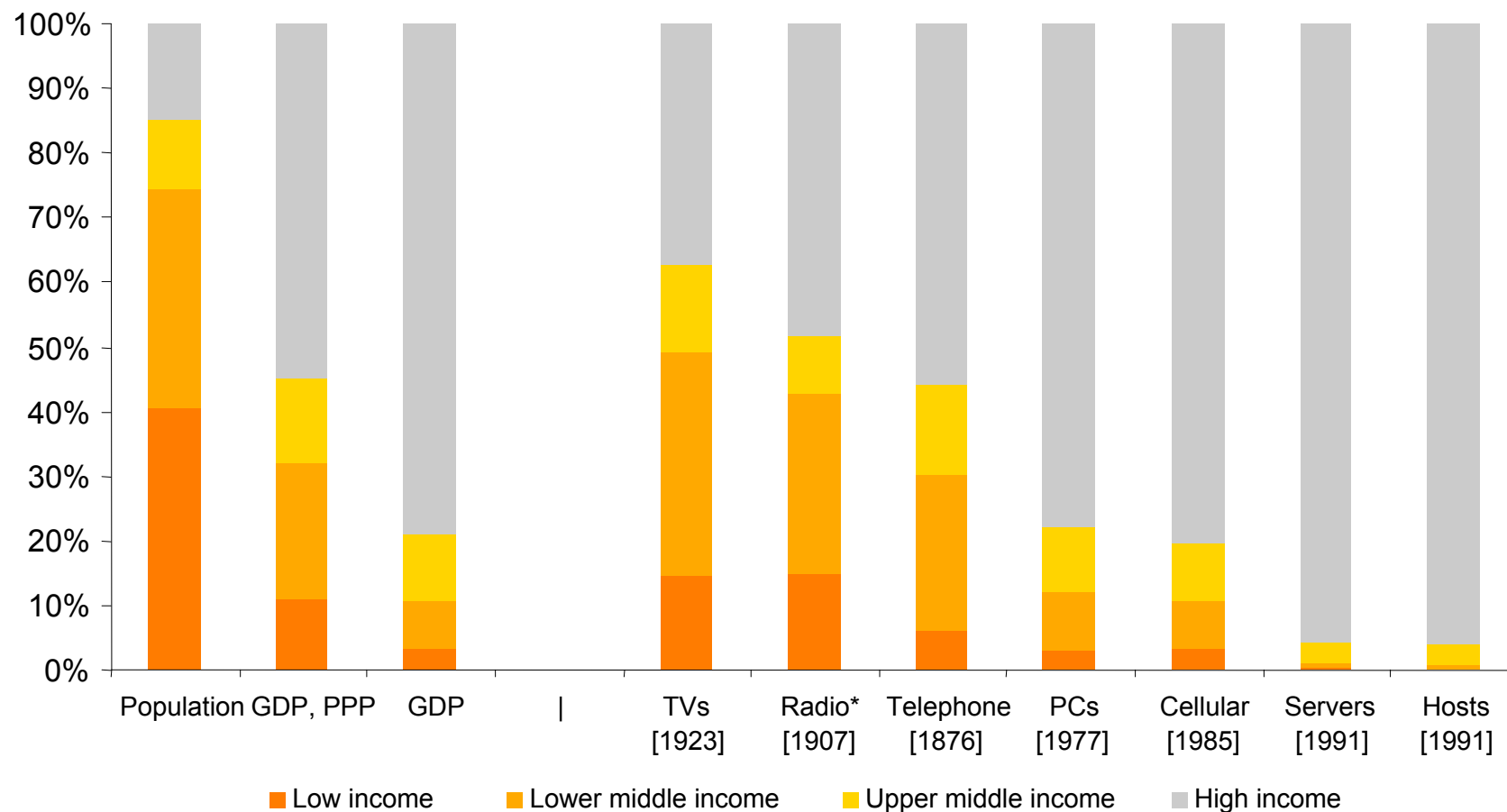


Source: Foreign Policy and A.T. Kearney

Globalization advanced briskly until 1997, when the financial crises that hit various developing regions weakened trade flows and undercut gains in global integration. So why did overall integration still increase during this period? Simple: Technology has become the engine of globalization.

-  **Technology factors:** Percentage of population online, number of internet hosts per capita, and number of secure servers per capita
-  **Non-technology factors:** Trade in goods and services, capital flows, and personal contact.

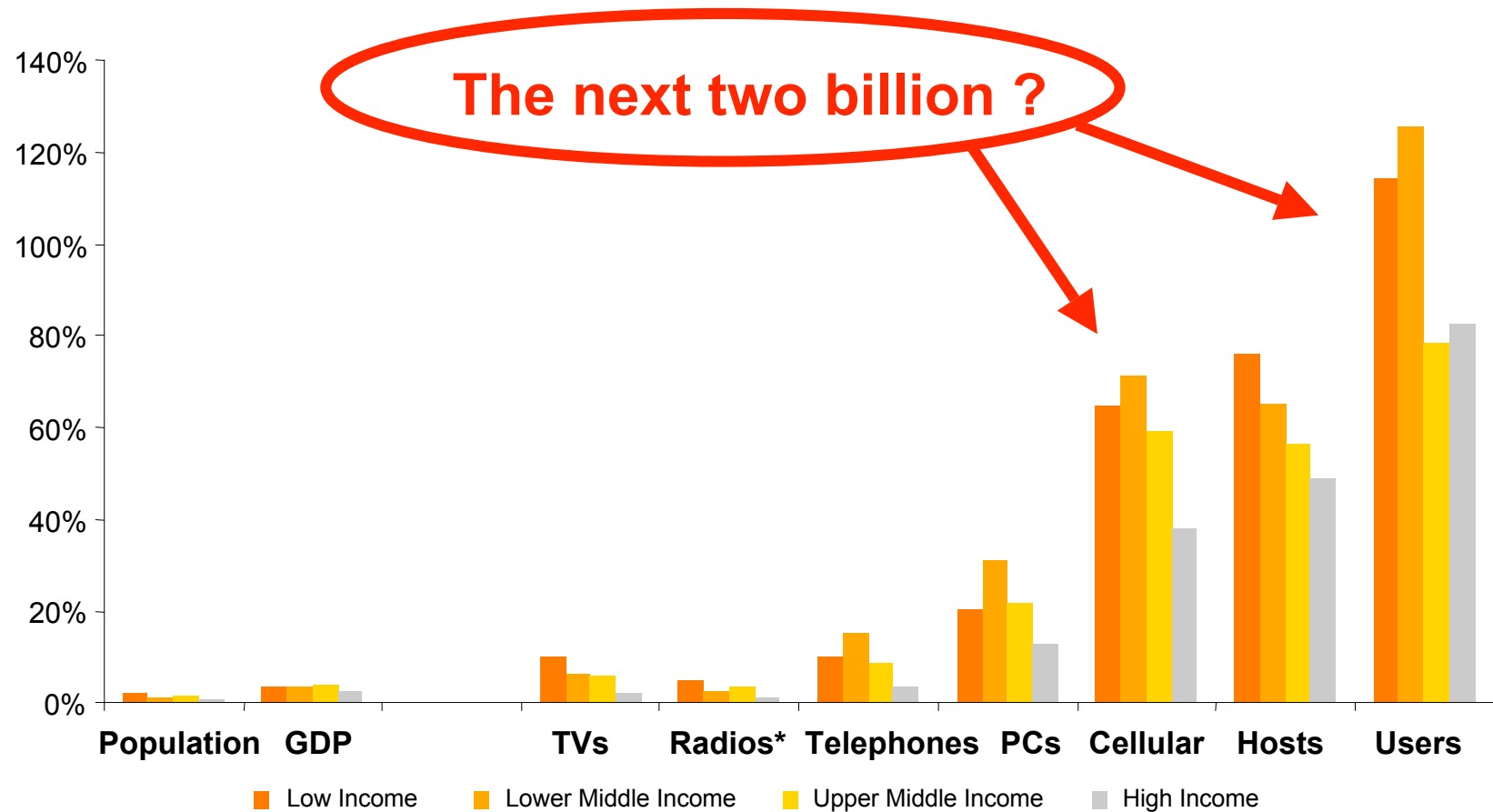
Technologies and the Digital Divide



Source: World Development Indicators 2002, World Bank Group. Dates of invention are from <http://knowledgecontext.org/activities/timeline.htm>. For Internet hosts and Internet servers, the date of invention for the World Wide Web was used.

* Data for Radio are for 1997.

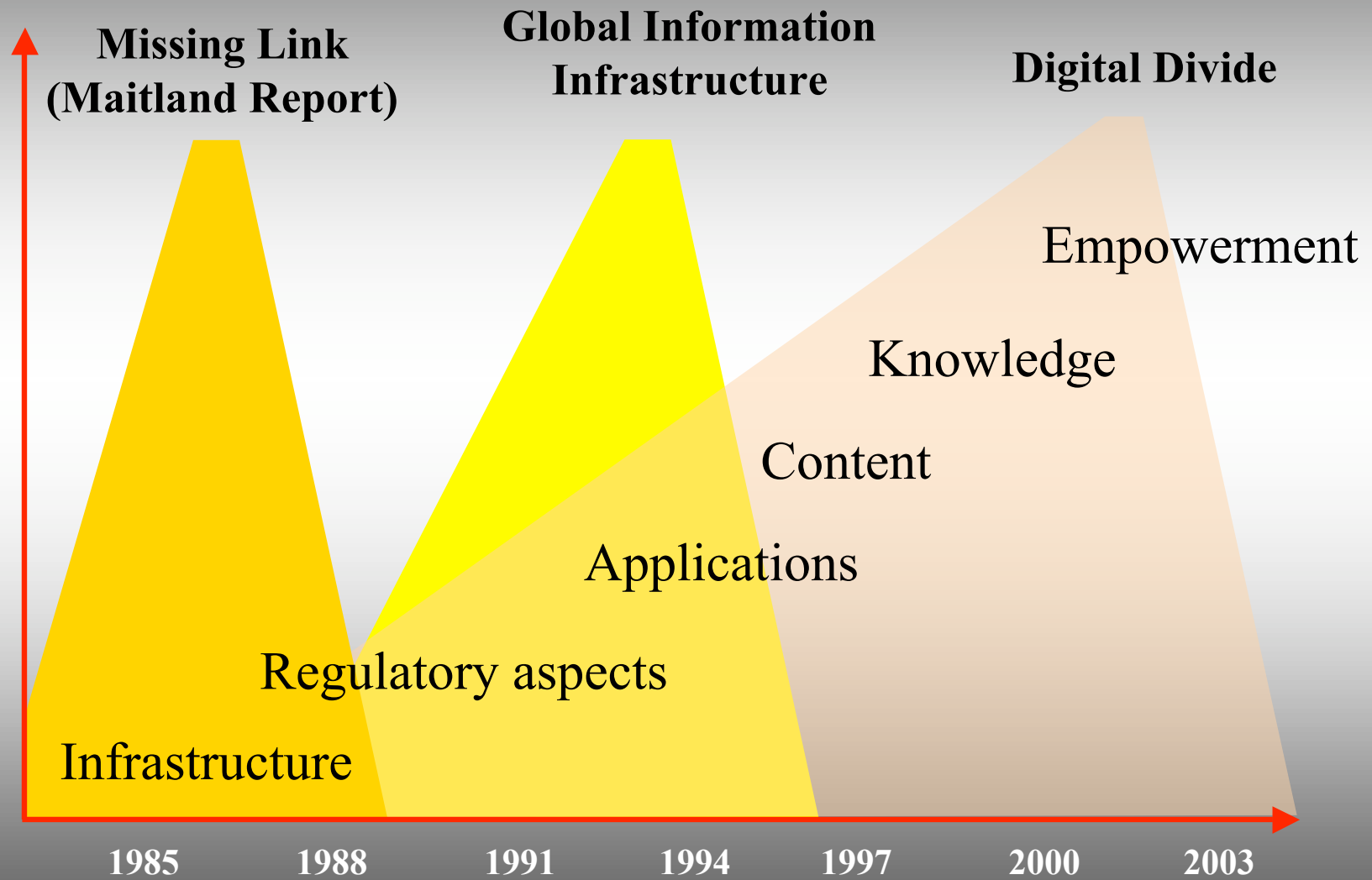
1990-2000 Technology Growth Rates



Source: World Development Indicators 2002, World Bank Group. GDP is expressed in constant 1995 US\$

* Radio growth rates are for 1990-1997.

Shedding different lights at a complex set of issues



Bridging the Physical Divide

- **Connectivity is the goal**

Benefits of web-economy impossible without adequate connectivity.

- **Competition is the vehicle**

Competition creates incentives for innovation and meeting customer needs.

- **Education is the enabler**

IT literacy increasingly necessary.

Bridging the Content Divide

- **Global production is the goal**

Realizing the promises of an open global economy

- **Value creation is the vehicle**

Local languages, cultures and comparative advantages can be combined to yield mutually beneficial outcomes (local and global)

- **Education is the enabler**

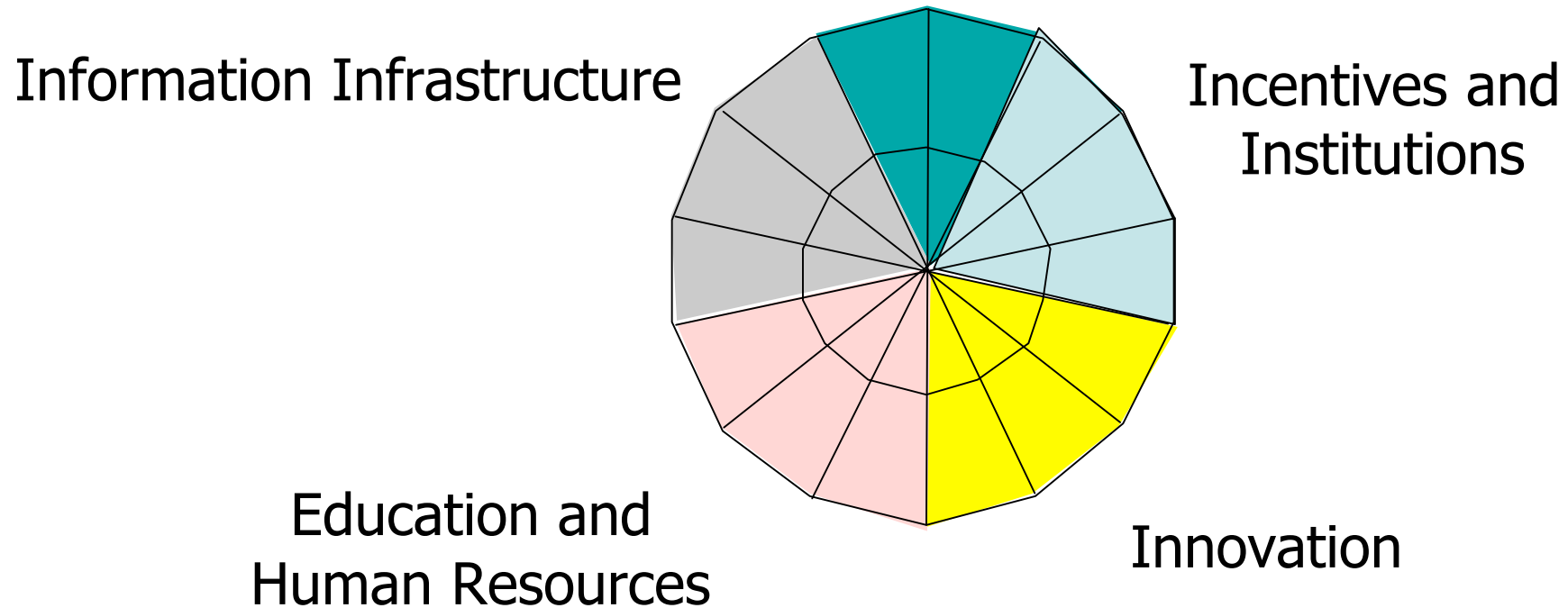
IT can help make education global



Fine, but can
IT really solve
any of my
problems ?

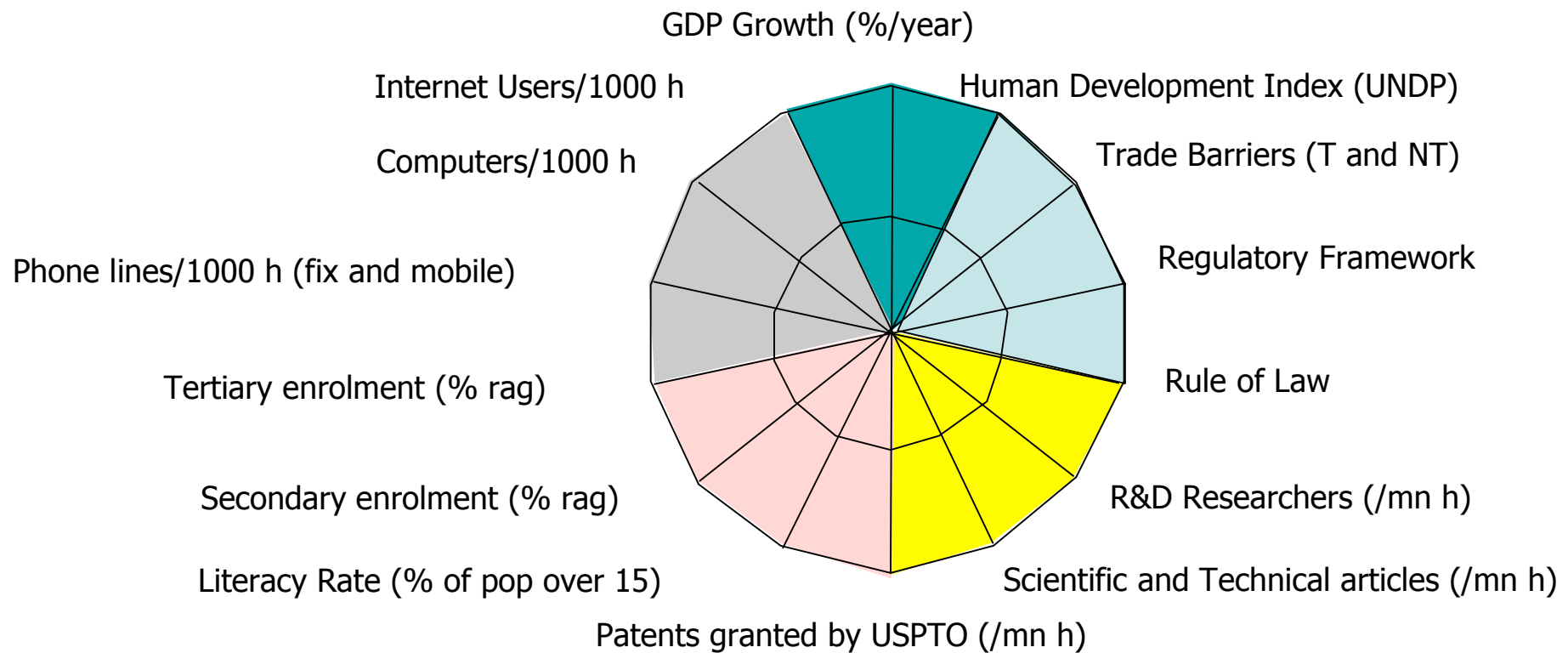
Knowledge and competitiveness

Socio-economic Performance



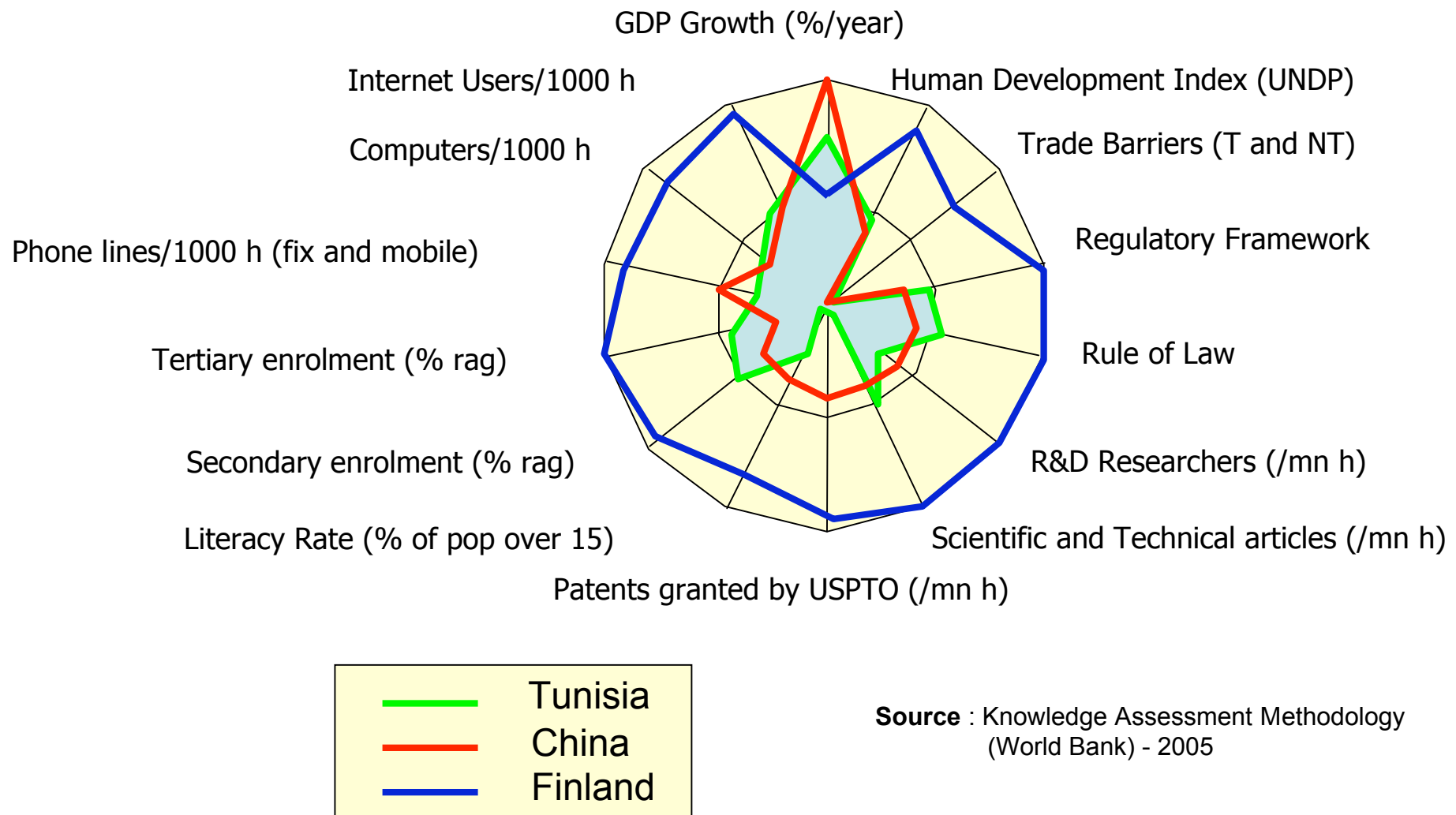
Source : Knowledge Assessment Methodology
(World Bank) - 2005

Knowledge and competitiveness

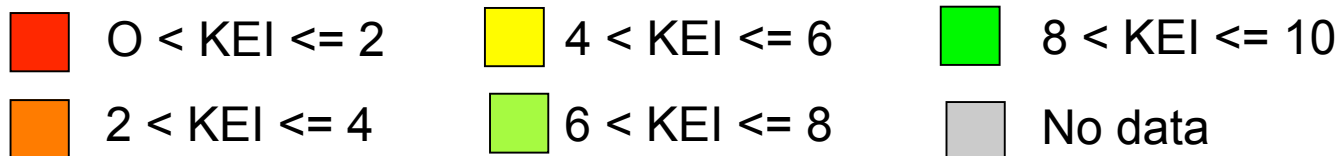
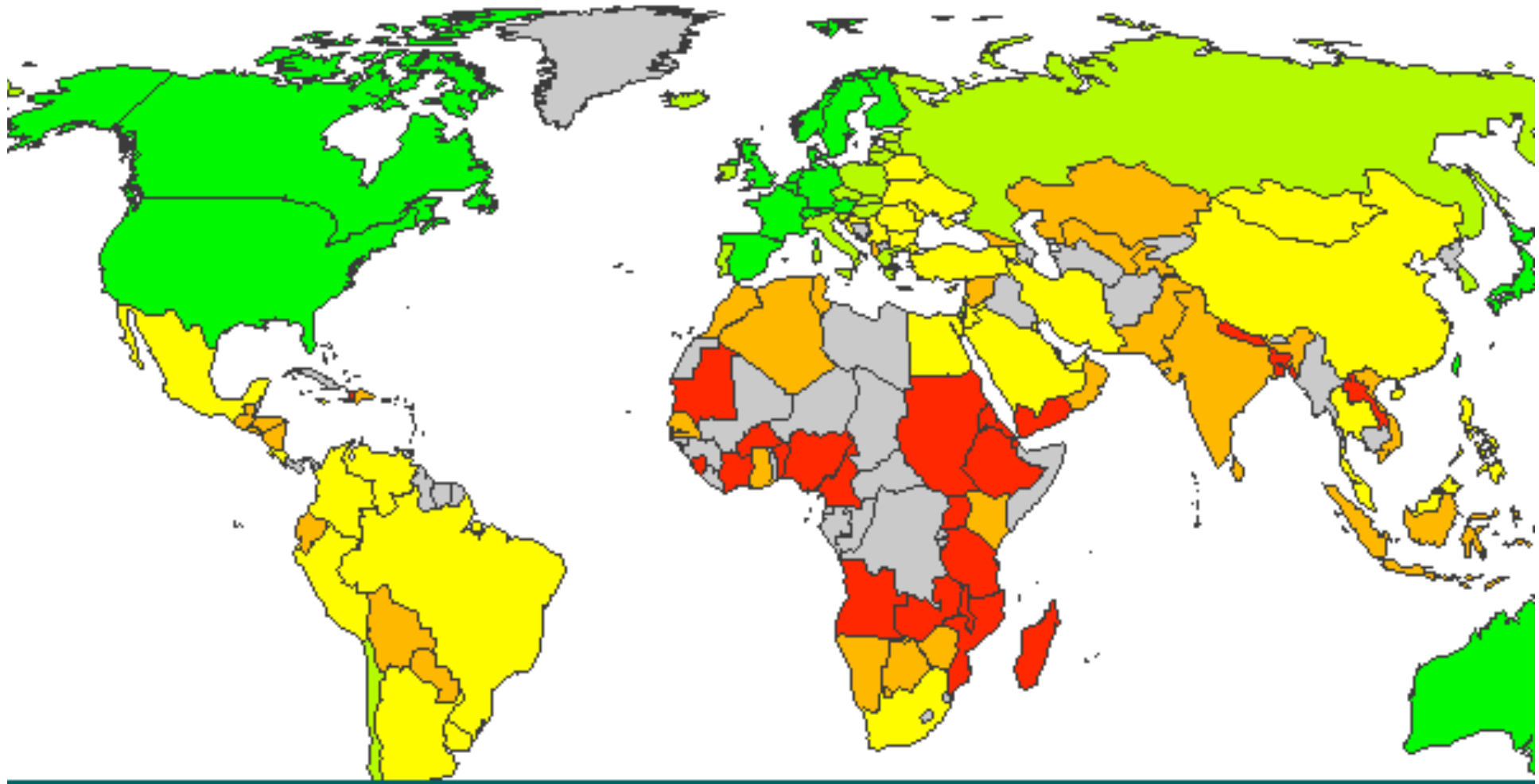


Source : Knowledge Assessment Methodology
(World Bank) - 2005

Knowledge & competitiveness



Knowledge Economy Index (2005)



World Bank Innovation/KAM index 2006

- ☐ Knowledge Economy Index ?
- ☐ Knowledge Index ?
-
- ☐ Economic Regime ?
- ☒ Innovation ?
- ☐ Education ?
- ☐ ICT ?

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World Map

The countries are color-coded based on their performance on the selected index or pillar. Place the cursor over any country and the relevant score will pop up.

Clicking on a country will open a separate window showing the country's performance on the KEI, KI and the four KE pillars in a bar chart form.

Use the buttons under the map to navigate or change the scale of the map. You can also drag the map with your mouse. The button on the far left (1:1) restores the initial map setup.

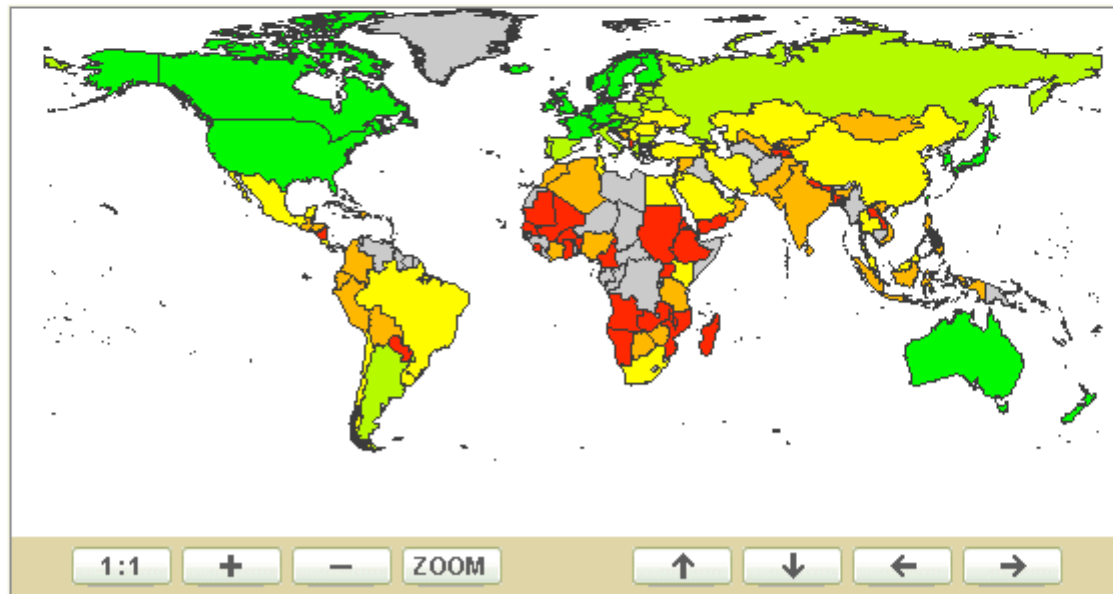
Map legend

(0 is the lowest score and 10 is the maximum score)

- 0 ≤ Inn < 2
- 2 ≤ Inn < 4
- 4 ≤ Inn < 6
- 6 ≤ Inn < 8
- 8 ≤ Inn ≤ 10
- No data

most recent

weighted by population



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World Bank Innovation/KAM index 2006

Each bar chart shows the aggregate Knowledge Economy Index (KEI) score and the contribution (relative weight) of different Knowledge Economy pillars to the overall country's knowledge readiness.

Cross-country Comparison

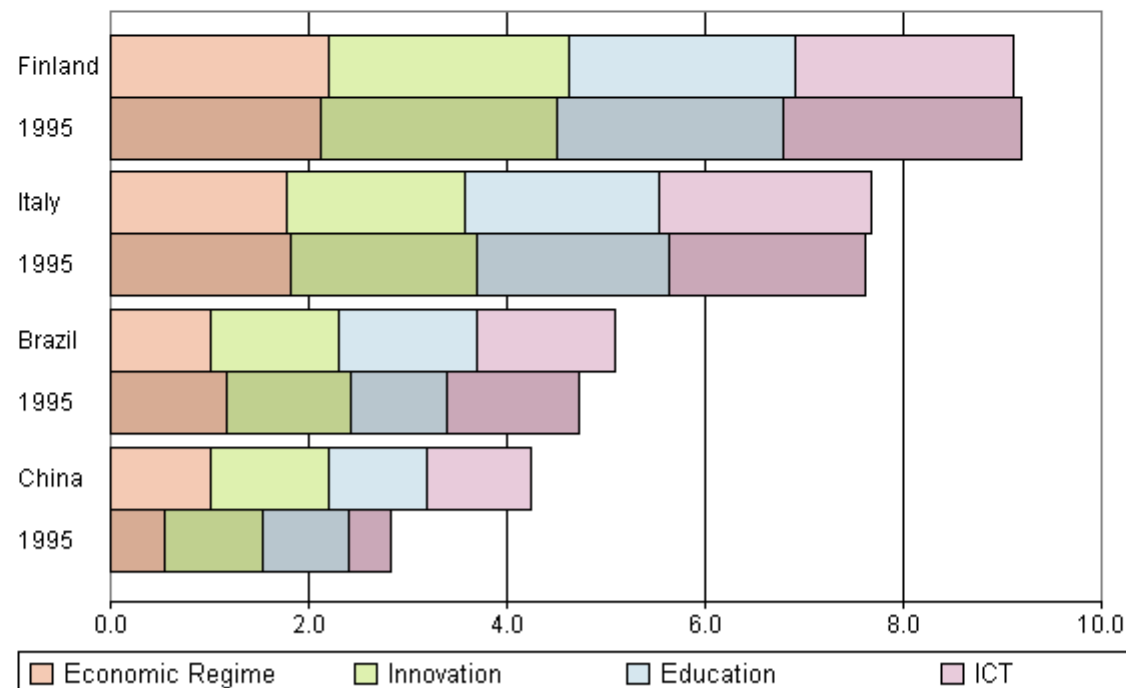
[Back to your selections to modify](#)

<input checked="" type="radio"/> Knowledge Economy Index	<input type="radio"/> Economic Regime	<input type="radio"/> Education
<input type="radio"/> Knowledge Index	<input type="radio"/> Innovation	<input type="radio"/> ICT

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Knowledge Economy Index



World Bank Innovation/KAM index 2006

Innovation System

- ☐ FDI Outflows as % of GDP, 2000-04
- ☐ FDI Inflows as % of GDP, 2000-04
- ☐ Royalty and License Fees Payments (US\$ mil.), 2004
- ☐ Royalty and License Fees Payments (US\$/pop.), 2004
- ☐ Royalty and License Fees Receipts (US\$ mil.), 2004
- ☐ Royalty and License Fees Receipts (US\$/pop.), 2004
- ☐ Science and Engineering Enrolment Ratio (%), 2004
- ☐ Science Enrolment Ratio (%), 2004
- ☐ Researchers in R&D, 2004
- ☐ Researchers in R&D / Mil. People, 2004
- ☐ Total Expenditure for R&D as % of GDP, 2004
- ☐ Manuf. Trade as % of GDP, 2004
- ☐ University-Company Research Collaboration (1-7), 2006
- ☐ Scientific and Technical Journal Articles, 2003
- ☐ Scientific and Technical Journal Articles / Mil. People, 2003
- ☐ Availability of Venture Capital (1-7), 2006
- ☐ Patents Granted by USPTO, avg 2001-05
- ☐ Patents Granted by USPTO / Mil. People, avg 2001-05
- ☐ High-Tech Exports as % of Manuf. Exports, 2004
- ☐ Private Sector Spending on R&D (1-7), 2006
- ☐ Firm-Level Technology Absorption (1-7), 2006
- ☐ Value Chain Presence (1-7), 2006

Select All Variables of Innovation System

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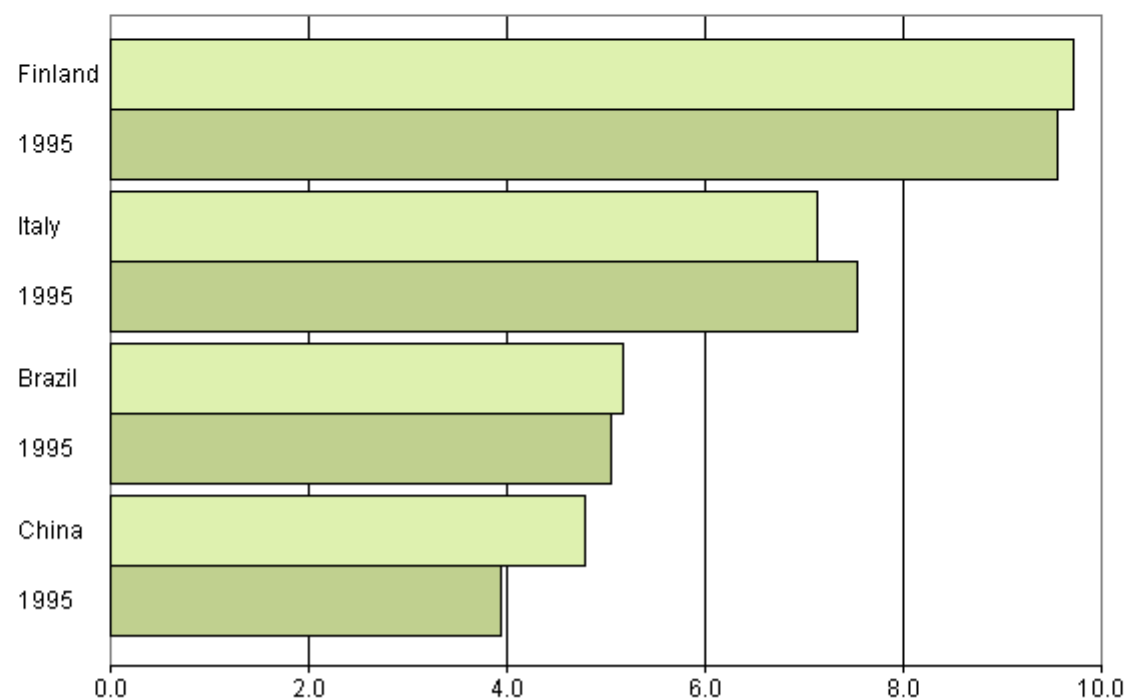
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- | | | |
|---|---|-----------------------------------|
| <input type="radio"/> Knowledge Economy Index ? | <input type="radio"/> Economic Regime ? | <input type="radio"/> Education ? |
| <input type="radio"/> Knowledge Index ? | <input checked="" type="radio"/> Innovation ? | <input type="radio"/> ICT ? |

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Innovation



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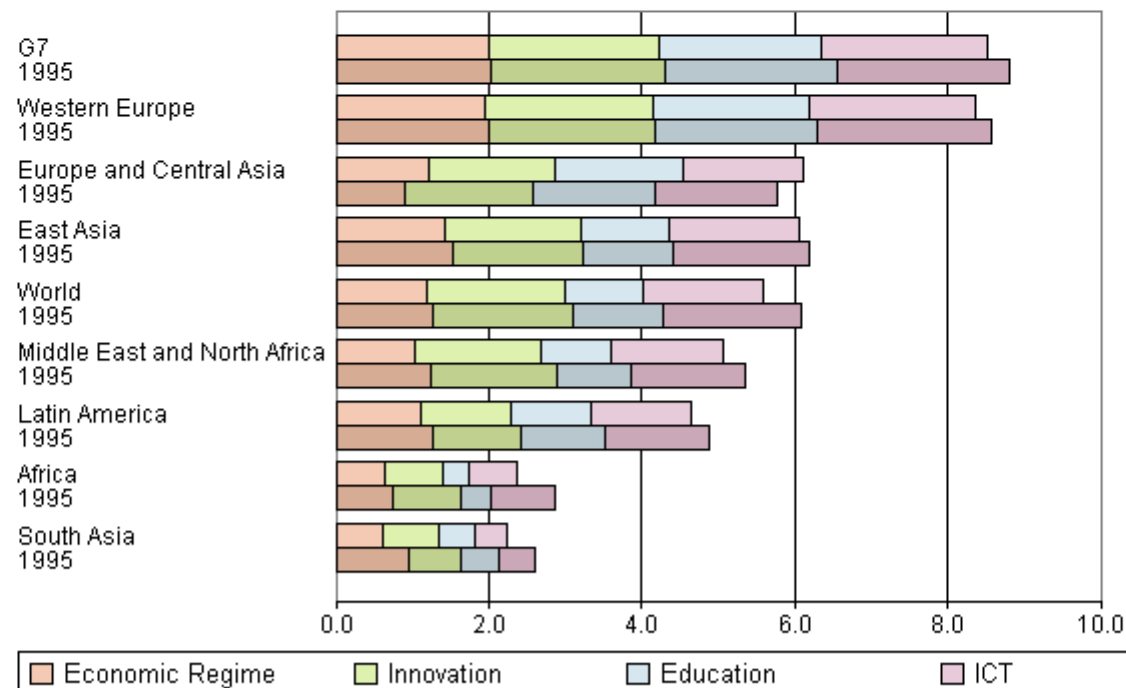
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Knowledge Economy Index



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Cross-country Comparison

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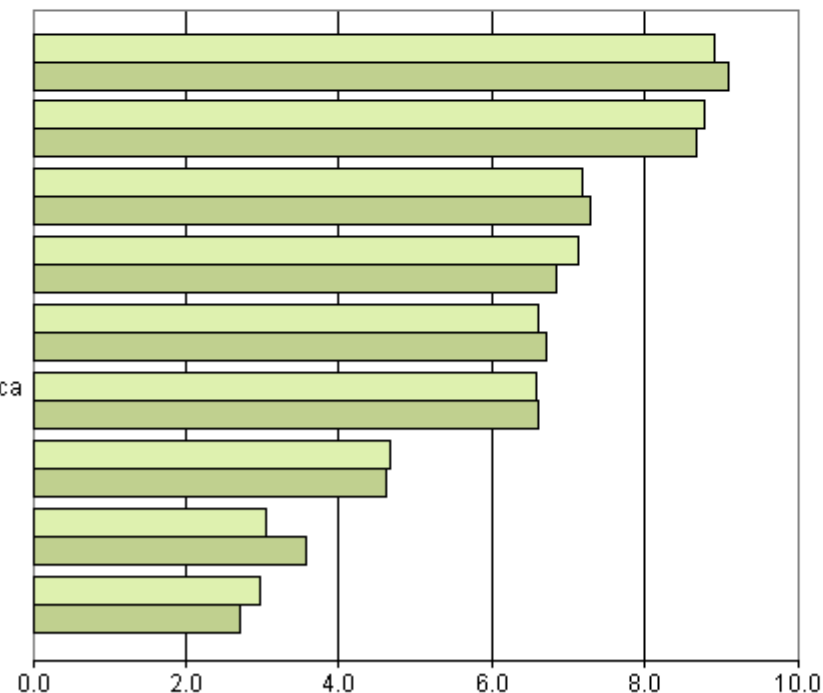
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Innovation

G7
1995
Western Europe
1995
World
1995
East Asia
1995
Europe and Central Asia
1995
Middle East and North Africa
1995
Latin America
1995
Africa
1995
South Asia
1995



World Bank Innovation/KAM index 2006

- ☐ Economic Regime ?
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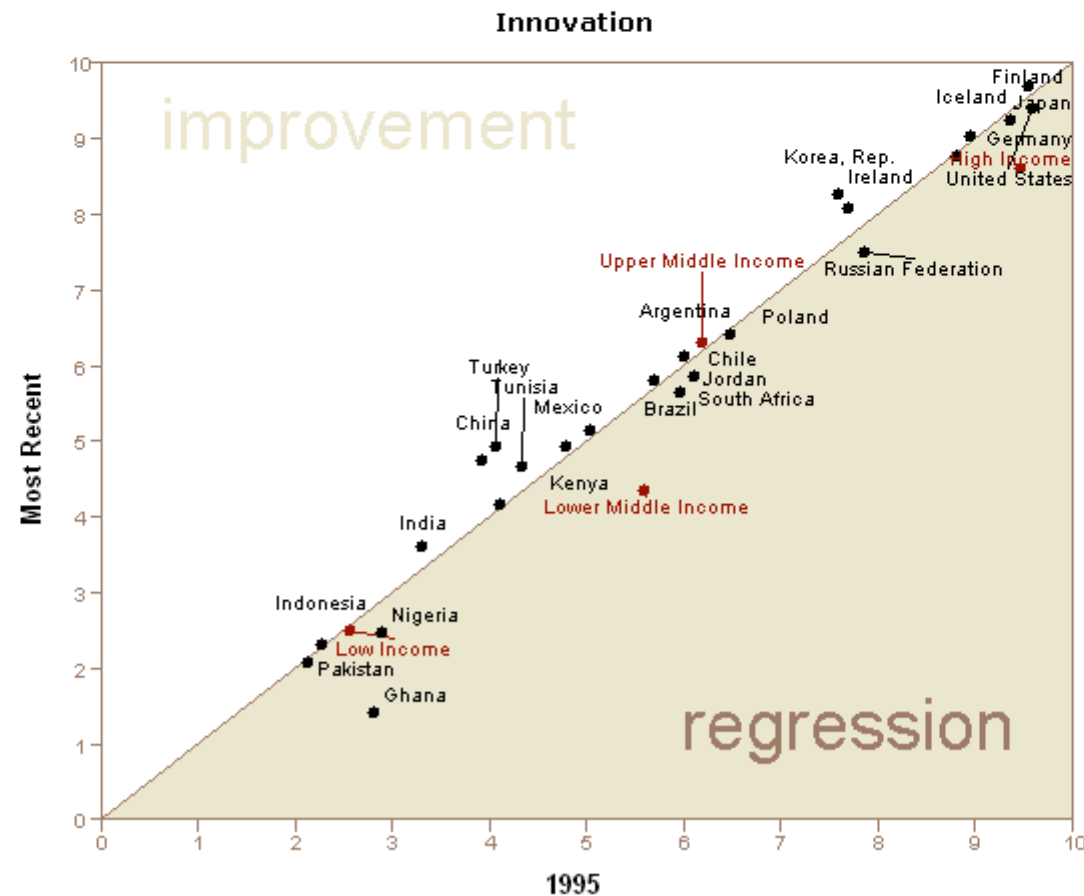
signify improvement.

The regression may be due to two reasons: the country either actually has lost ground in absolute terms over time, or improved slower than the comparative group.

Innovation variables are

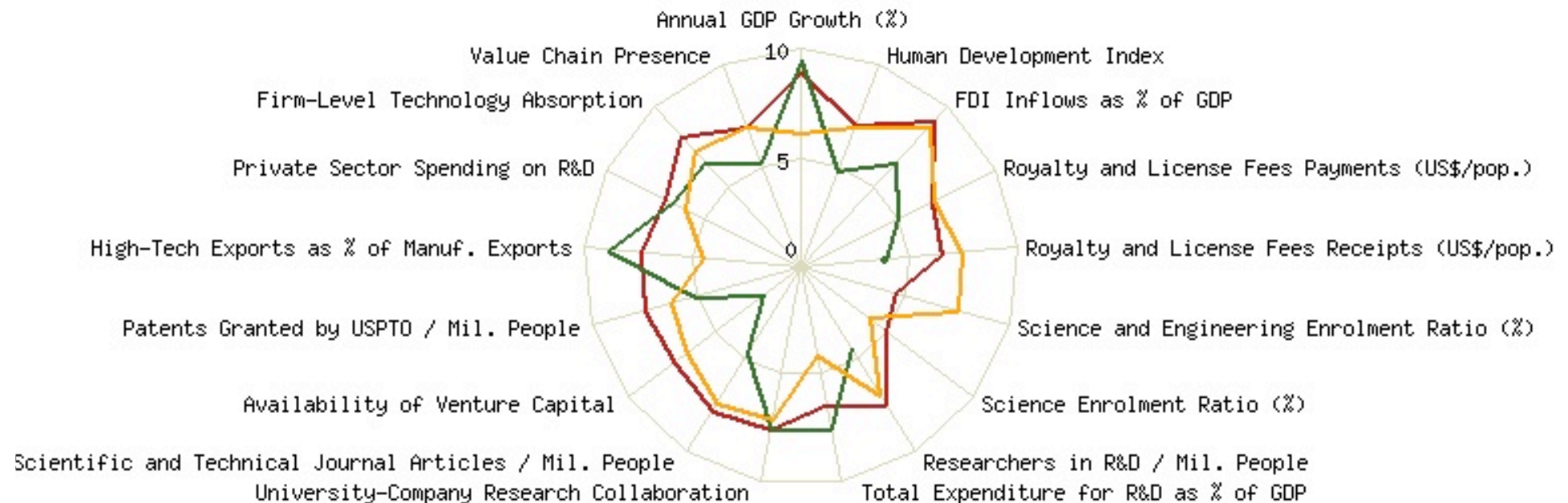
weighted by population  ?

 Back to your selections to modify



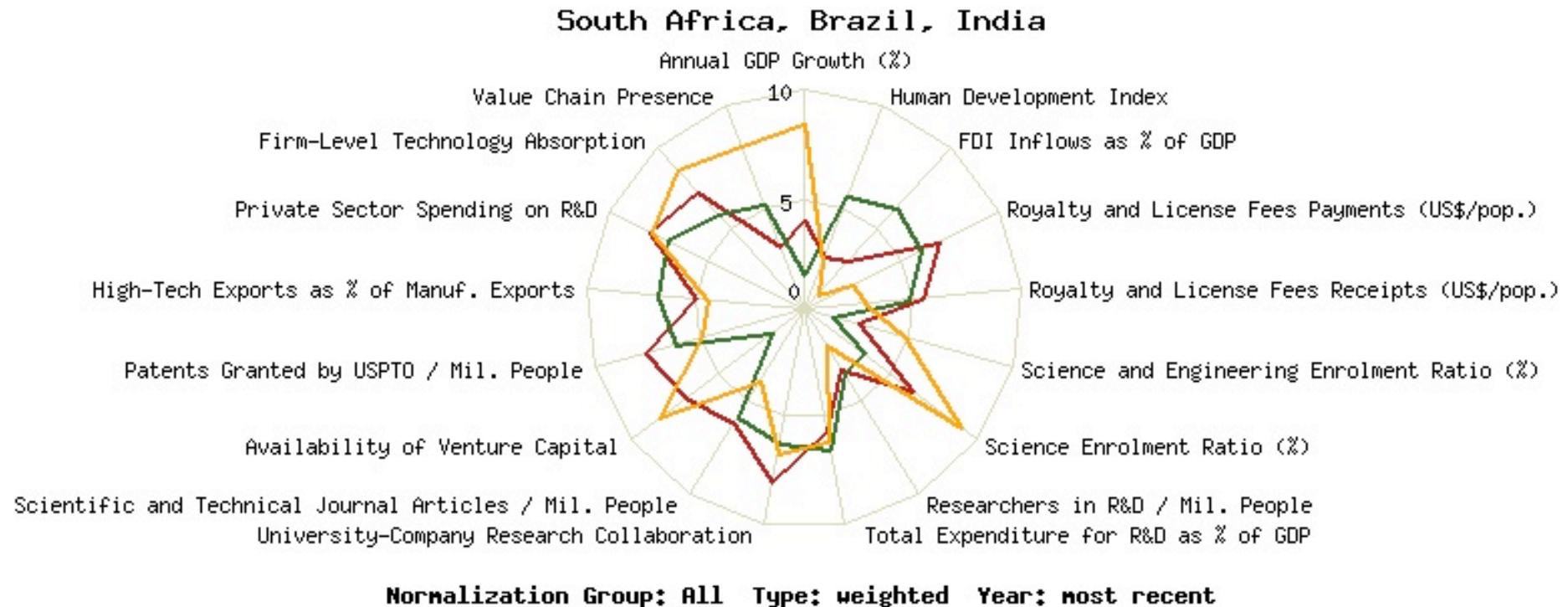
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Estonia, China, Slovak Republic

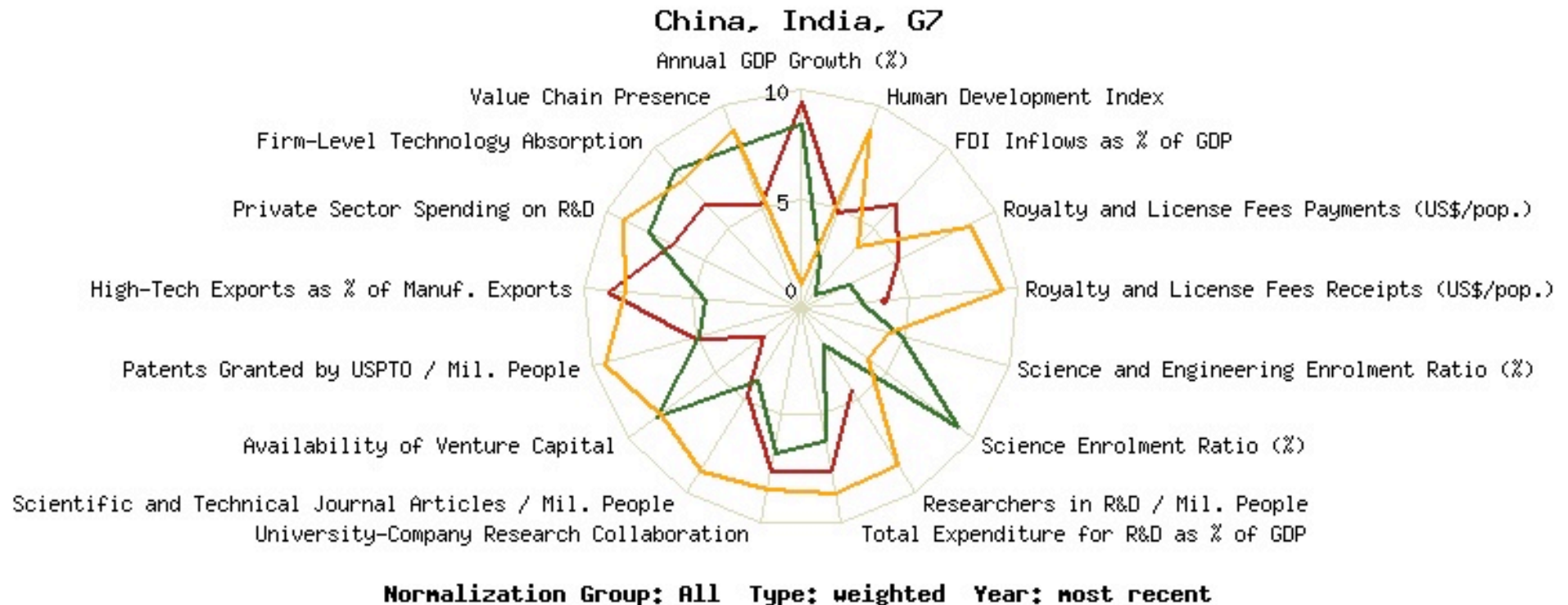


Normalization Group: All Type: weighted Year: most recent

World Bank Innovation/KAM index 2006

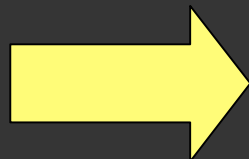
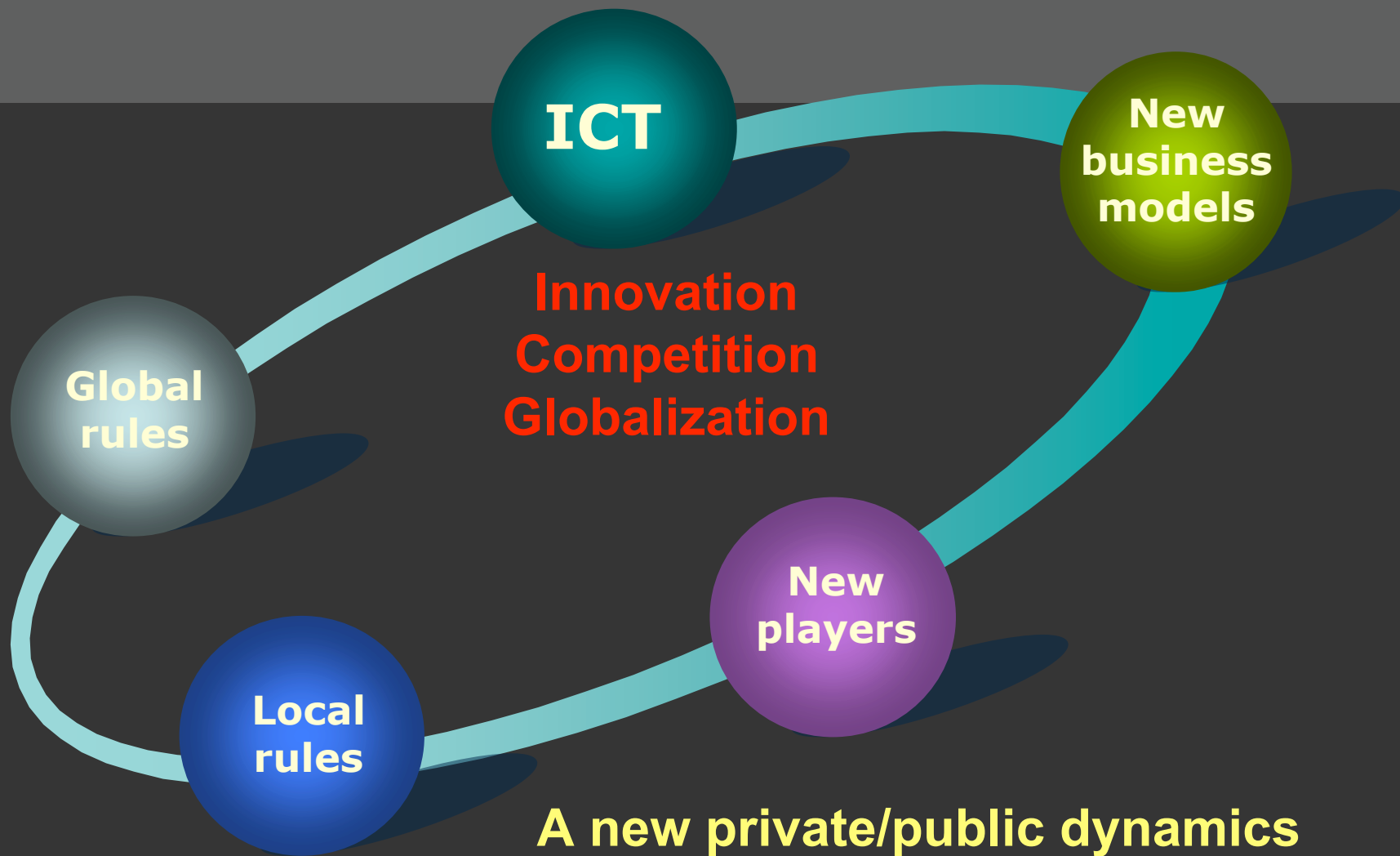


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Lessons we learned

- ❖ Building a knowledge economy entails the pursuit of many objectives, which may be competing for the same resources (innovation, education, information infrastructure)
- ❖ Political leadership and social consensus are essential to sustain efforts to build a knowledge economy
- ❖ Knowledge economies will offer highest degree of resilience in the face of upcoming challenges and opportunities (rapid technological change, outsourcing, 'the flat world')



Managing Human Resources
Managing Knowledge
Managing Expectations



Managing Change

Main conclusions

- Information is the core engine of globalization
- The digital divide is less about equipment and technology than about content and value
- In a global information economy, winners will be 'permanent innovators' and 'continuous learners'
- All economies (not just the most advanced) will strive to be knowledge economies
- This phenomenon will put human resources back at the center of competition and development
- In this new world, all stakeholders will need to consider accepting new roles (private/public, producers/consumers, importers/exporters) and fundamental concepts will need to be revisited (usage/property, e.g.)

The ABC of e-competition

Access

- Infrastructure, costs, competition/regulation

Basic skills

- Basic education, vocational training, entrepreneurship

Content

- Local value, languages

Desire

- Local will to reform, adapt and change

Excellence

- In-source knowledge, outsource high costs, retain excellence



**Thank you
for your attention**

Grazie mille

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