

ICT and Development

South Asia Subregional
Economic Cooperation (SASEC)

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Outline

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- Information and Knowledge Society (ICT Based)
- Three Questions in ICT Investment
- ICT as a General Purpose Technology
- ICT Development Policy
- ICT Paradigm Shift

II. Six Key Issues in ICT Development

- ICT Convergence
- Leapfrogging Technology
- Network Economy
- ICT and Growth
- Role of ICT Producing Sector
- Digital Divide

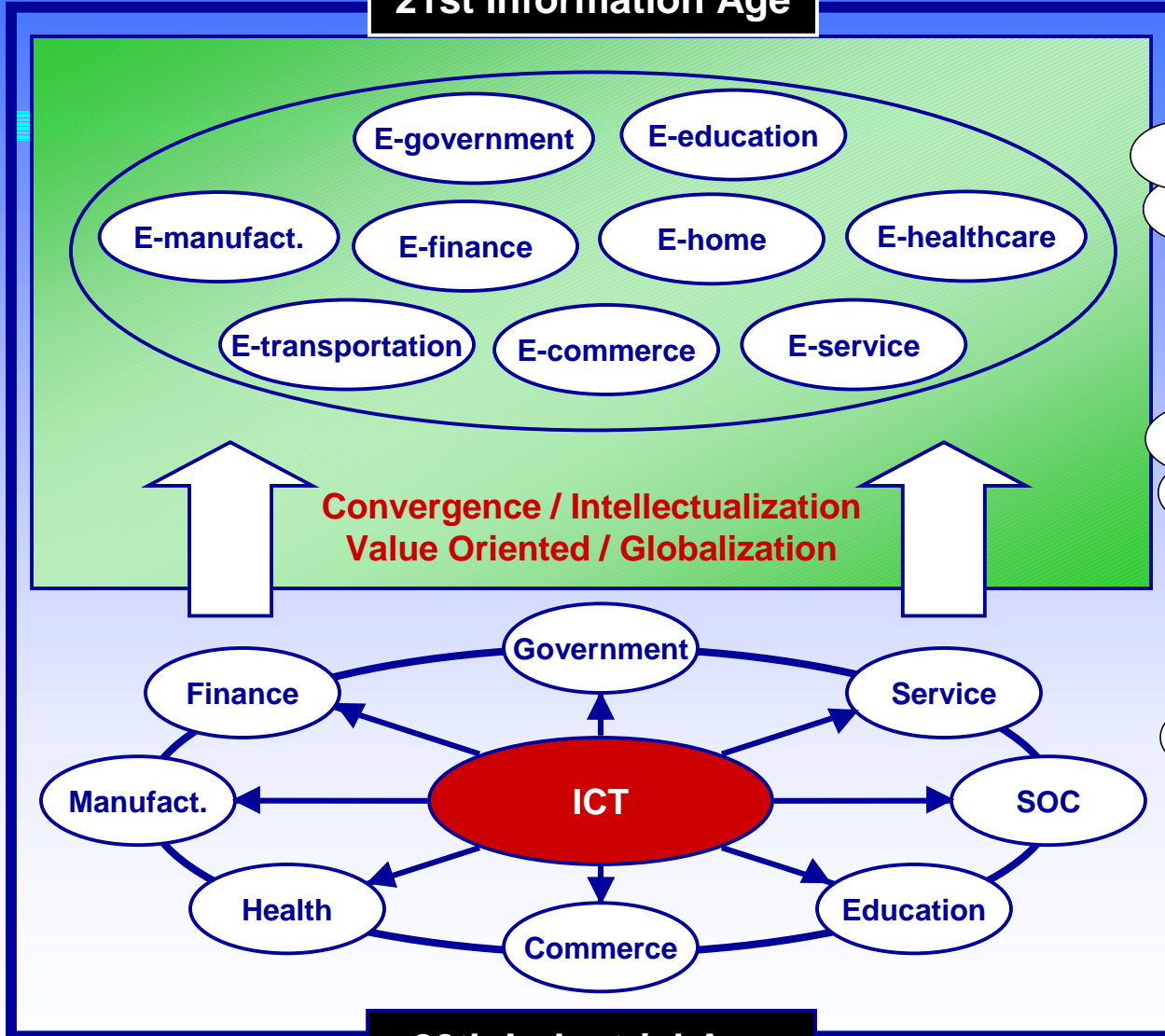
III. Analysis on E-readiness and other ICT Initiatives

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- ICT Development Matrix and Policies
- Three Pillars of SASEC Regional Cooperation Approach

I. Introduction

21st Information Age



20th Industrial Age

Facilitating an open economy and promoting a competitive market environment

Creating new business and/or development opportunities

Enhancing the productivity and efficiency of existing sectors and industries



1. Questions in ICT Investment



When to Invest (Why Now)

- ICT infrastructure vs. other fundamental developmental needs such as education, healthcare, gender equity, employment, energy and transportation

How Much to Invest

- Creation of the options or opportunities or rights to undertake some initiative in the future
- Stepwise Investment under the uncertainty

Who Will Invest

- Private Sector Investment vs. Appropriate Regulatory Environment
- Public-Private Partnership



2. ICT as a GPT



ICT as a General Purpose Technology

❑ ICT Definition

- Set of activities that facilitate the processing, transmission, and display of information by electronic means

❑ Classification

- **'ICT-producing'** sectors: telecommunication hardware and service, computer software and hardware, and electronic devices.
- **'ICT-using'** sectors: other existing or "would-be-newly-appeared" industries/sectors.

❑ ICT Development Aspect

- **'Industrialization of ICT'**: developing ICT-producing group, which provides sound ICT supplies to other industries/sectors.
- **'Digitalization of Industries'**: promoting ICT-using group through technology convergence and new business opportunities.

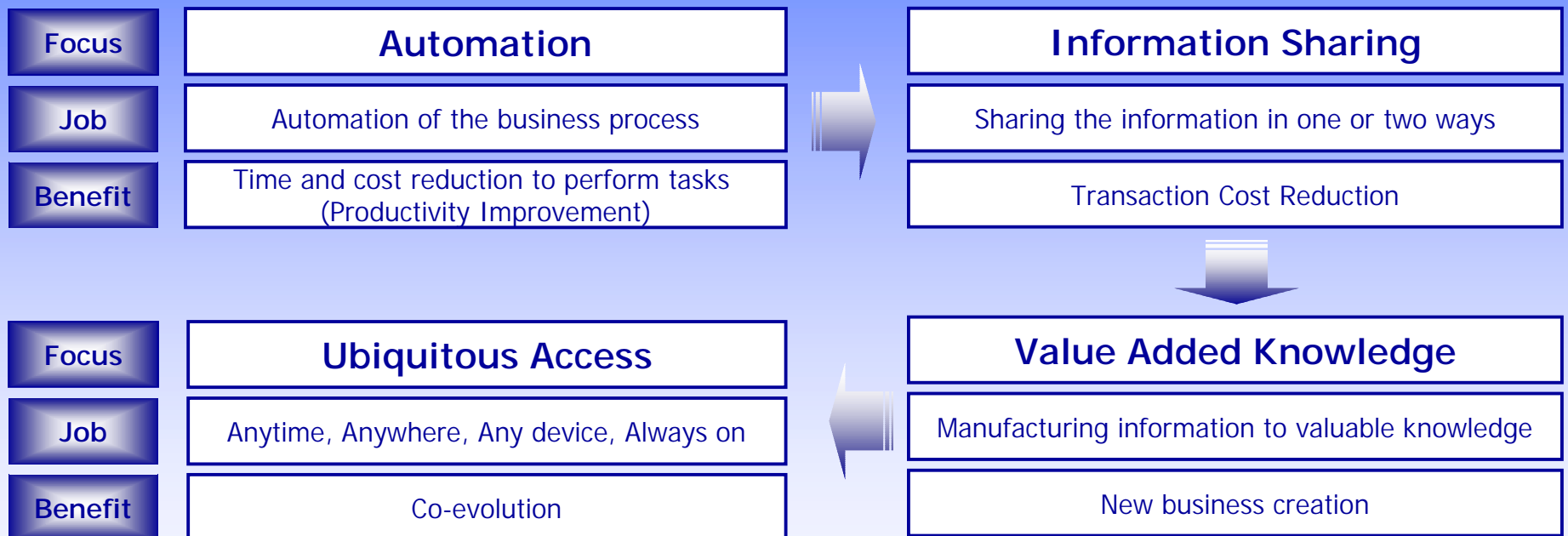


3. ICT Development Policy



- ❑ Supply/Technology Push Policy
 - focusing on the provision of ICT network physical capacity
- ❑ Demand Pull Policy
 - focusing on the stimulation of demand by facilitating the awareness, skill, and capabilities for ICT service applications
- ❑ The balance between “supply” from the ICT-producing and “demand” from the ICT-using industries/sectors

4. ICT Paradigm Shift



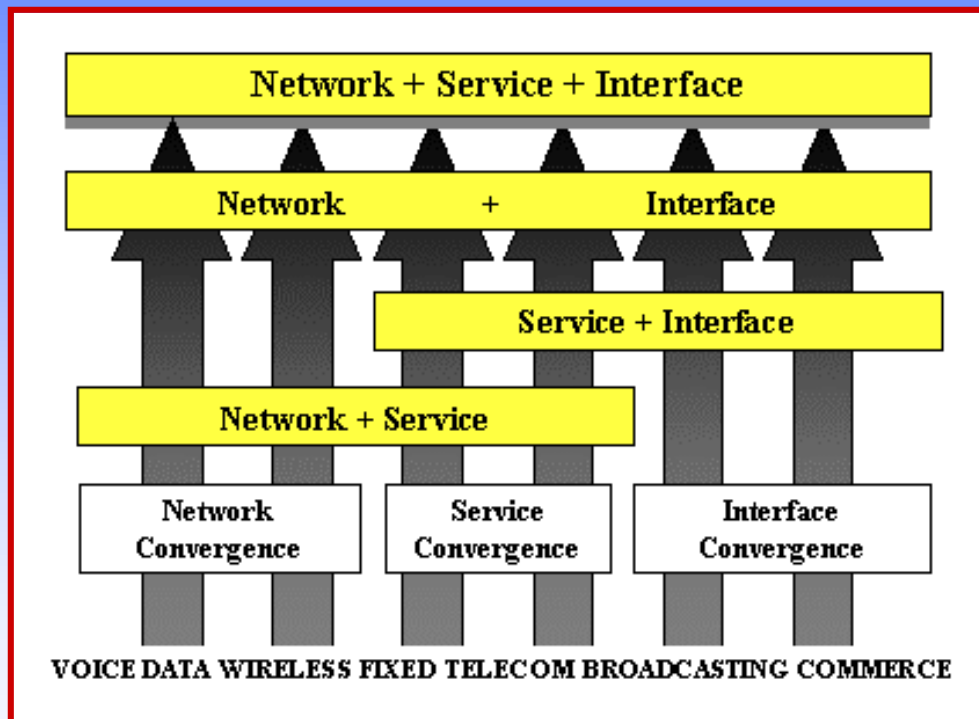
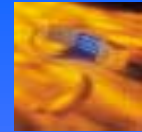


II. Issues in ICT Development



- ❑ ICT Convergence: Technology, Service, Interface
- ❑ Leapfrogging Technology
- ❑ Network Economy
 - Increasing Returns to Scale
 - Critical Mass
 - Lock-in & Path-dependency
- ❑ ICT and Growth
- ❑ Role of the ICT Producing Sector
- ❑ Digital Divide

1. ICT Convergence



- ❑ Convergence refers to the phenomenon where network, services, contents, interface, and business, come together in terms of technology, market and policy, in part or entirety
- ❑ Understanding ICT convergence would help in assessing demand and supply properly, making timely physical investments and coming up with good business strategies for overall ICT development



2. Leapfrogging Technology



- ❑ Low opportunity costs for switching from old to new ICT technology (penetration of cellular phones over fixed line in some developing countries)
- ❑ New business opportunities such as Information Technology Enabled Service (ITES)/Business Process Off shoring (BPO)
 - Less dependent on other infrastructure services than manufacturing such as electricity, water, roads and ports
 - Lower entry barrier and learning costs than in other industries



3. Network Economy



❑ Negative Feedback: Diminishing Returns

- What gets ahead eventually run into limitation
- Predictable equilibrium of prices and market share
- Bulk material manufacturing
- Processing of resources
- Application of raw energy
- Processing industry
- Control and Planning
- Firm hierarchy
- Optimization

❑ Positive Feedback: Increasing Returns

- What gets ahead gets further
- Instability and lock-in market
- Design and use of technology
- Processing of information
- Application of ideas
- Knowledge-based industry
- Gambling & Sense of direction
- Flat hierarchies
- Adaptation & Search for next big thing



Continued

❑ Cause of the Increasing Returns Economy

- Supply side economies of scale by declining average cost (ex. Information goods)
- Demand side economies of scale by network externalities, which means the utility of joining a network is positively related to the number of its members (Metcalfe's law: value of network of size n proportional to n^2)

❑ Critical Mass

- The network size needs to exceed critical mass to sustainable and survive by itself

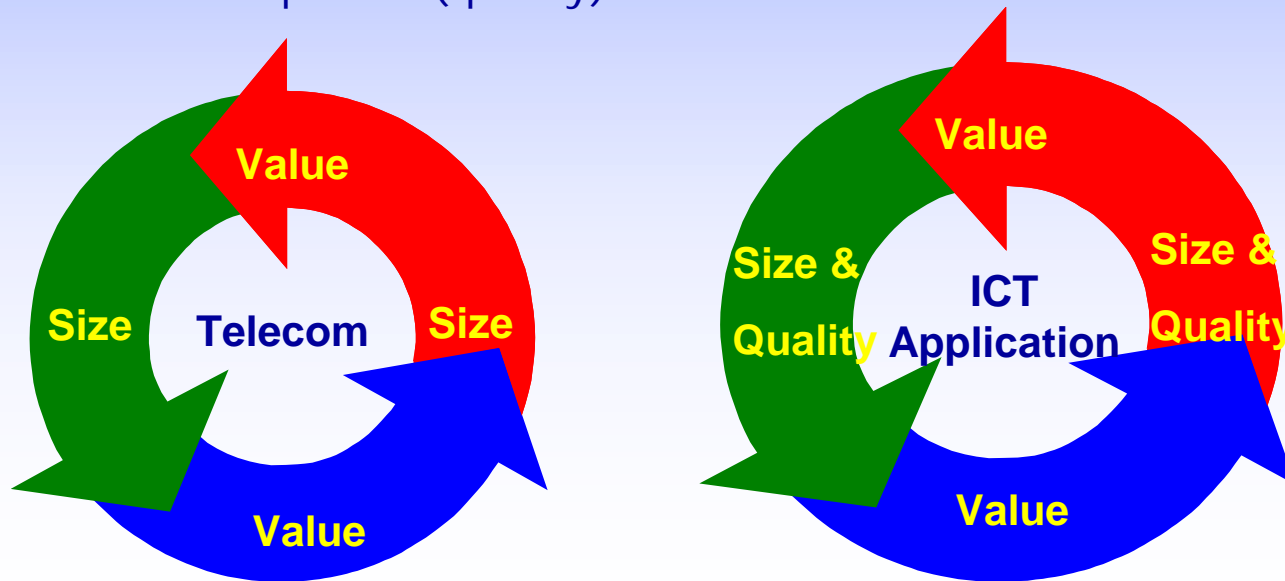
❑ Lock-In & Path-Dependence

- Huge switching cost due to network effects

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□ Implications

- Policy should be intended to attain a critical mass, to ignite positive feedback, and to enlarge the size of positive feedback. In this sense regional level implementation of ICT initiatives can additionally contribute to reach the critical mass and the threshold levels, which are needed to make a sustainable ICT network .
- Demand promotion, human capital accumulation (size) and human resource development (quality) are critical factors.





4. ICT and Growth



IT productivity paradox

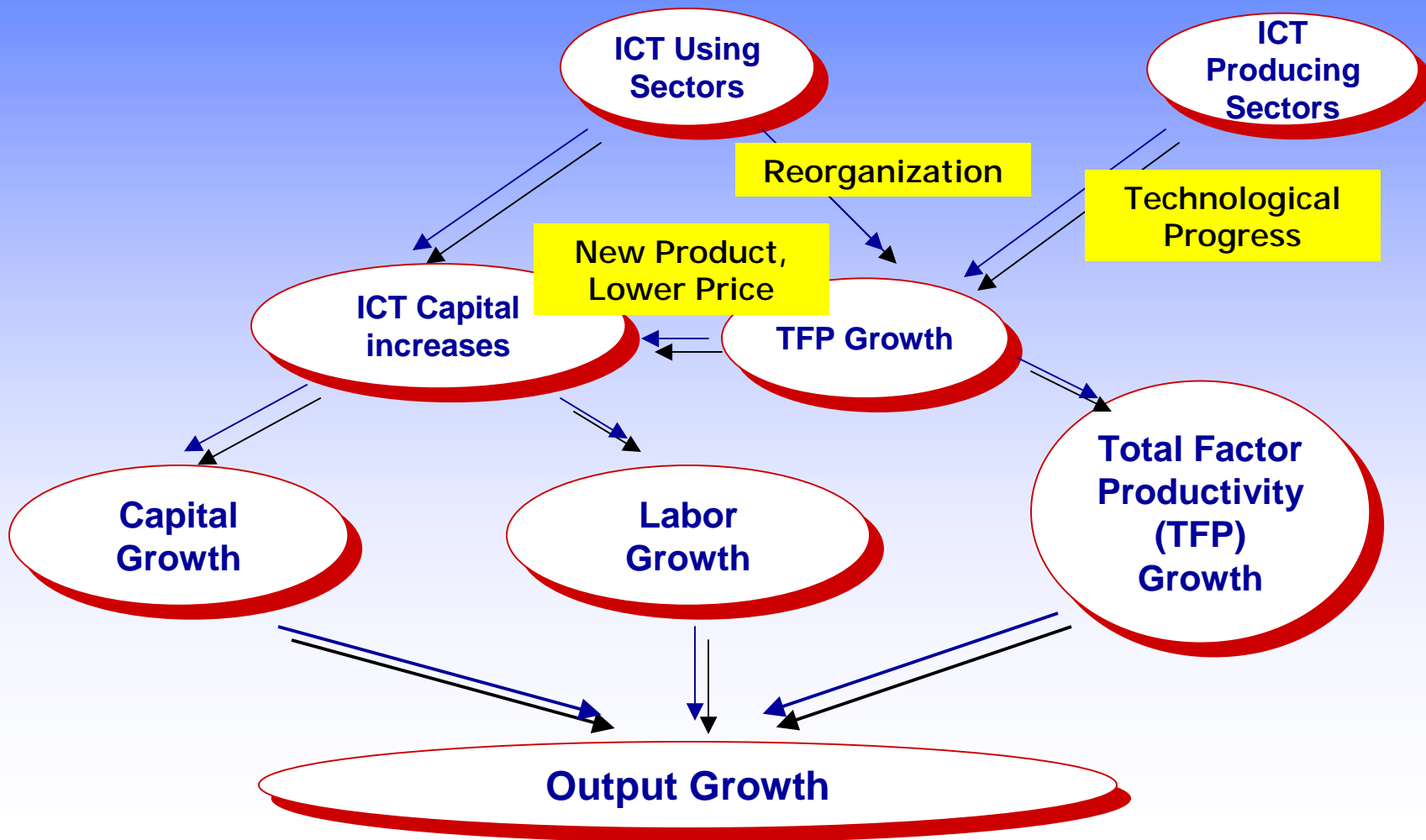
- The alleged inability of IT to deliver in practice the benefits they promise in theory

Lessons learned

- ICT investment strategies should be made on a long-term basis considering the time lag between investment timing and return recovery timing
- The intended ICT benefit can be realized on the precondition of organization's adaptability and presence of complementarities for ICT environment.

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ICT Contribution Channels to Growth (Growth Accounting Theory)





5. ICT Producing Sector



- ❑ The existence of a large ICT-producing industry is neither a necessary nor a sufficient condition to successfully experience the growth effects of ICT.
- ❑ Examples of Australia and Japan: whereby the former has a relatively small ICT-producing sector and has benefited markedly from ICT services. The latter, while having the largest IT hardware-producing sector in the world, did not exhibit above-average growth contributions from ICT equipment.
- ❑ The ICT-producing sector provides a substantial contribution to productivity growth in several OECD countries, not as a capital input, but as an industry itself.
- ❑ Developing countries may focus on developing the ICT-using sector in the short-term, while allocating development resources to the ICT-producing sector in the long-term.



6. Digital Divide



❑ Definition

- Inequities created by differences in ICT availability, access, affordability and capacity between North and South, rich and poor, young and old, literate and illiterate, men and women, and urban and rural dwellers (OECD, 2001).

❑ Cause

- Financial, technological, and managerial constraints
- Lower priority on ICT sector than agriculture, water supply, transport, electrification, health, and education
- Increasing returns to scale as a nature of network economy



III. Analysis



❑ E-Readiness (World Economic Forum, 2002)

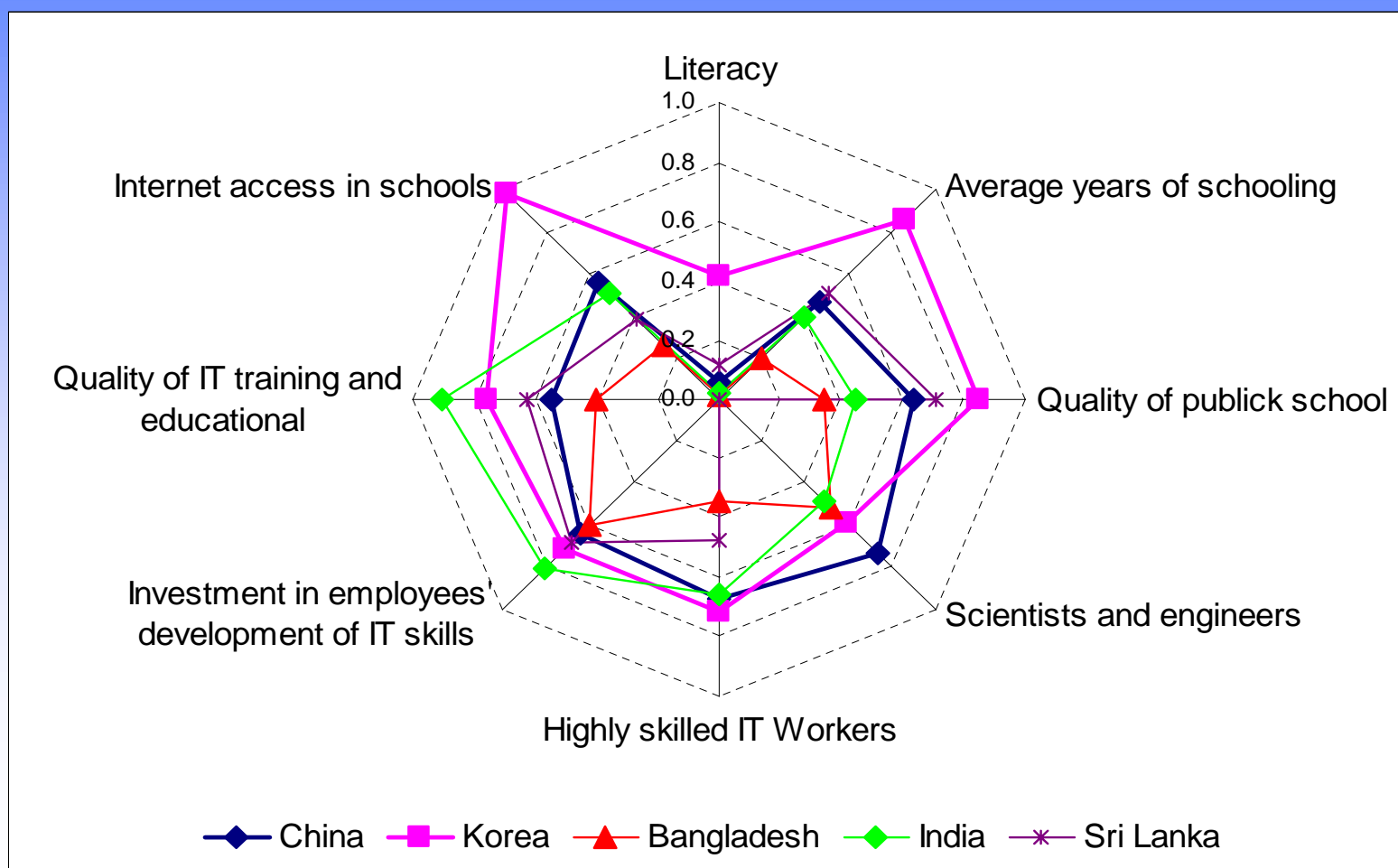
- ICT enabling environment
- ICT infrastructure development
- E-commerce

❑ Regional Initiatives

- Digital Opportunity Initiative (UNDP, 2000), Bangalore Regional Roundtable on ICT (ADB, 2001), World Summit on the Information Society (ITU, 2003), The World Dialogue on Regulation for Network Economies (WDR), The Global Information Infrastructure Commission (GIIC)
- e-ASEAN (2000), e-APEC (2001), SAARC
- United Nations ICT Task Force, World Bank Information for Development Program (infoDev), Asia-Pacific Development Information Program

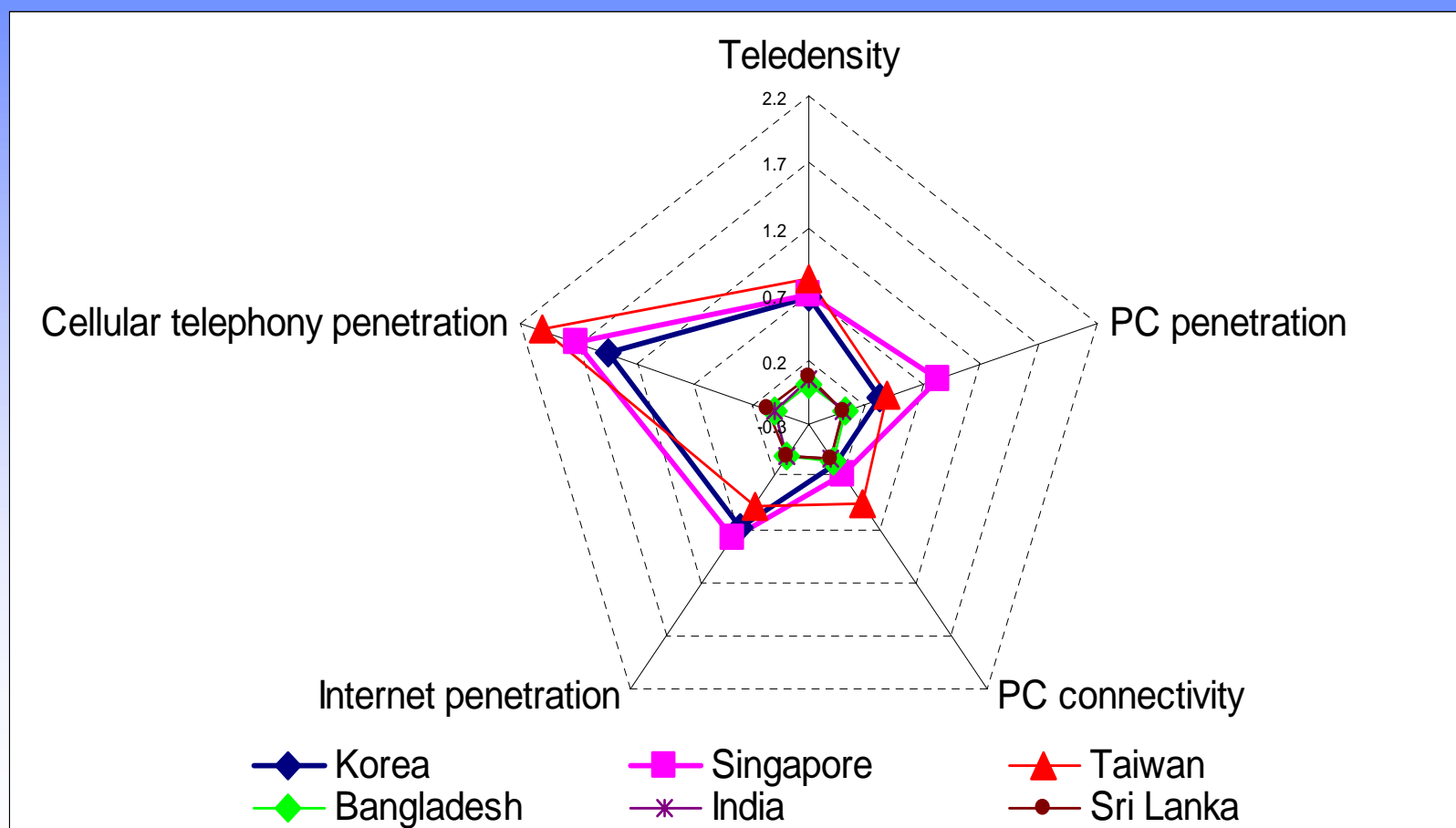
1. E-Readiness (I)

Readiness of ICT enabling environment



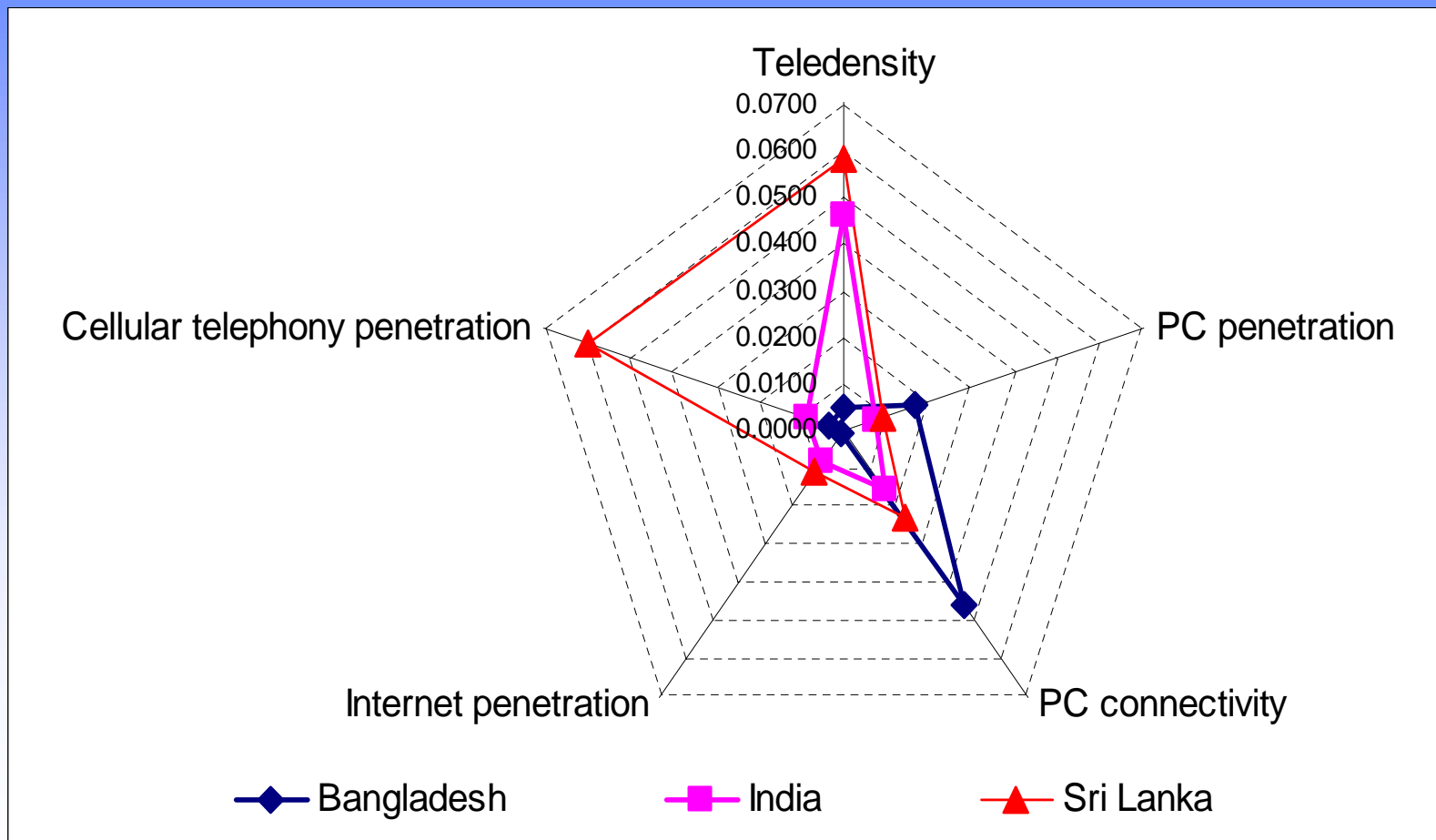
2. E-Readiness (II)

Levels of ICT infrastructure development (1)



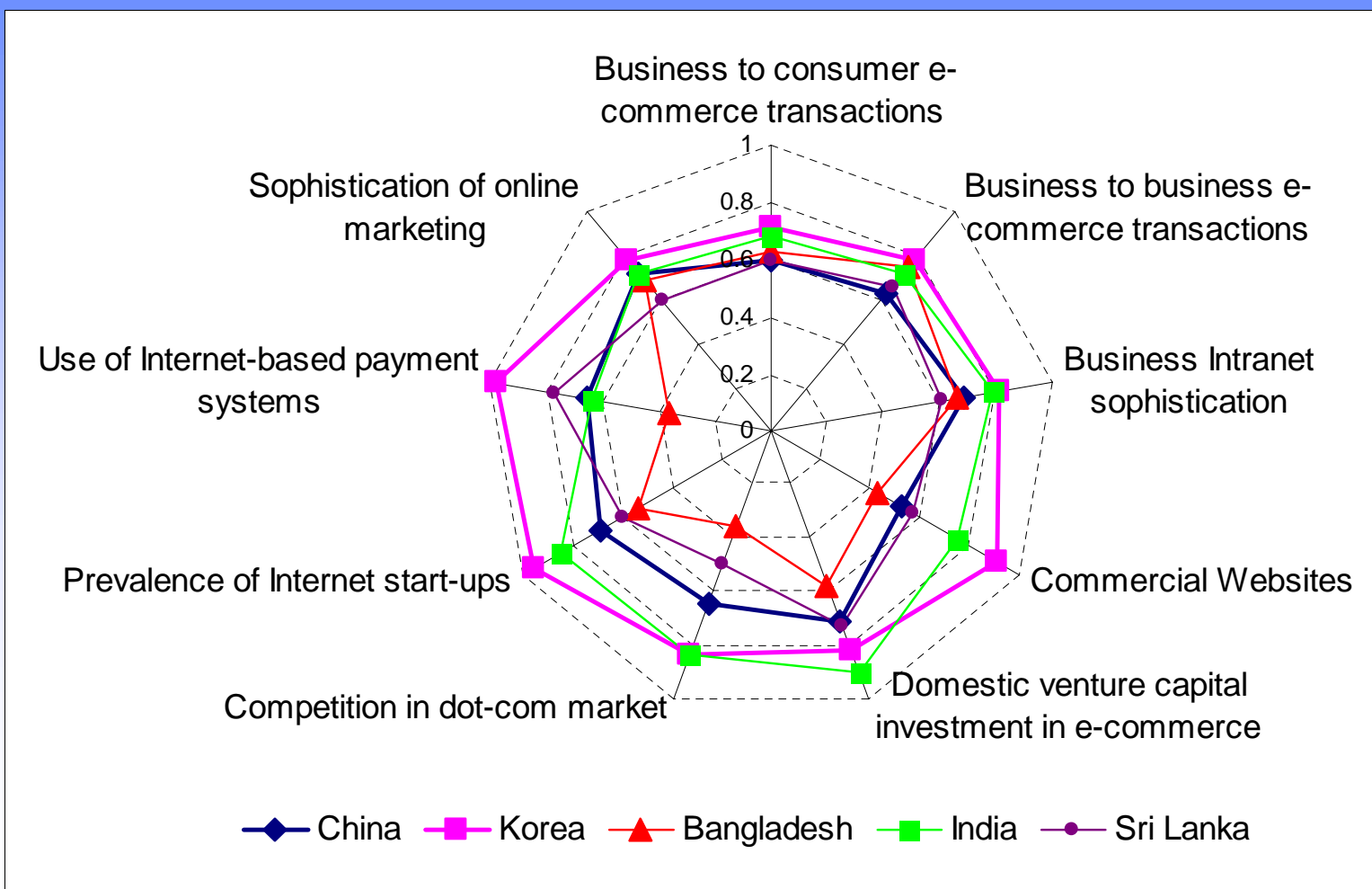
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Levels of ICT infrastructure development (2)



3. E-Readiness (III)

E-commerce





4. Regional Initiatives



- ❑ The previous initiatives can be divided into mainly three parts:
 - **ICT Enabling Policy (Including Pro-poor policy):** (i) MDGs / Pro-poor / Rural Remote Area Development, (ii) ICT Policy and Governance / Enabling Environment / Trade & Investment & Regulation & Policy, (iii) Human Resource Development / Capacity Building / e-Society
 - **ICT Network Infrastructure**
 - **Content and Applications:** e-Government, e-Education, e-Health, e-Security and cyber law, e-Commerce and e-Enterprises.
- ❑ Remarks
 - Infrastructure development, Human resource development & capacity building, and e-Government have been most spotlighted so far.
 - Less focused has been placed on e-Commerce than expected. Considering its potential economic impact, more attention should be given to e-Commerce.



IV. Recommendations



- ❑ ICT Development Matrix
 - Four policy orientations: promoting ICT demand, enlarging ICT supply, creating ICT enabling environment, and developing pro-poor policies.
 - Development target areas: Social/Economic Development
- ❑ ICT Initiative Prioritization Framework
- ❑ National/Regional System Design
- ❑ Three Pillars of SASEC ICT Program
 - Interconnectivity in Service and Network
 - ICT Enabling Environment
 - Capacity Building

1. ICT Development Matrix

ICT Development Matrix			ICT Demand Promotion	ICT Supply Development	ICT Enabling Environment	Pro-poor Strategies
Social Development	ICT Using (ICT Applications)	e-Government				
		e-Law & e-Security				
		e-Education				
		e-Health				
Economic Development	ICT Producing	Telecommunication (Infrastructure & Service, Voice & Data)				
		ICT Manufacturing (Electronics, Semiconductor, etc.)				
		ICT Software				
	ICT Using (ICT Applications) e-Business	e-Enterprise				
		e-Commerce & e-Trade				
		e-Service (ITES)				
	Key Measures			<ul style="list-style-type: none"> Price Subsidy in using ICT ICT Learning Center 	<ul style="list-style-type: none"> Public-Private Partnership Procurement ICT Small and Medium Enterprise (SME) Policy Venture incubation 	<ul style="list-style-type: none"> Capacity Building & Human Resource Development Trade/Investment /Regulation Policy Governance Regional Cluster Policy

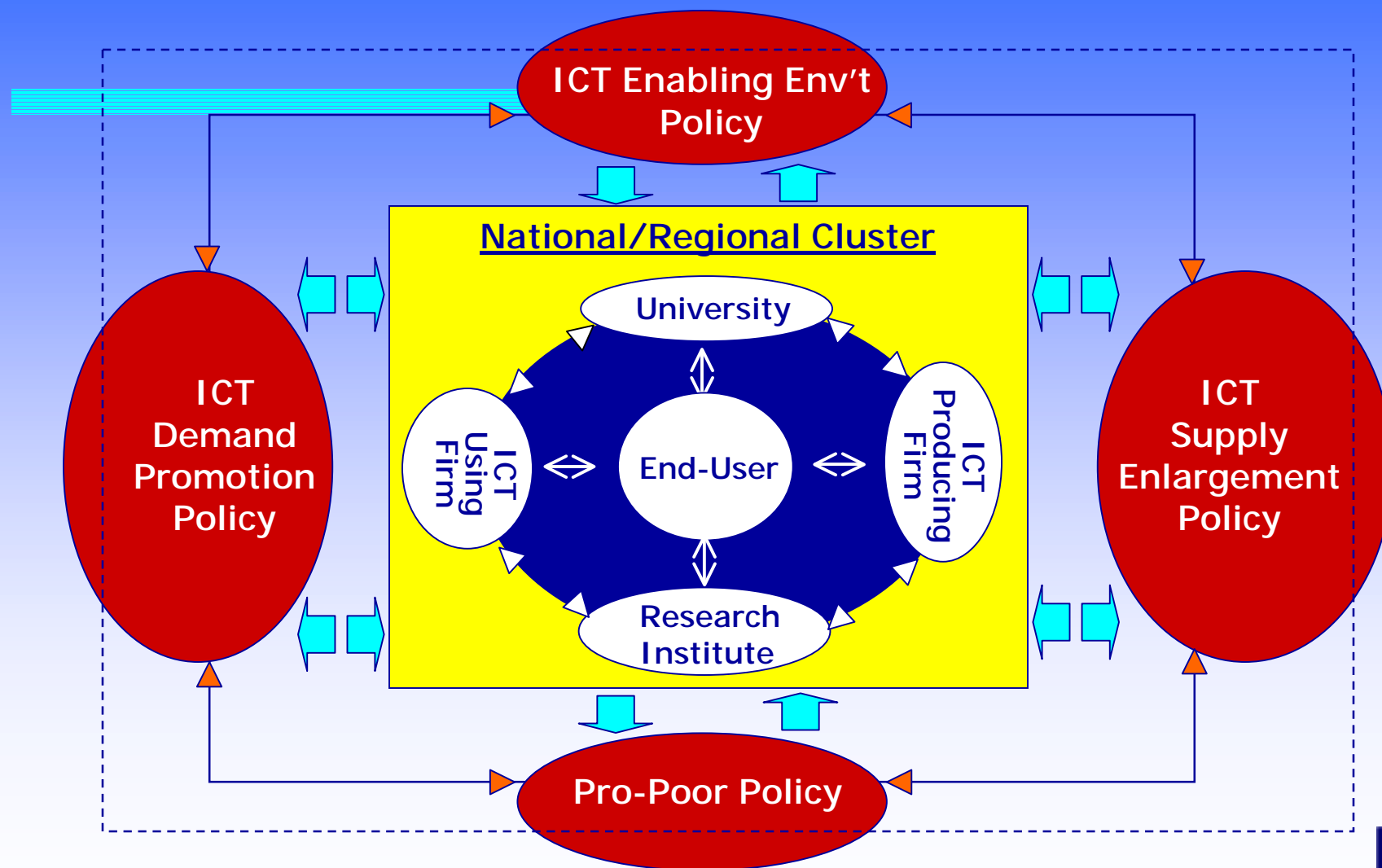


2. ICT Initiatives Prioritization



- ❑ Prioritization Framework on a short-, mid- and long-term basis
 - ICT development matrix
 - SWOT (Strength, Weakness, Opportunities, Threats) Analysis
 - Each country's comparative advantage in ICT
 - Synergy effects and complementarities
 - Implementation cost and risk & expected economic and social impact
- ❑ SASEC Regional Advantage for Interconnectivity
 - Geographical proximity
 - Socio-cultural cohesiveness
 - Economic complementarities
 - English-fluent
 - Potential to be a center of ITES/BPO

3. National/Regional System





4. SASEC ICT-Three Pillars



- ❑ Interconnectivity in service and network in convergence eras
 - Service: ICT applications such as e-Education, e-Health, e-Government, e-Trade, and e-Park
 - Network: wire/wireless, narrow/broadband
- ❑ Capacity building & human resource development
 - Sharing information and experience in policy making and regulatory bodies and training government officers
 - Exchanging students/workers in the subregion
 - Establishing ICT regional training institute/scholarship program
- ❑ ICT enabling environment policy
 - ICT Small and Medium Enterprise (SME) policy
 - Legal framework development such as cyber law
 - Pro-poor market development policy
 - Public-private partnership framework for developing countries



Thank you!