

“Energy Equity and Innovation in Emerging Countries”

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Main Energy Challenges

The 4 A:

- **ACCESSIBILITY:**

Meeting energy demand, Energy Poverty, Energy and Urbanization

- **AVAILABILITY:**

Technology Deployment is Vital to Meet our Environmental Goals

- **ACCEPTABILITY:**

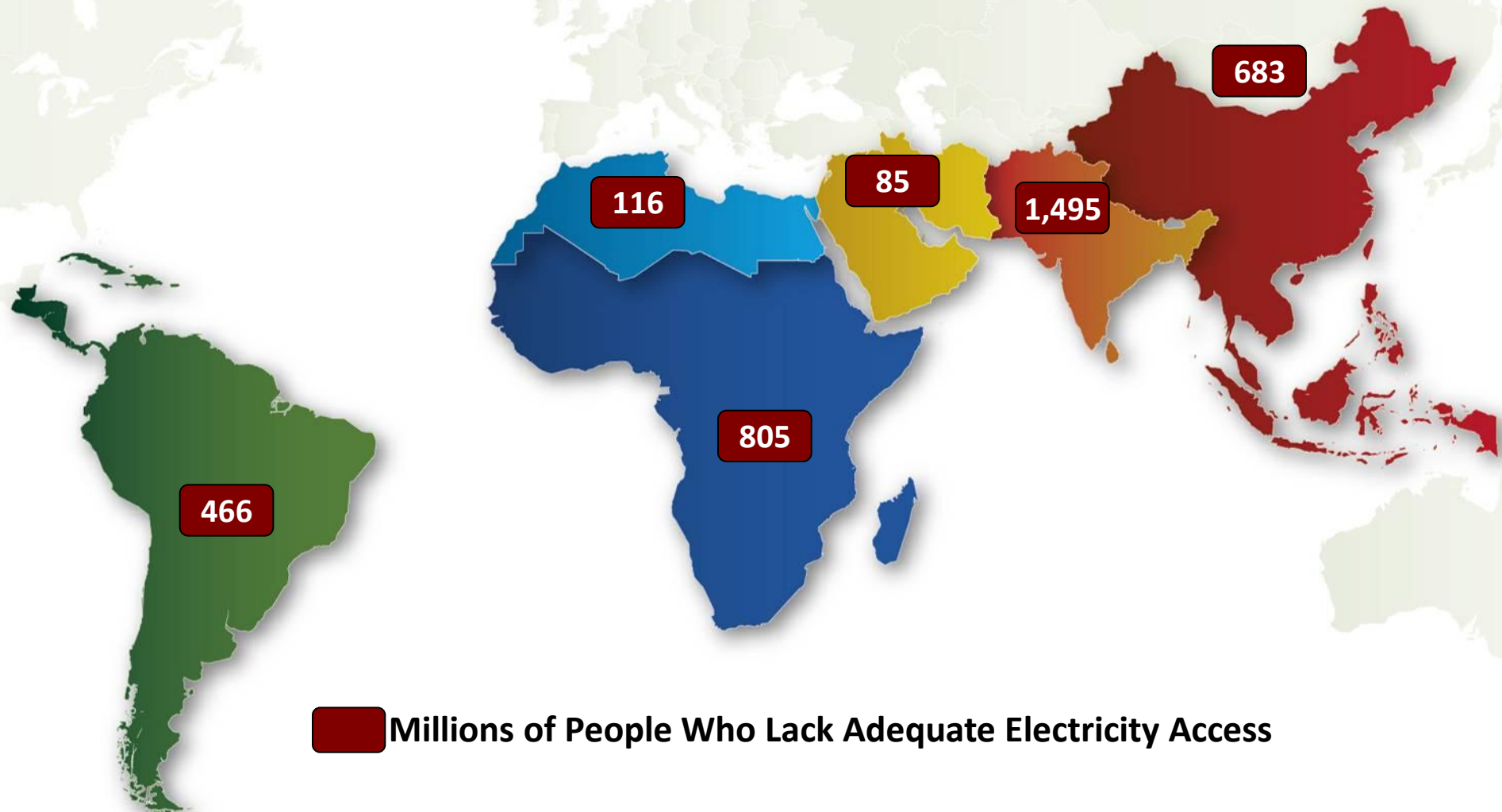
Energy and climate change, Energy and transport

- **ACCOUNTABILITY:**

Regulations

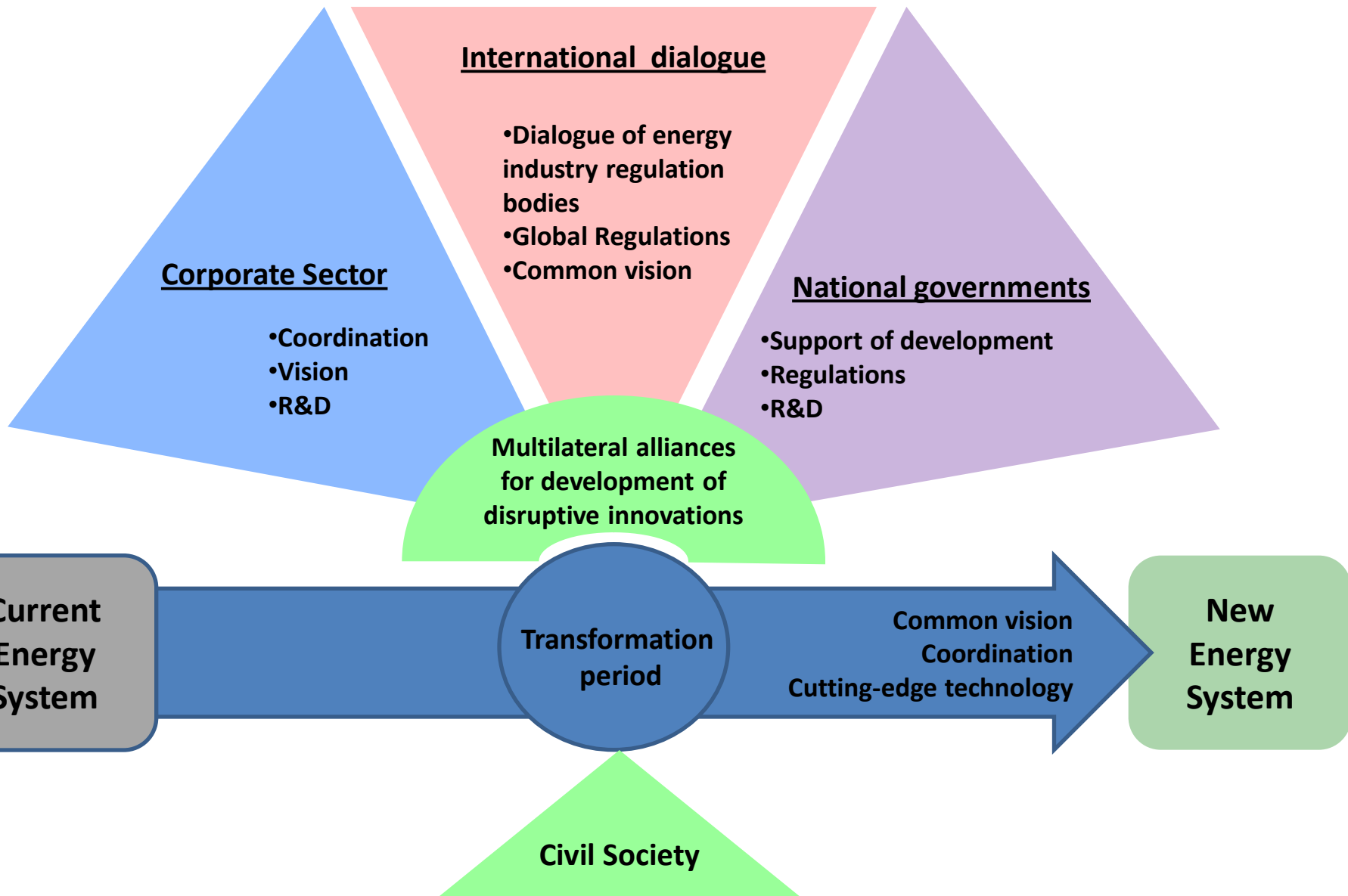
Access to Low-Cost Electricity Vital to Achieve Millennium Goals

3.6 Billion People Have No or Only Partial Access to Electricity

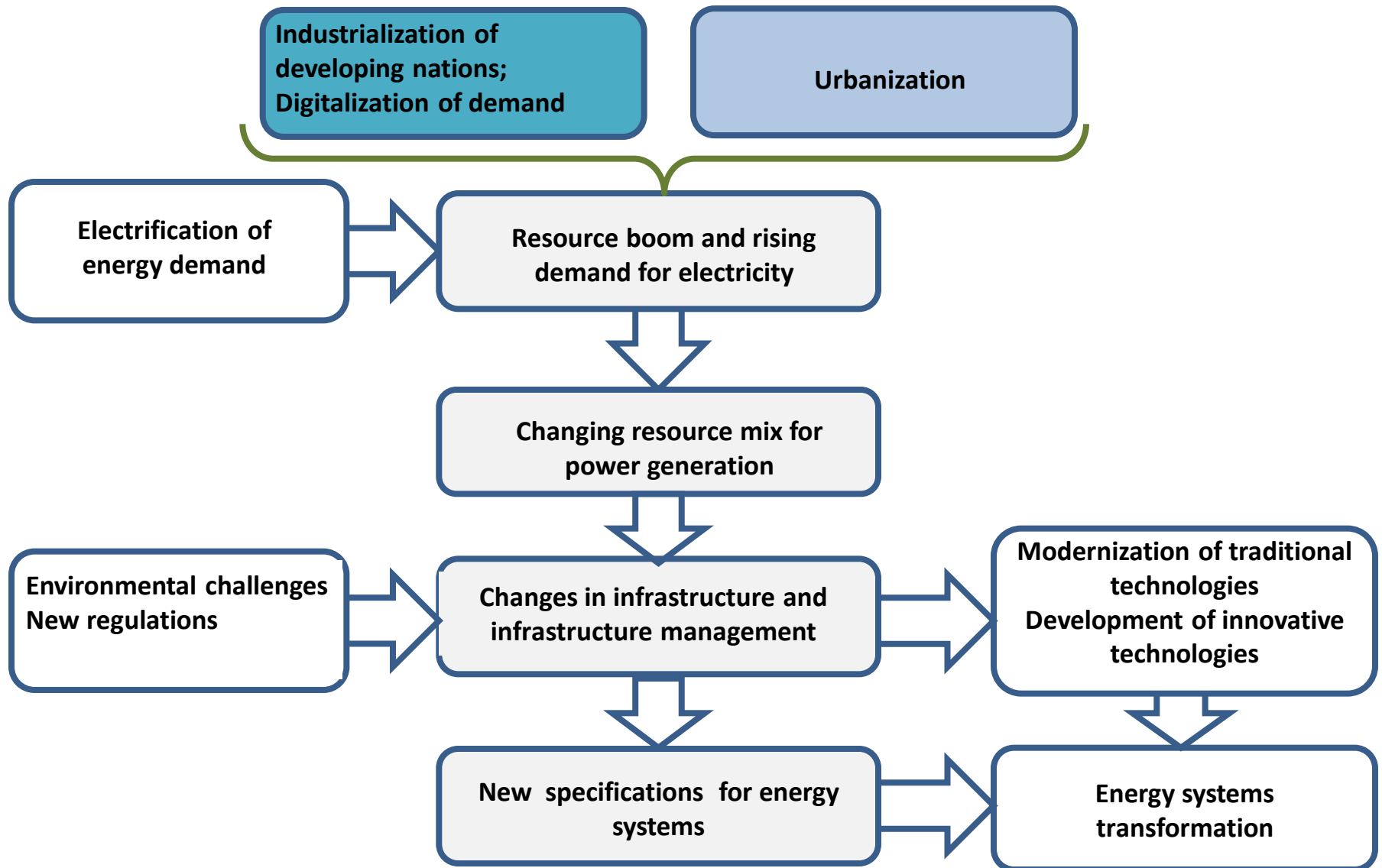


 Millions of People Who Lack Adequate Electricity Access

What is needed to provide optimal transformation of energy systems?



Framework conditions for energy systems transformation



A special report on innovation in emerging markets

The world turned upside down

The emerging world, long a source of cheap labour, now rivals the rich countries for business innovation, says Adrian Wooldridge (interviewed here)

Apr 15th 2010



IN 1980 American car executives were so shaken to find that Japan had replaced the United States as the world's leading carmaker that they began to visit Japan to find out what was going on. How could the Japanese beat the Americans on both price and reliability? And how did they manage to produce new models so quickly? The visitors discovered that the answer was not industrial policy or state subsidies, as they had expected, but business innovation. The Japanese had invented a new system of making things that was quickly dubbed "lean manufacturing".

- The Economist
- 15.04.2010
- A special report on innovation in emerging markets
- *'The emerging world will undoubtedly make a growing contribution to breakthrough innovations'*

Five phases of the energy “innovation lifecycle”

Innovation is actually a set of interrelated processes that can be broken down into five basic phases:

- Discovery
- Development
- Demonstration
- Commercialization
- Maturation

Each phase is undertaken by a different and evolving network of participants, and each has its own distinct policy needs.

Innovation networks

Innovation is also a network activity. While there are many different types of participants, for the most part, they can be categorized into five basic groups:

- **Researchers:** University, government, and corporate R&D researchers.
- **Producers:** Manufacturers of clean energy equipment and components.
- **Financiers:** Public and private investors in clean energy projects and companies.
- **Users:** Utilities, building owners and managers, private power generators, vehicle drivers, or anyone who uses or operates clean energy technology.
- **Regulators** Those who participate in setting the rules and apportioning public resources for the above mentioned activities.

Embracing the knowledge economy...

Knowledge Economy



An economy that creates, disseminates, and uses knowledge to enhance its growth and development

Embracing the knowledge economy (cont.)

Four critical pillars of the knowledge economy:

- **Strengthening the economic and institutional regime (rule of law)**
- **Developing educated and skilled workers**
- **Creating an efficient innovation system**
- **Building a dynamic information infrastructure.**

To be competitive in the global knowledge economy of the twenty-first century, emerging countries should continue to focus its efforts on further reforming its overall economic and institutional environment and improve its overall trade and investment climate.

Knowledge Economy Index

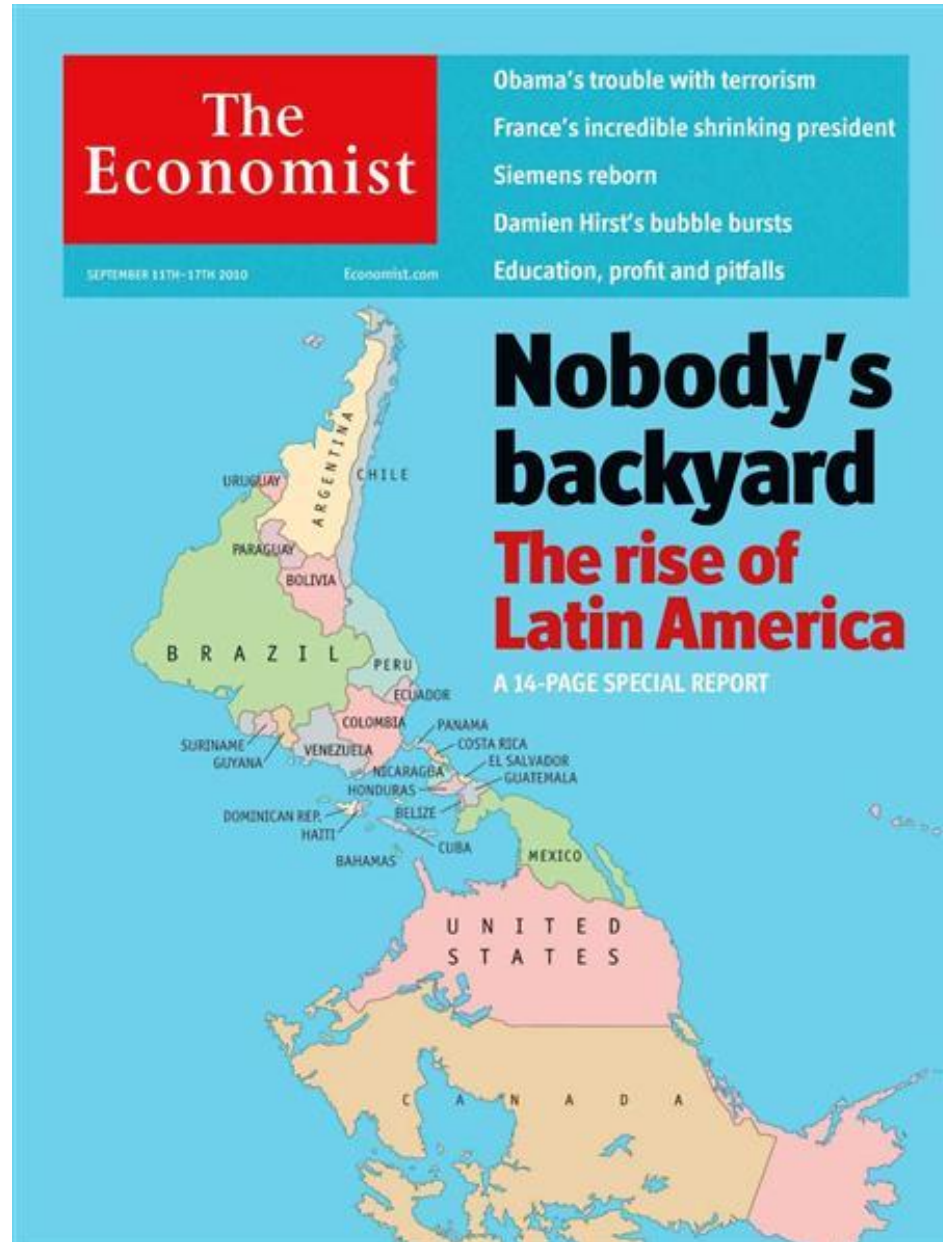
Rank	Country	KEI	Economic Incentive Regime	Innovation	Education	ICT
1	Denmark	9.52	9.61	9.49	9.78	9.21
2	Sweden	9.51	9.33	9.76	9.29	9.66
3	Finland	9.37	9.31	9.67	9.77	8.73
9	United States	9.02	9.04	9.47	8.74	8.83
12	Germany	8.96	9.06	8.94	8.36	9.47
29	Korea, Rep.	7.82	6.00	8.60	8.09	8.60
54	Brazil	5.66	4.31	6.19	6.02	6.13
59	Argentina	5.57	2.78	6.89	6.64	5.96
81	China	4.47	3.90	5.44	4.20	4.33
109	India	3.09	3.50	4.15	2.21	2.49
Income Groups						
1	High Income	8.23	8.02	9.02	7.47	8.42
2	Upper Middle Income	5.66	5.08	6.03	5.63	5.89
3	Lower Middle Income	3.78	3.01	4.96	3.32	3.85
4	Low Income	2.00	2.05	2.52	1.61	1.82

Source: World Bank (2009)

Conclusions

- Emerging countries offer a wide range of opportunities.
- Development could be achieved through innovation on a large scale with a long term vision.
- Energy sector revolution in progress.
- Developing countries should try to support local companies' efforts to become integrated into global value chains, instead of attracting foreign direct investment for exporting sectors.

Not just a cover...



11.09.2010

Thank you for your attention!