

A Framework for Modelling ICT and Environmental Challenges Using Future Scenarios

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OECD Workshop on ICTs and Environmental Challenges
Copenhagen, 22-23 May 2008

Purpose

- To present a framework being developed by IISD in conjunction with Industry Canada and other partners
 - for modelling the relationship between ICT and environmental challenges
 - in the context of sustainable development goals and objectives
 - by using scenario-building and future forecasting techniques

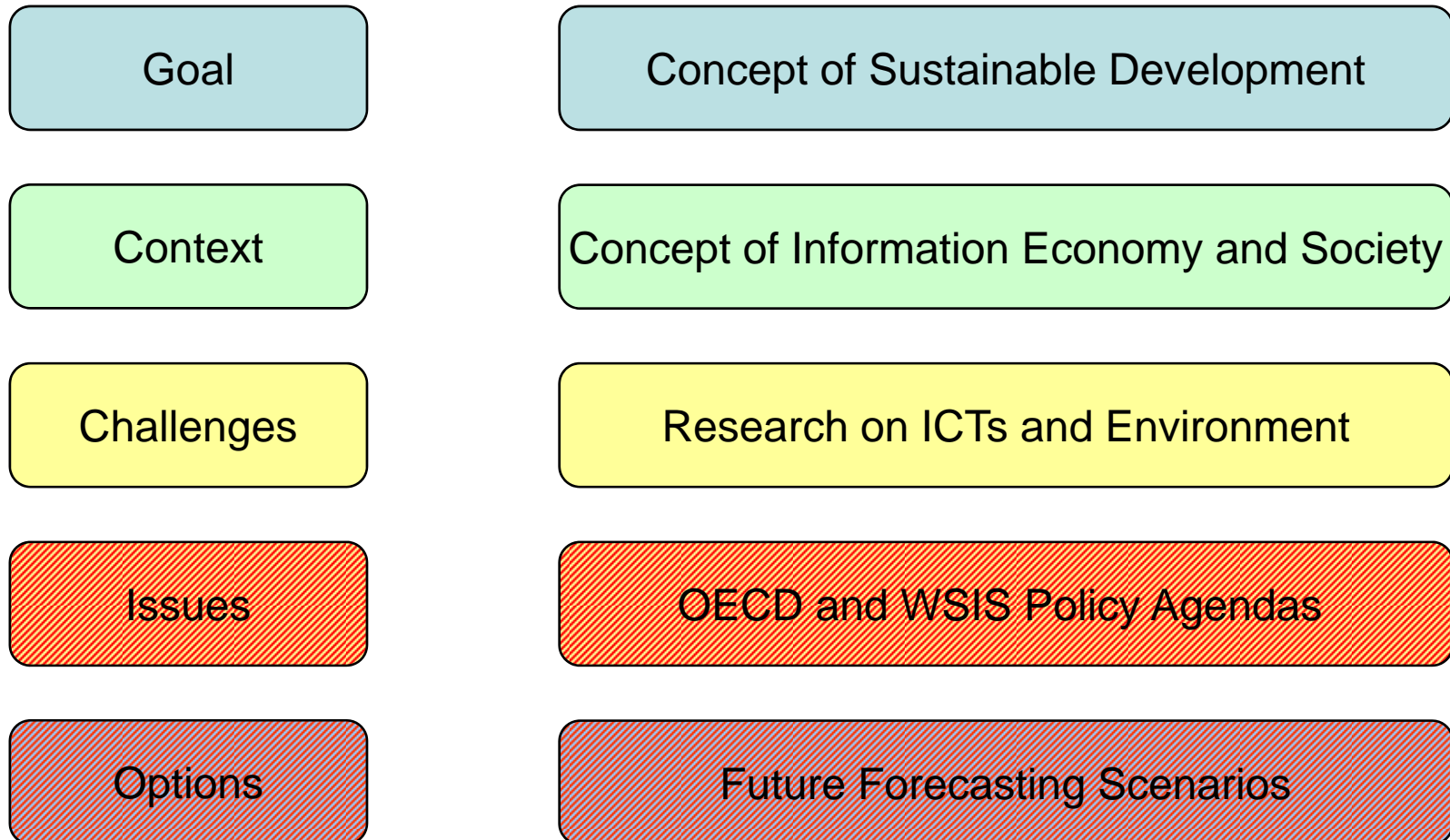
Background

- IISD founded in 1990 in response to the Brundtland Commission report “Our Common Future”
- Work on SD includes
 - climate change, energy, resources
 - economics, trade, investment
 - market sustainability, security
 - measurement and assessment
 - leadership, networks, partnerships, governance

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 - market sustainability, security
 - measurement and assessment
 - leadership, networks, partnerships, governance
- IISD has worked on relationship between ICTs and sustainable development since 2003
 - WSIS-1 and -2
 - Internet Governance Forum
 - WSIS Action Lines
- Believes SD and ICT policy-makers have underestimated
 - potential impact of ICTs on SD
 - potential impact of SD on ICTs

Framework Building Blocks



Concept of Sustainable Development

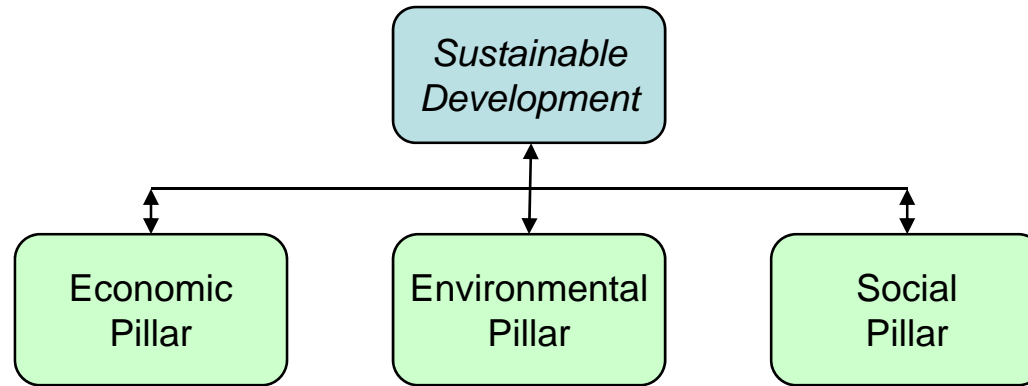
- *Our Common Future*, Report of the Brundtland Commission (1987)
- UN Summit on Environment and Development (Rio, 1992)
 - Agenda 21
- Millennium Summit (New York, 2000)
 - Millennium Development Goals
- World Summit on Sustainable Development (Johannesburg, 2002)
- International Conference on Financing for Development (Monterrey, 2002)

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“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

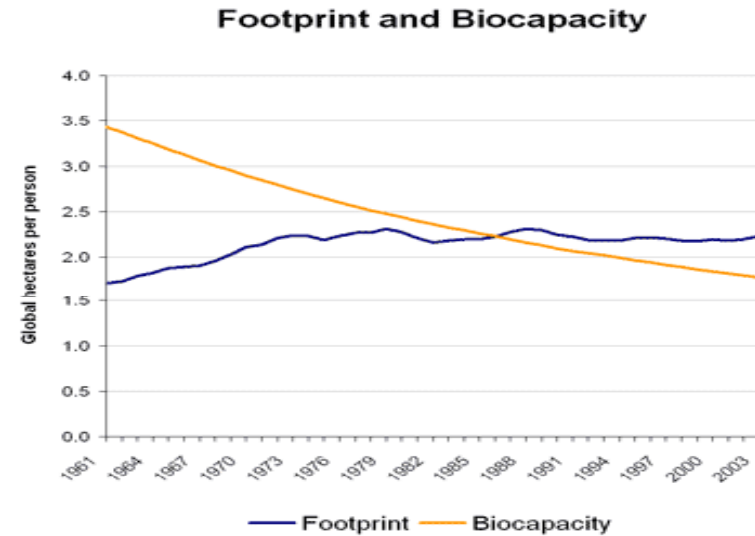
- *the concept of needs, in particular the essential needs of the world’s poor, to which overriding priority should be given: and*
- *the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs”*



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Where are we today?

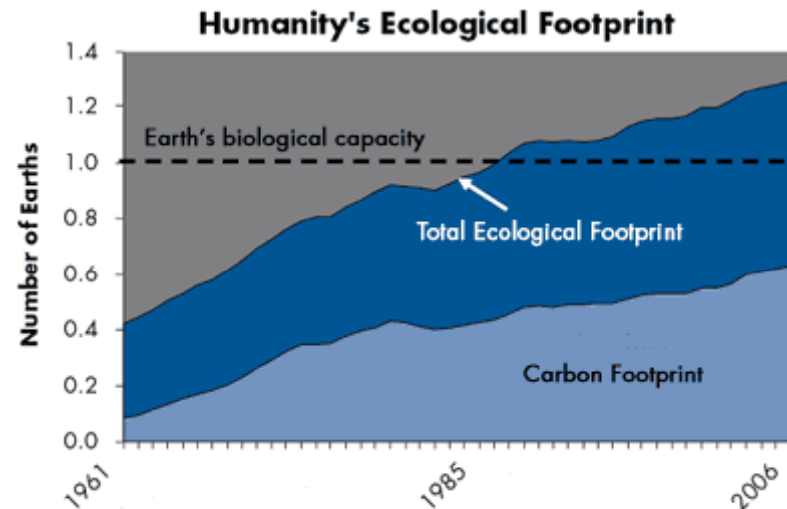
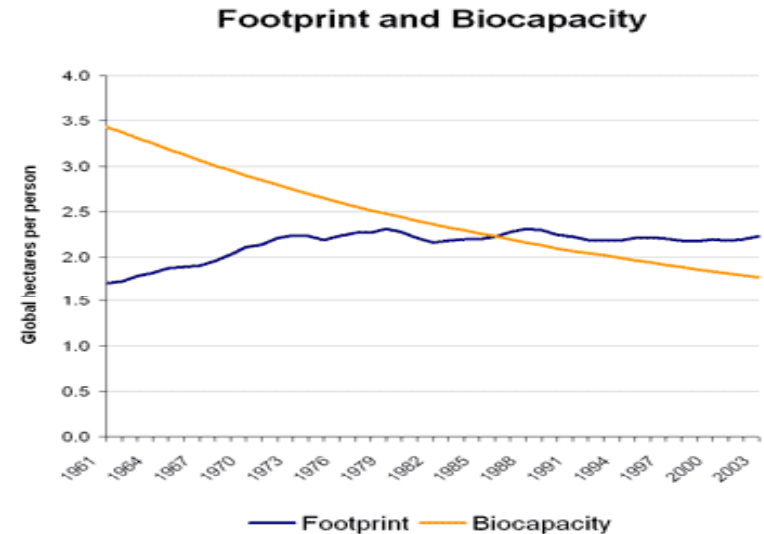
- Current governance arrangements have not achieved balance between
 - economic growth
 - social development
 - environmental sustainability



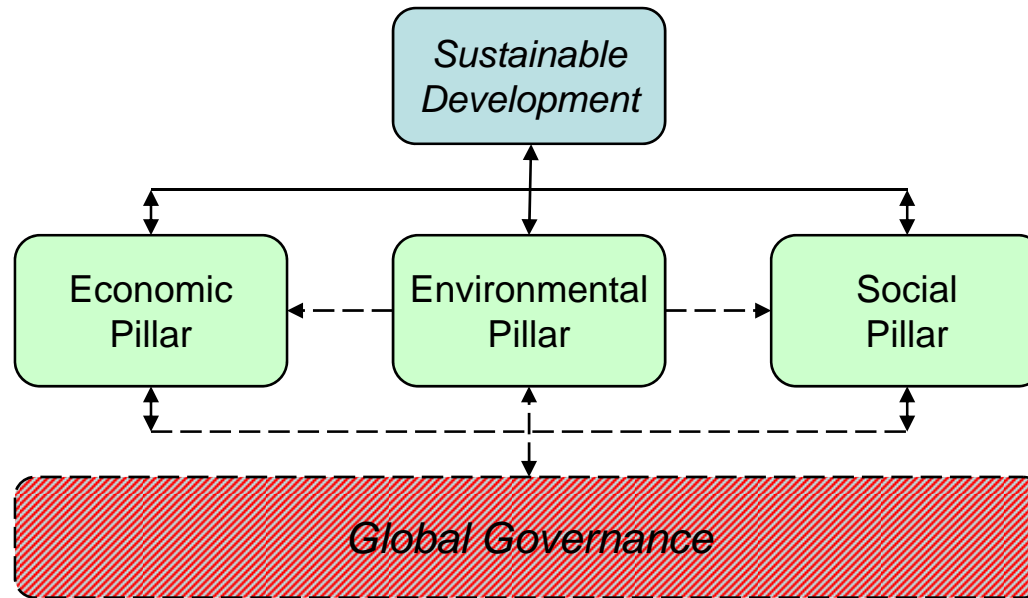
Source: Global Footprint Network

Where are we today?

- Current governance arrangements have not achieved balance between
 - economic growth
 - social development
 - environmental sustainability
- Climate change has emerged as
 - a key cross-cutting environmental issue
 - a driver of economic and social change



Source: Global Footprint Network

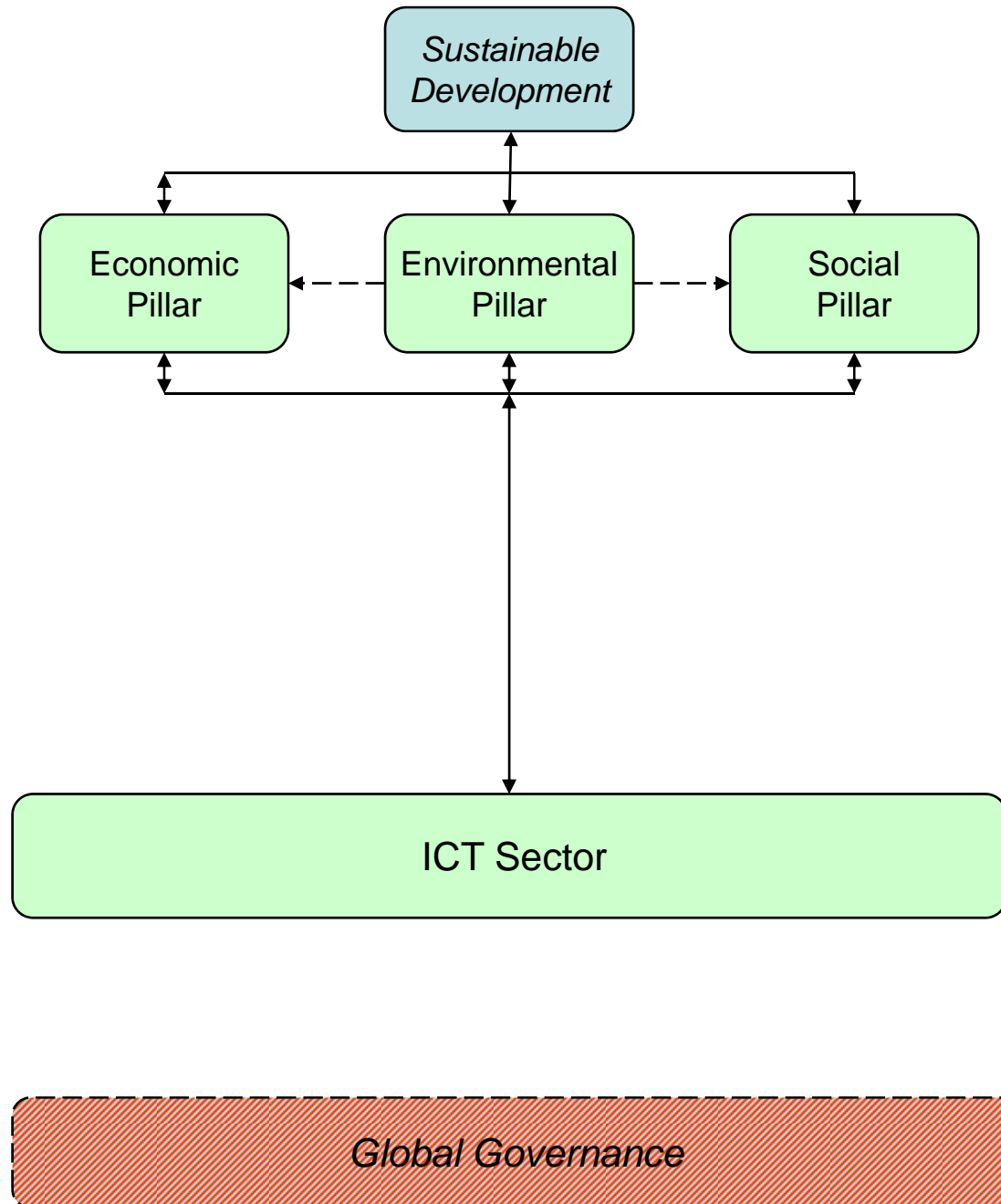


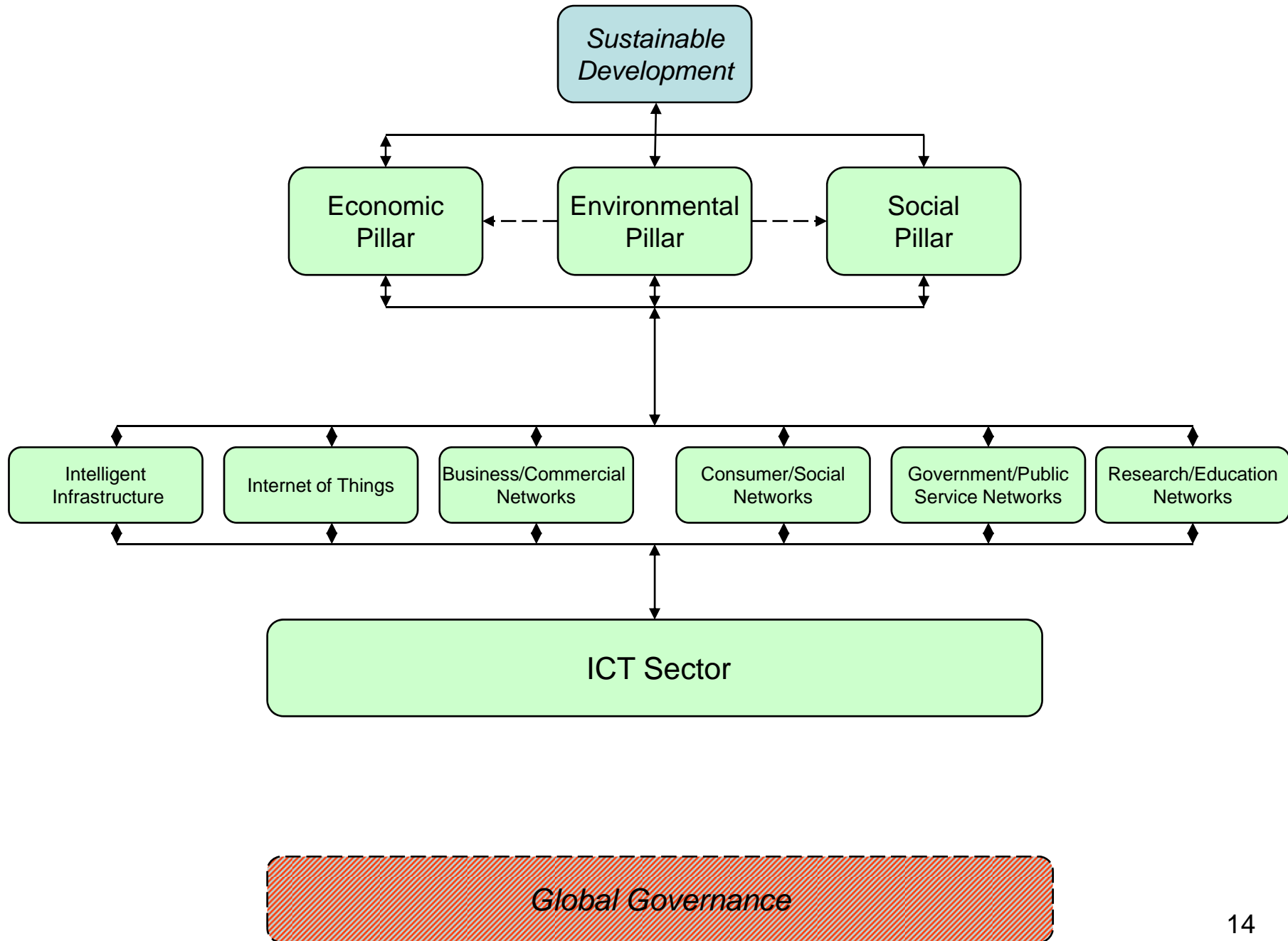
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Building Block 2

- Concept of sustainable development
- Concept of the information economy and society
 - World Summit on the Information Society (Geneva 2003, Tunis 2005)
 - OECD Ministerial Conference on the Future of the Internet Economy (Seoul, 2008)

“The Internet is increasingly critical to our economies and societies with implications across all policy domains. Only now is there broad appreciation for the Internet’s potential as a powerful driver of innovation, sustainable economic growth, and social well-being”





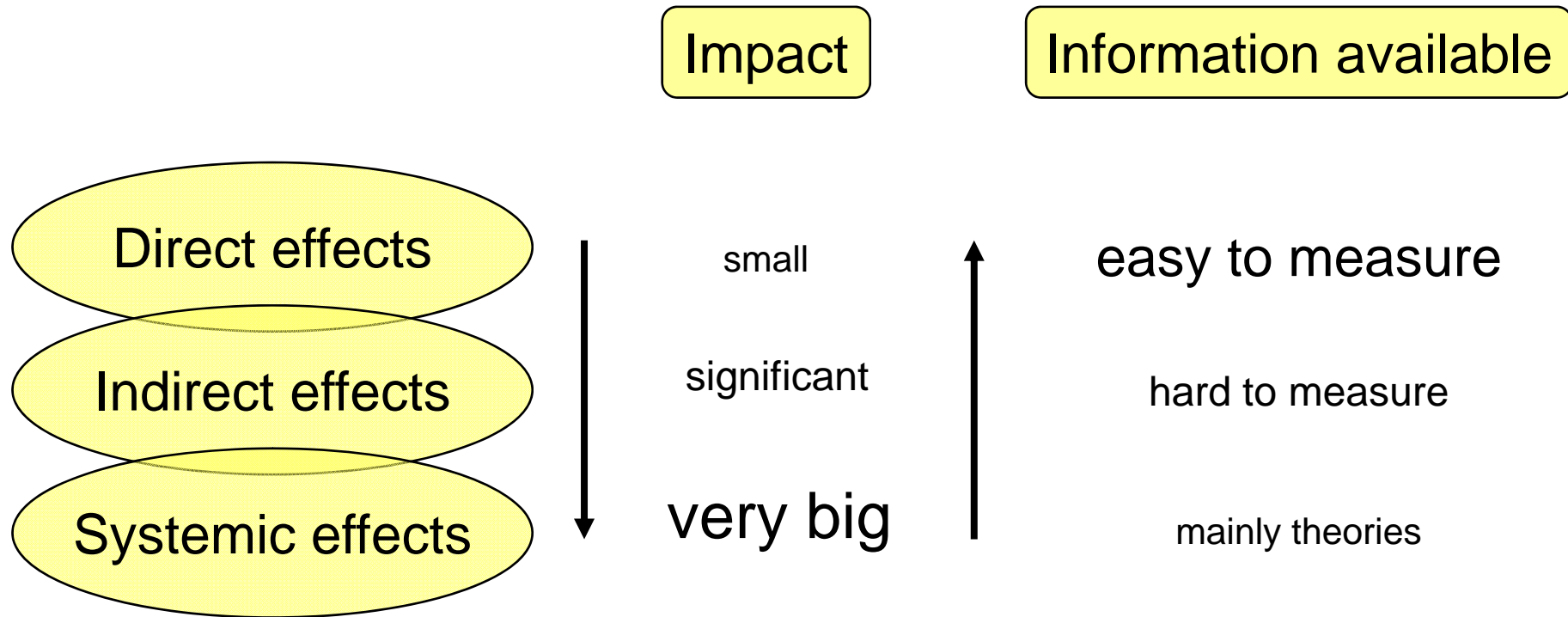
Key Research Questions

- What changes to current economic and social structures and behaviours are needed to achieve long-term environmental sustainability?
- How can ICTs help enable these changes through innovations in networking technologies, products, services, applications, and use?
- What governance reforms and policy options are most likely to maximize the long-term benefits of networking ICTs and minimize harm?

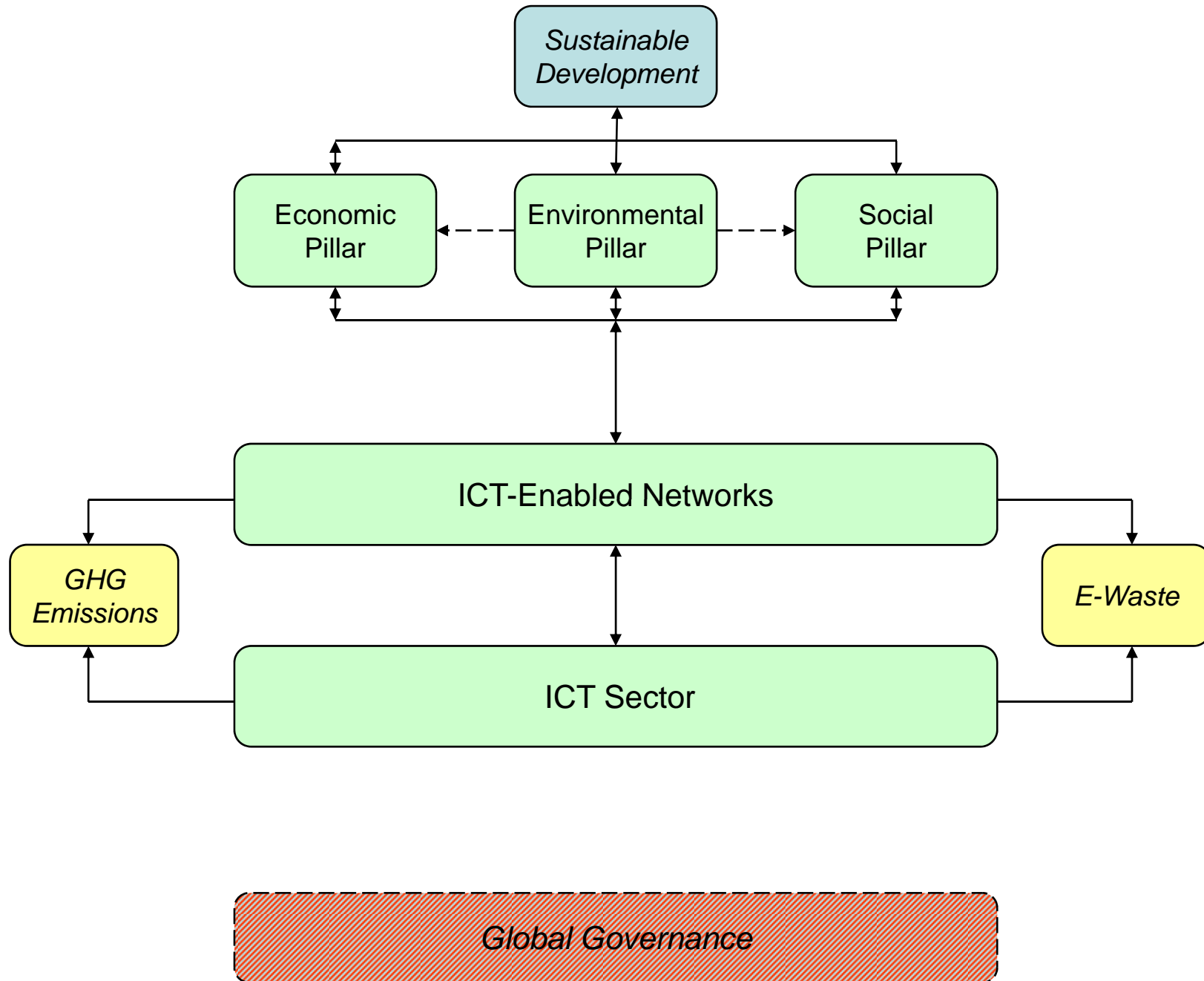
Building Block 3

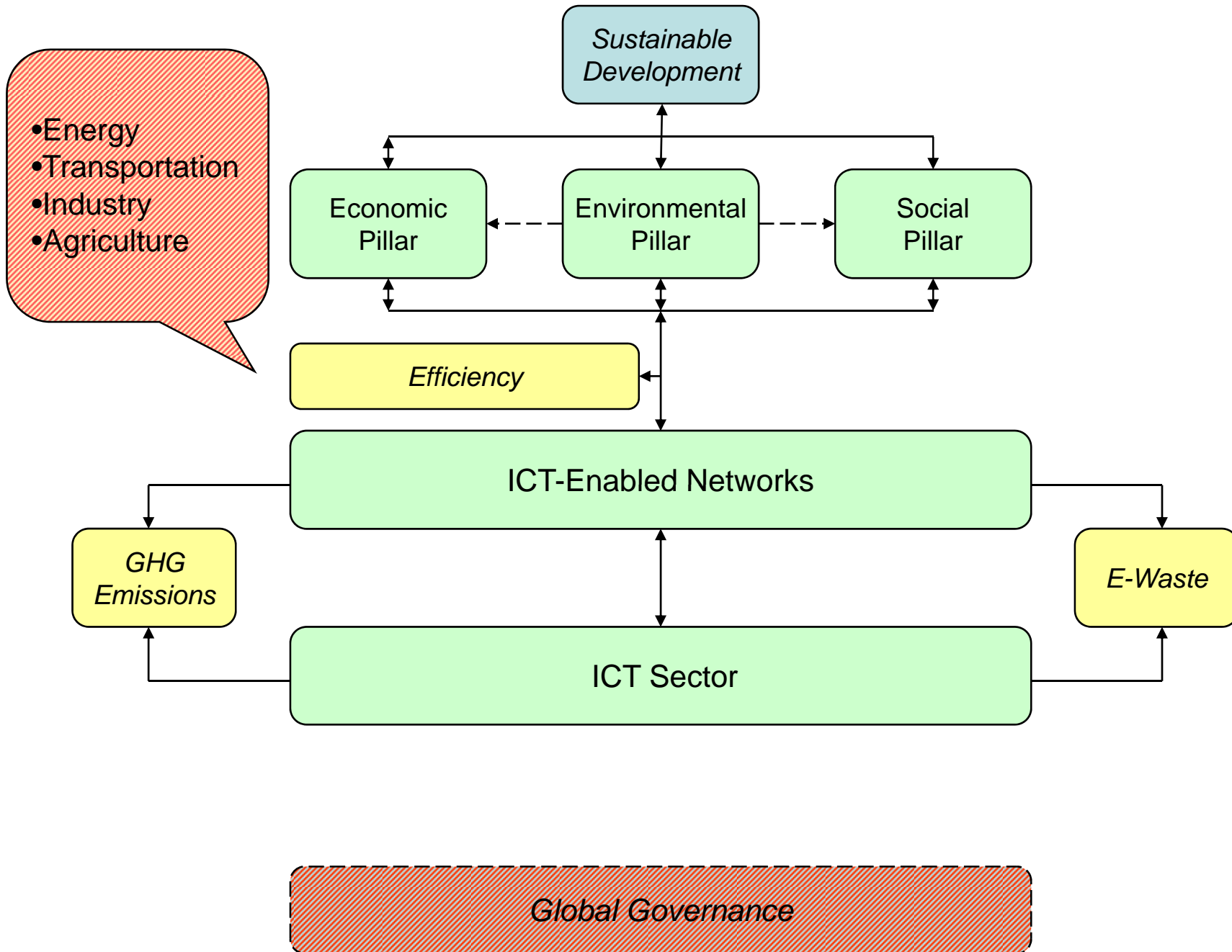
- Concept of sustainable development
- Concept of the information economy and society
- **Research on ICTs and the environment**
 - Impact of the ICT producing Sector
 - Impact of the application and use of ICTs
 - ICT-enabled changes in consumer behaviour, economic, social and governance structures

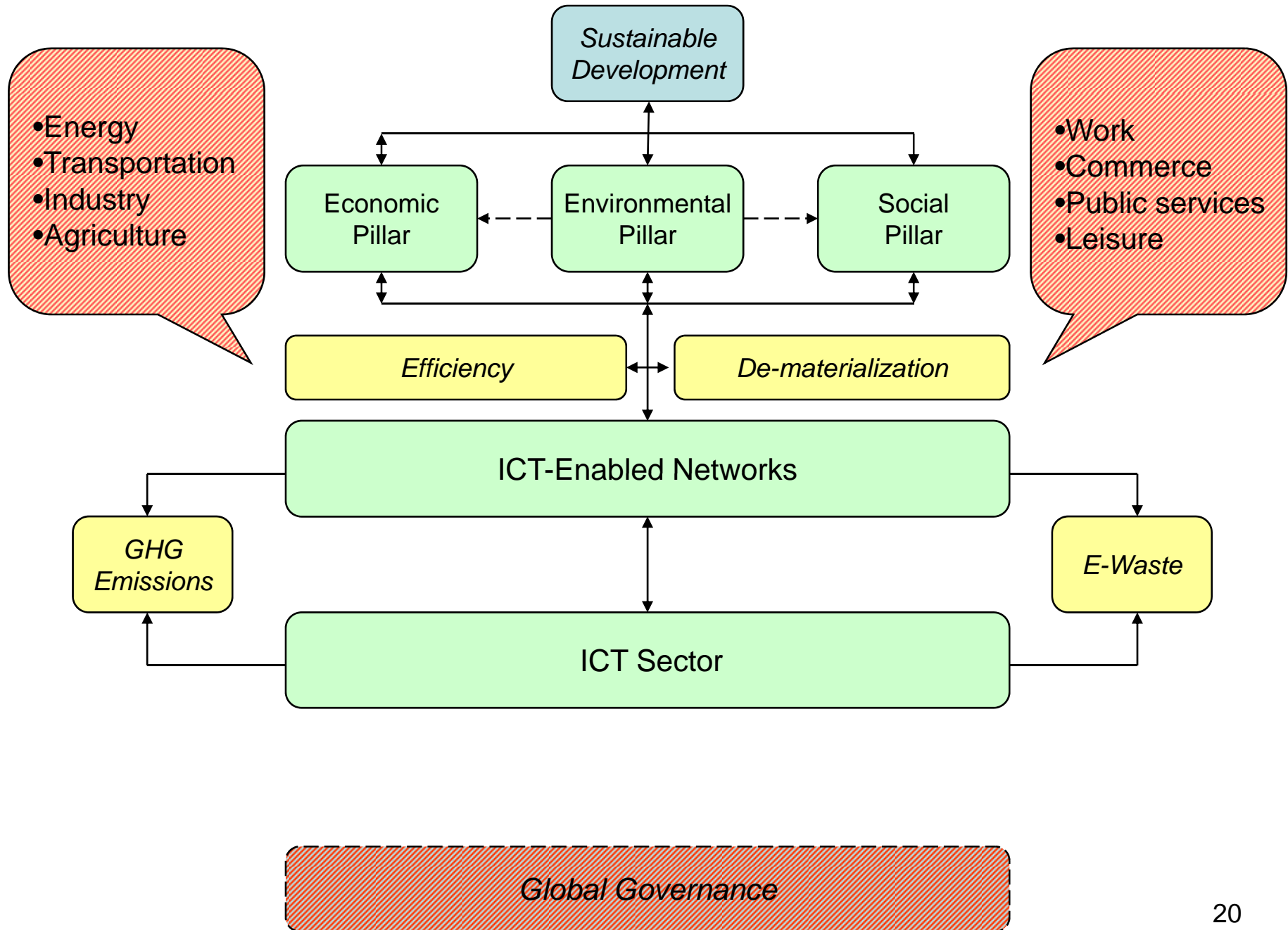
Different kinds of effects

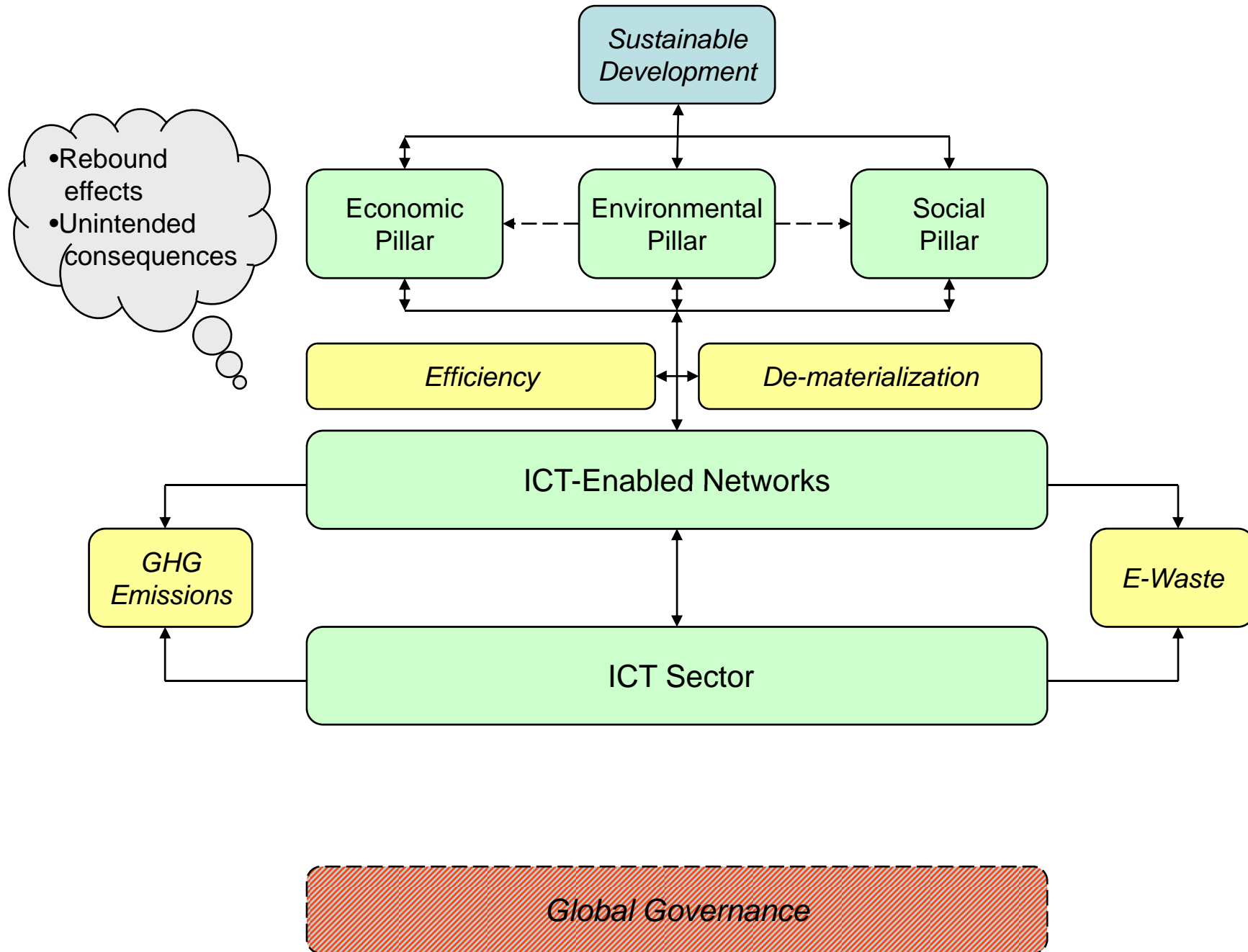


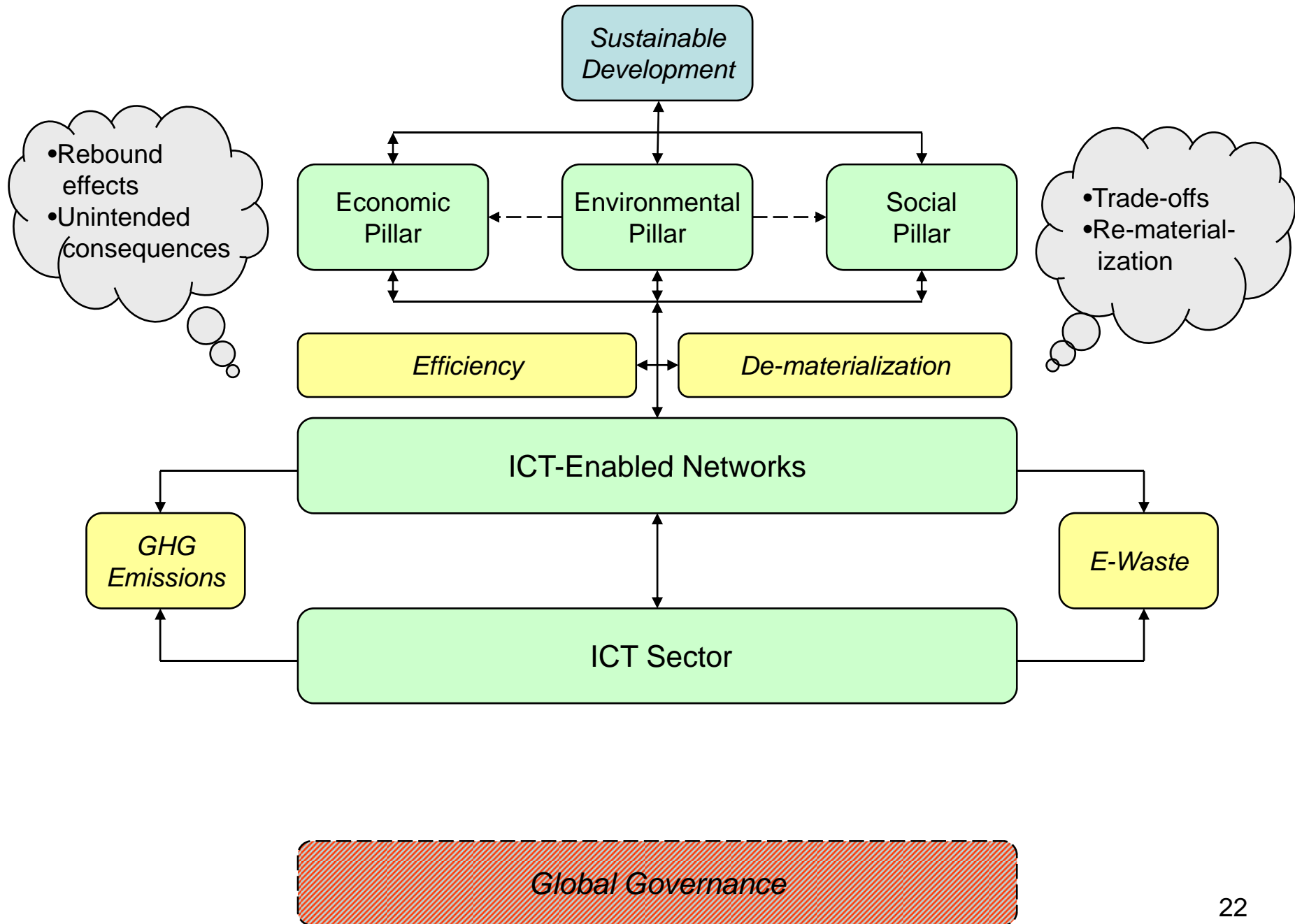
Source: ETNO & WWF, 2007, "Saving the Climate @ the Speed of Light"











ICTs and Environmental Challenges: Two Kinds of Uncertainties

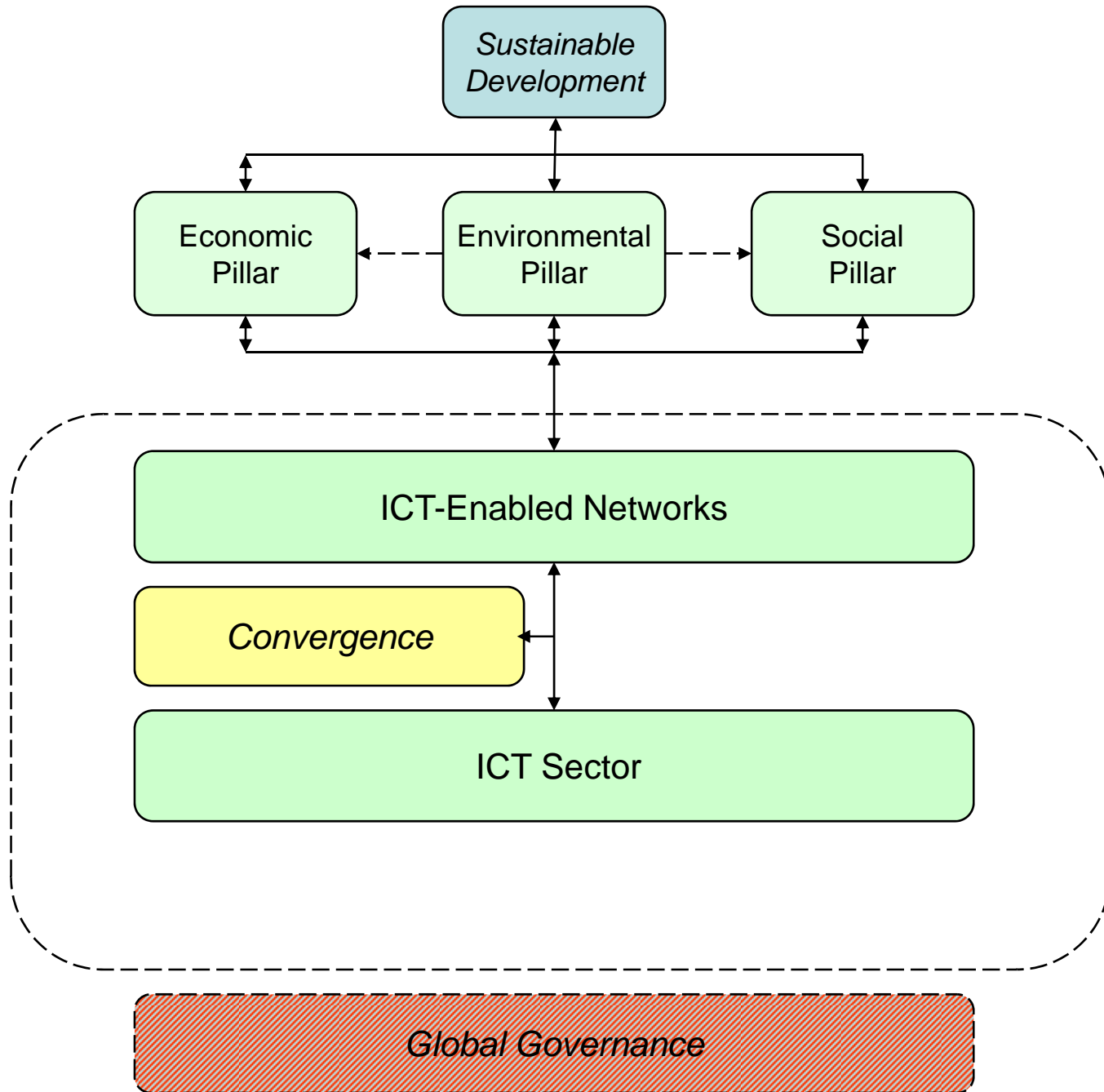
- Research on ICTs and the environment has tended to treat the impact of ICTs as a dependent variable, largely predictable in terms of factors such as
 - Supply (Moore's Law + imagination)
 - Demand (demographics + per capita GDP)
 - Governance ("Washington consensus")

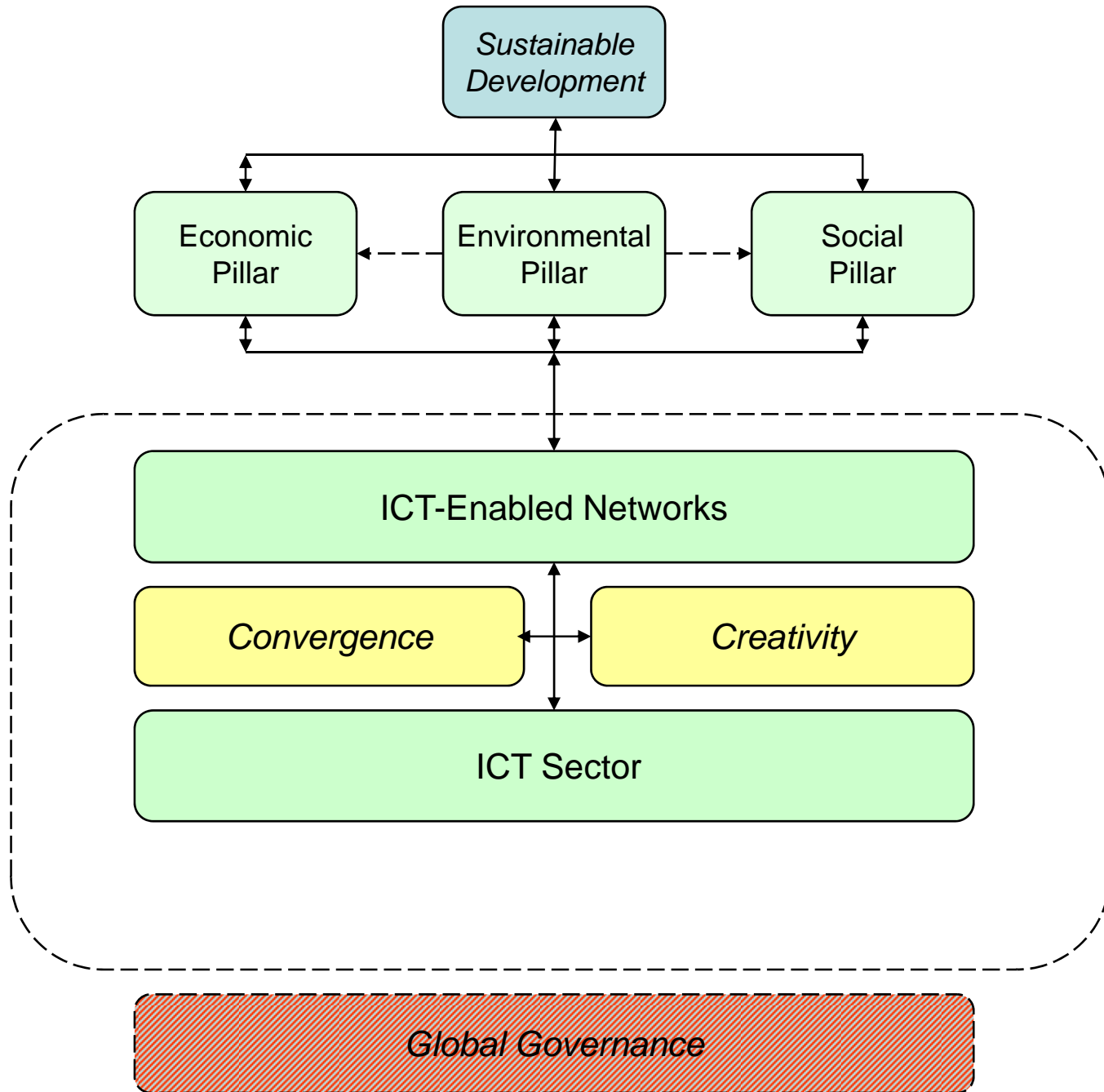
ICTs and Environmental Challenges: Two Kinds of Uncertainties

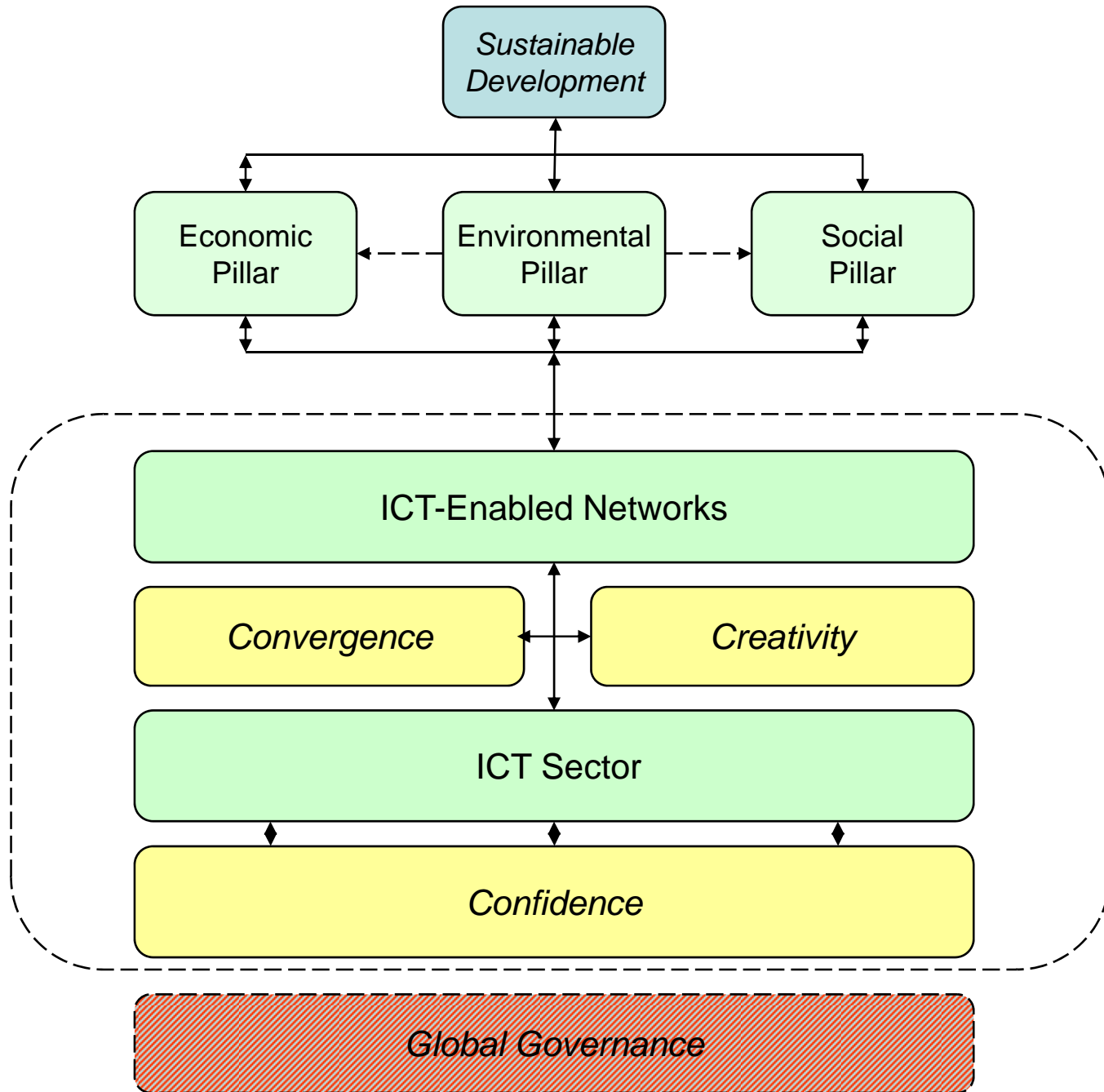
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 - Supply (Moore's Law + imagination)
 - Demand (demographics + per capita GDP)
 - Governance ("Washington consensus")
- IISD believes this work has not taken sufficient account of
 - The complexity of issues currently facing ICT policy-makers
 - The potential long-term positive and negative impacts on sustainability of different ICT policy choices
 - ICT's function as an independent or intermediate variable in the sustainable development equation

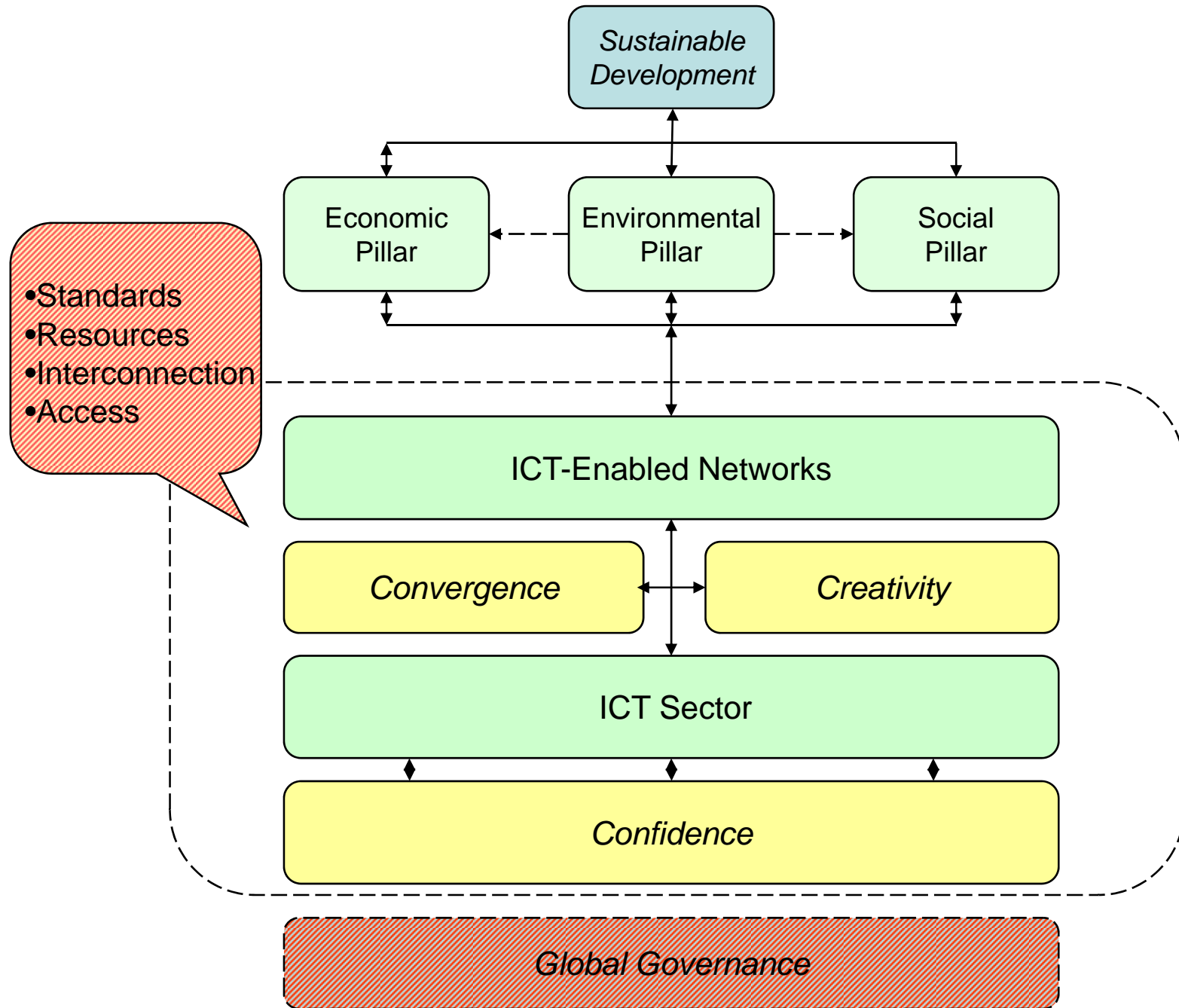
Building Block 4

- Concept of sustainable development
- Concept of the information economy and society
- Research on ICTs and the environment
- **International work on ICT policy and governance issues**
 - OECD
 - WSIS follow-up

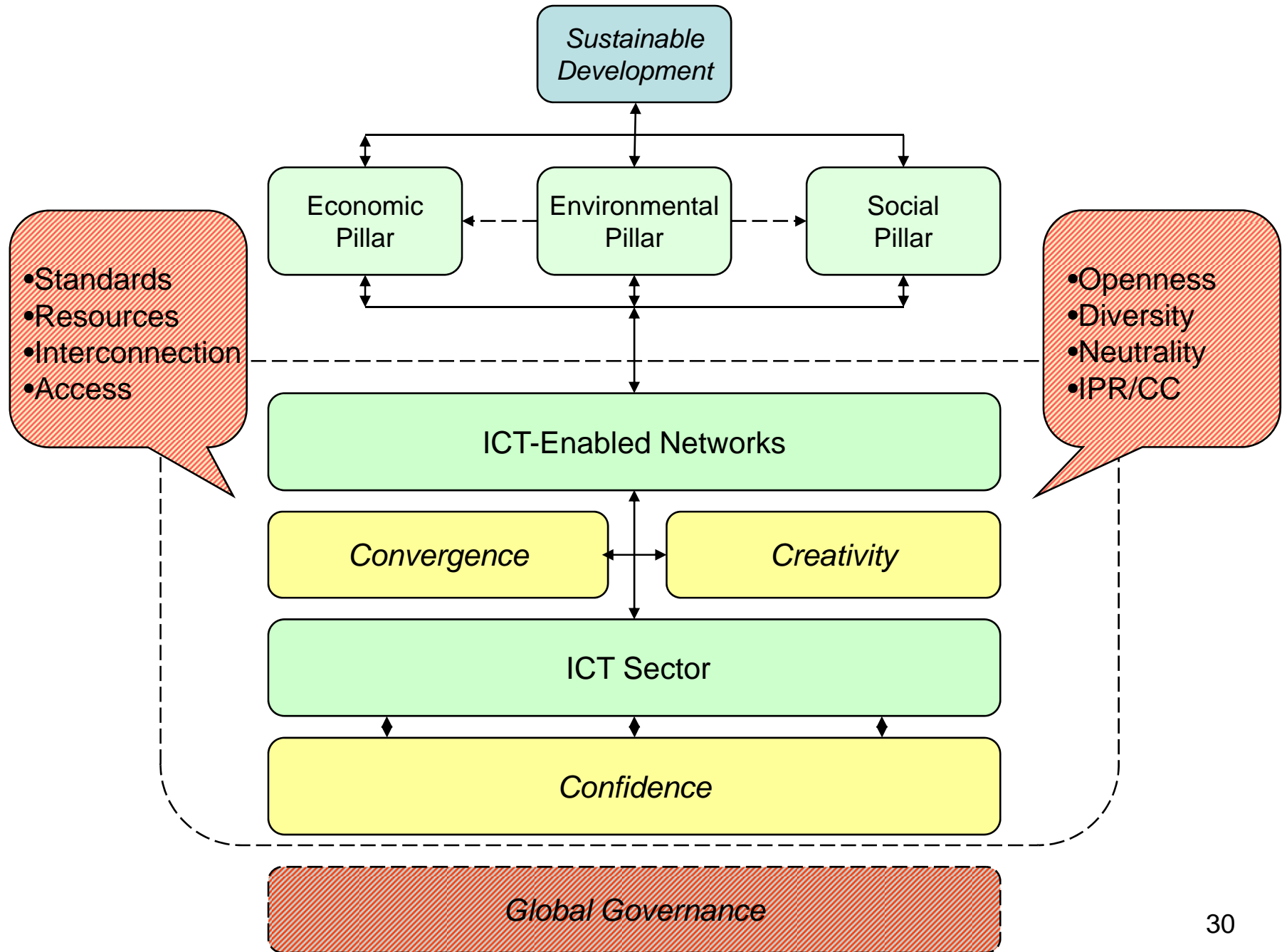


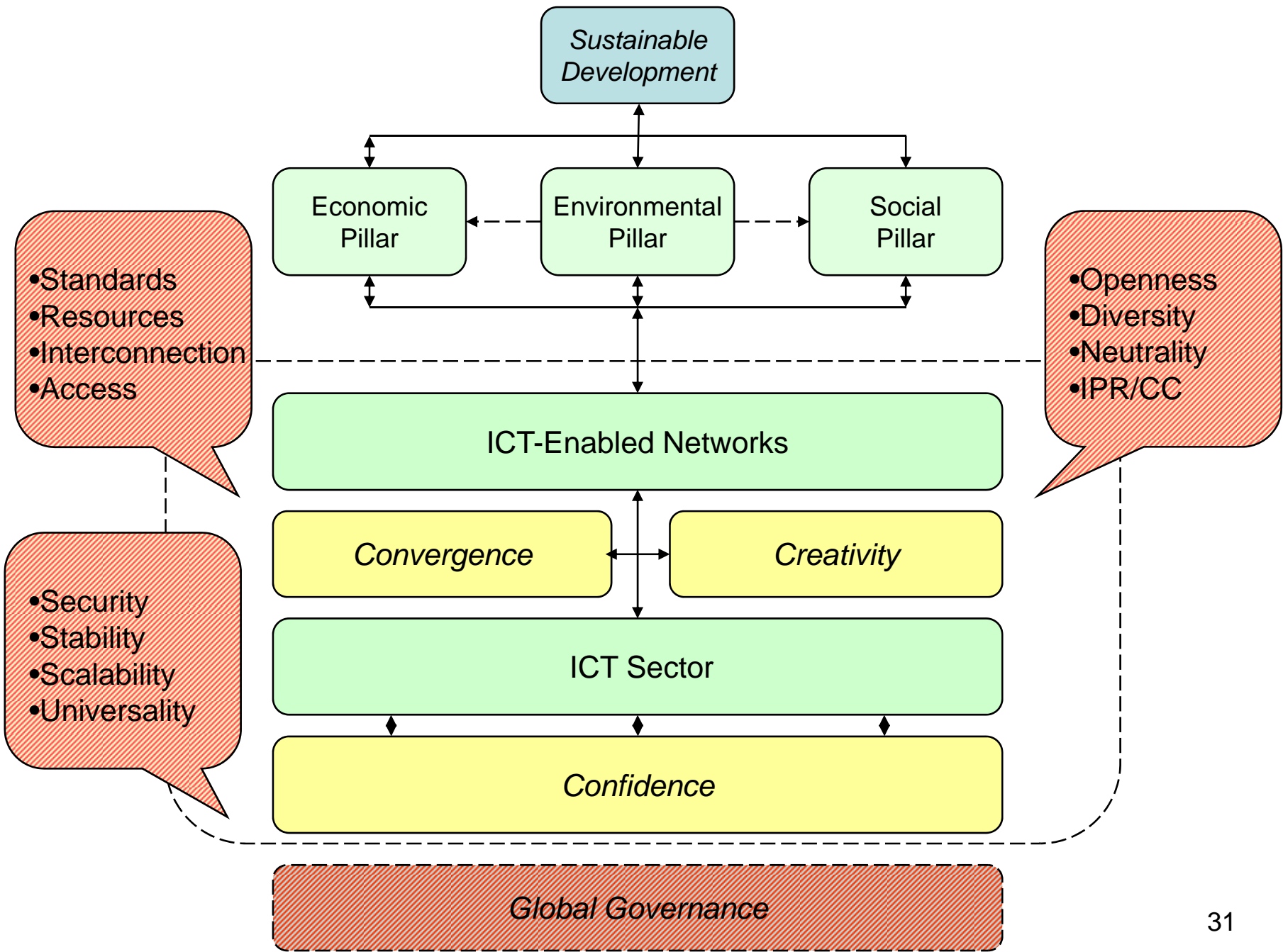


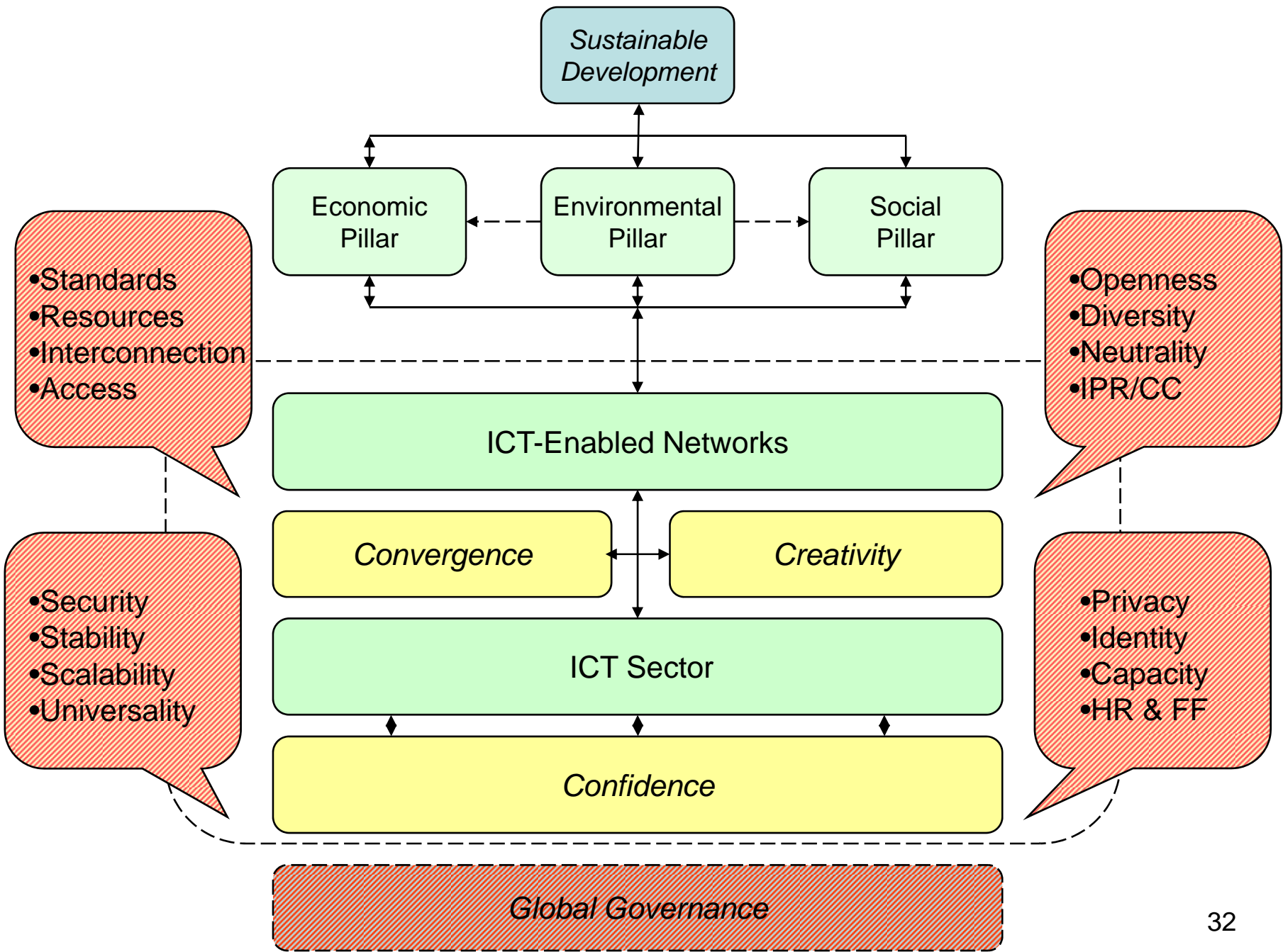




- Standards
- Resources
- Interconnection
- Access





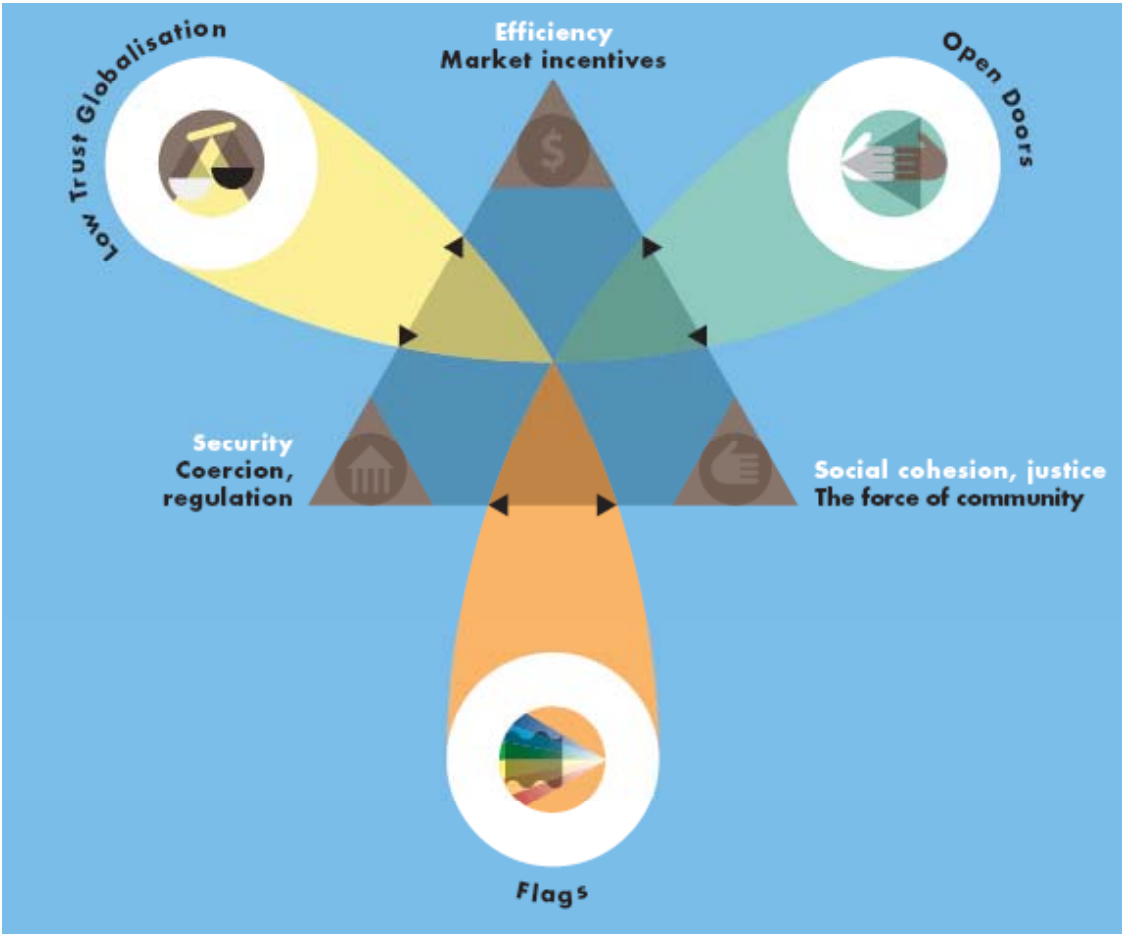


Building Block 5

- Concept of sustainable development
- Concept of the information economy and society
- Research on ICTs and the environment
- OECD work on the Internet economy
- **Scenario-building methodologies**
 - Shell
 - Great Transitions Initiative, UNEP
 - EC Joint Research Centre

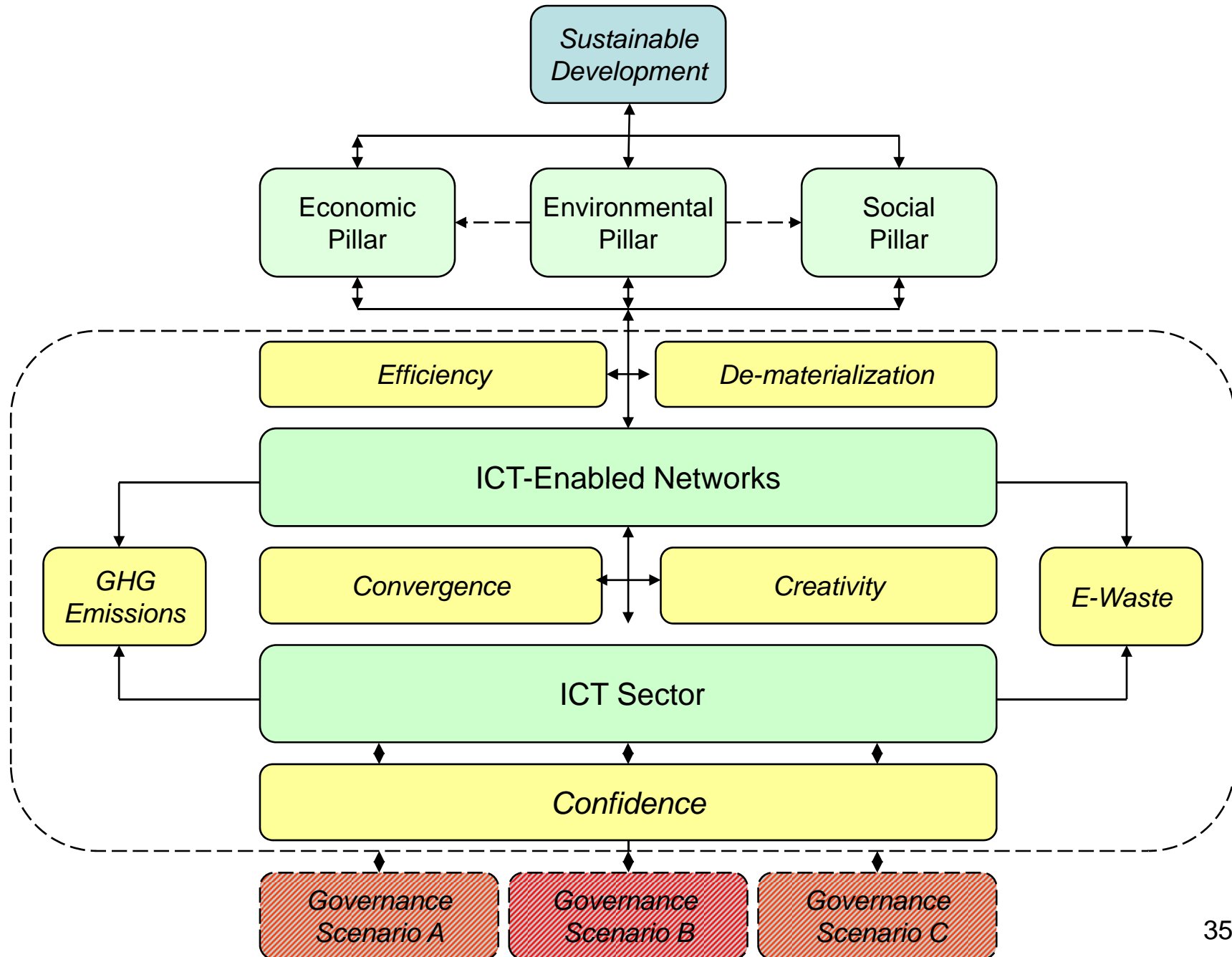
Shell Global Scenarios to 2025

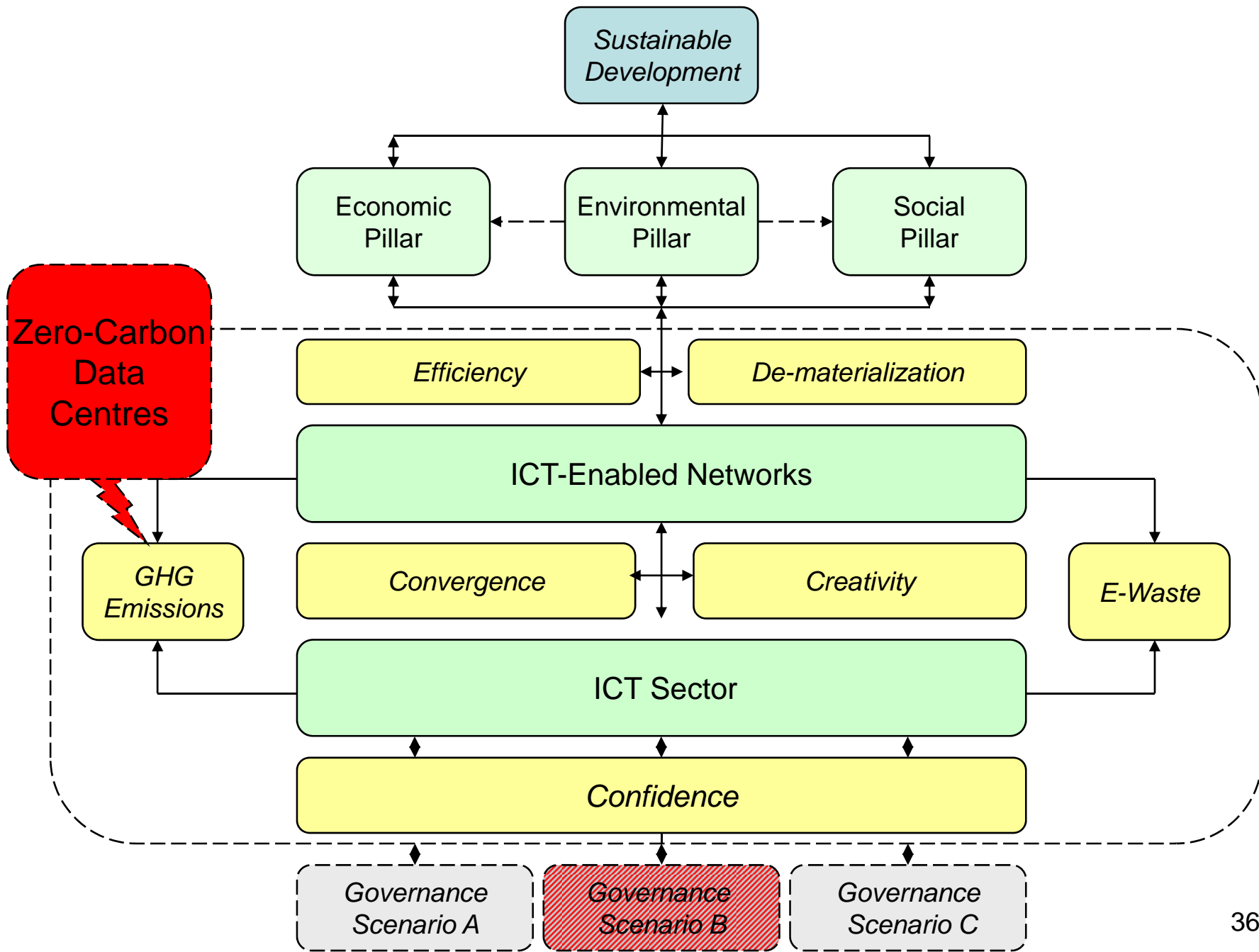
a legalistic,
"prove it
to me"
world

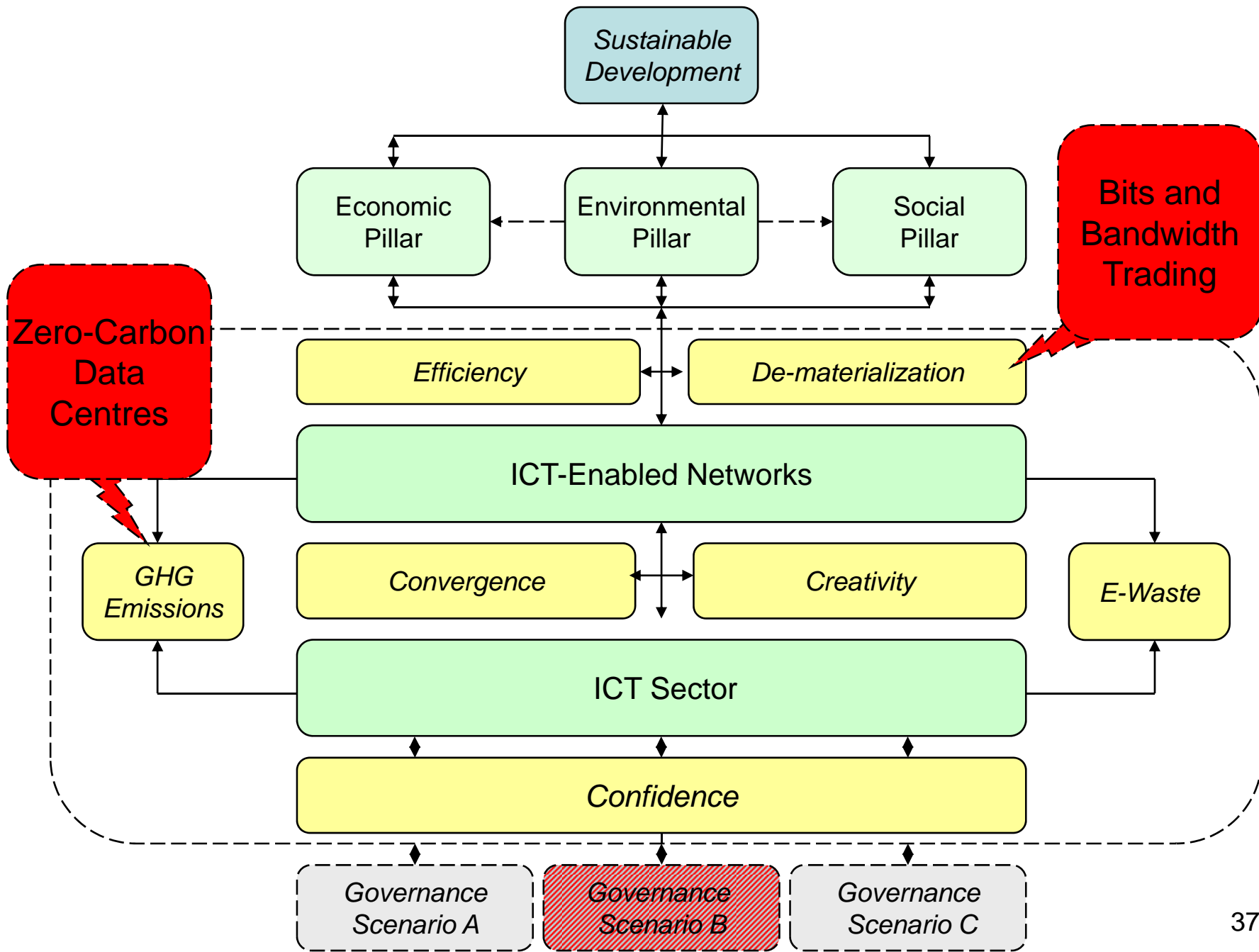


a pragmatic,
"know me"
world

a dogmatic,
"follow me"
world







For Further Information

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 - Tony Vetter
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- Reading
 - Don MacLean and Bill St. Arnaud, “ICTs, Innovation and the Challenge of Climate Change”, IISD, forthcoming at <http://www.iisd.org/info/soc>
 - Bill’s blog <http://green-broadband.blogspot.com>