

Out of the 6,300 articles collected between March and June 2009, this special issue is based on an analytic synthesis of 430 articles which use the notion of transition/transformation. Through an insight on a reasoned selection of worldwide upcoming innovation drivers, this ICU calls attention to where

convergent efforts from innovation 'movers and shakers' are heading for. *Where in the economic system are the innovation transitions occurring? What are these transformations?* Three areas are on top of the innovators' agenda:

- *How will the switch to healthcare systems 2.0 materialise ?*

- *How fast will our education and research system bring about change in energy production and consumption behaviours?*
- *How will the security imperative get along with the spread of the open innovation paradigms ?*

Key drivers

Matching stakeholders' shifts

by Pierre Bizard and Alain Quévroux, June 2009

TOWARDS

HEALTHCARE SYSTEMS 2.0

- From 'genome-wide association studies' based upon improved SNPs [i.e. single-nucleotide polymorphisms techniques] at shrinking costs to 'precision medicine' and 'mass customisation'
- The convergence of biology and engineering led by info techs has controversial consequences: the digitisation of medical records and establishment of an intelligent network for sharing those records allows patient empowerment
- Focus on prevention, health promotion, better coordination, rational use of resources and smart reforms promoting preventative measures and specific health technologies : a healthier and more productive population for longer
- Energy research opportunities for undergraduates
- Interdisciplinary energy graduate programmes (at master's and Ph.D. levels) that integrate science, engineering, entrepreneurship, and public policy
- Individual fellowships to graduate students and postdoctoral researchers involved in the frontiers of clean energy research
- The smart grid era: smart meters, smart thermostats, appliances and web-based portals
- Enterprises switch to virtualized data centres and adopt cloud-based services, networks increasingly require to be more dynamic and responsive to changing resource demands
- Innovation growingly requires open collaboration, direct interaction with customers, tighter integration with partners, and the incorporation of external talents and resources
- Moving from information security to information risk management i.e. acceptable level of network security risk

GETTING SMARTER IN ENERGY MATTERS

OPEN INNOVATION IS SHIFTING THE INFORMATION SECURITY MATRIX

IDEAS FOR CHANGING EUROPE

A RESEARCHER'S THINKING

Looking at the possibilities for new business models, the social networking features offered by Web 2.0 and Web 3.0 provide strong channels for organisations to have direct relationships with prospects and customers.

Companies could make the transition from an e-business platform to a me-business or we-business model. The more familiar e-business company is more focused on itself and on maintaining control, whereas me-business is customer-centric.

As for we-business, this is the stage where customers can bypass the company and are in direct dialogue with one another.

Andreas WEIGEND, former Chief Scientist at Amazon.com, at the Singapore Management University's Shaw Foundation Distinguished Faculty Lecture Series

Nandan NILEKANI, co-founder of Infosys

GRIPS Intelligence Corner

Transition to low carbon economy and green growth Implementing the Kyoto Protocol

- **In the world press, the principal 'transition' discussed lately is that of a clean-energy economy as a driver of economic growth. Against the background of the economic crisis, it is a becoming a major national policy stake with impacts on international relationships (cf. US-China new partnership in March 2009).**

- **The Kyoto Protocol, the carbon tax vs cap and trade system debate:** To facilitate and reduce the cost of achievement the Kyoto Protocol targets, adopted in Kyoto in December 1997 and entered into force on 16 February 2005, the EU has adopted its Emission Trading Scheme (cap and trade system) in January 2005). Debate is still raging though: while a carbon tax would be simpler and fairer, a cap and trade system would better encourage innovation.

POLICY SUPPORT ON THE MOVE

THE NEW KOREAN PARADIGM FOR GROWTH

"Low carbon, green growth"

ENTERING THE AGE OF ENVIRONMENTAL REVOLUTION

"The world has gone through the stages of the agricultural, industrial and information revolutions. Leaving behind the era of wood, coal and oil, an age of new energy is now being opened." (President **Lee Myung-bak** in August 2008, on the occasion of the 60th anniversary of the founding of the Republic)

ESCAPING ENERGY DEPENDENCY

Korea imports 97 percent of its primary energy resources of which 83 percent originates from fossil fuels; due to the rise in oil prices last year saw a trade deficit for the first time in ten years. Korea's economic structure is based mainly on industries that consume large amounts of energy: there needs to be a transformation to a low-carbon economy.

LOW CARBON, GREEN GROWTH STEP-BY-STEP

1. To make a transition to a low-carbon industrial structure, Korea will fully utilize its strengths in fields such as semiconductors, petrochemicals and steel to develop environment-friendly, highly efficient materials and components to achieve this green transformation.
2. Korea plans to upgrade the current knowledge-based services industry and enhance energy efficiency in the industrial sector by using information technology.
3. Korea will develop new and renewable energy and energy efficiency technologies through government support for research and development into strategic technologies including solar energy, hydrogen fuel cells and LEDs (Light Emitting Diodes).
4. We will encourage private investment by ensuring significant demand from the public sector like replacing LEDs in place of light bulbs in public institutions such as post offices.
5. Korea will substantially increase the use of renewable energy sources in the nation's energy mix to 11 percent from the current 2.4 percent. We will do this through the development of source technologies, and by requiring power companies to meet a certain quota of energy generated from renewable sources.
6. In response to high oil prices and climate change, Korea will increase its energy efficiency level substantially by 47 percent by 2030 compared with 2006 levels. To make this possible, we are exploring the development and dissemination of hybrid electric vehicles; adopting stringent policies concerning fuel efficiency, energy conservation and green buildings; and promoting investment in energy conservation facilities.

Lee Yoon-Ho, Minister of Knowledge Economy, 18 June 2009 in Korea Times