REVIEW OF REVIEWS: THE LATEST IN MANAGEMENT THINKING 24 February 2007

World Business
In association with INSEAD – The Business School for the World

Global Innovation Index: More on methodology

Source: The World Business/INSEAD Global Innovation Index (GII)
Reviewed: 17-Jan-07

The Global Innovation Index (GII) was conceived at INSEAD as a formal model to help illuminate the degree to which individual nations and regions are currently responding to the challenge of innovation.

This response-readiness is directly linked to a country's ability to adopt and benefit from leading technologies, increased human capacities, organizational and operational developments, and enhanced institutional performance. The GII brings together a number of complementary concepts aimed at providing a holistic framework for measuring innovation.

The GII is intended to serve not only as a means for determining a particular country's relative response capacity, but also gives a clearer picture of a country's strengths and deficiencies with respect to innovation-related policies and practices.

The framework upon which the GII model rests relies upon eight pillars made up of five inputs and three outputs (see below) that underpin the factors that enhance innovative capacity and demonstrate results from successful innovation.

The model uses a combination of objective data drawn from a variety of public and private sources such as the World Bank, International Telecommunications Union (e.g. university enrollment rates, GDP growth rates, the level of penetration of new technologies) and subjective data drawn from the World Economic Forum's annual Executive Opinion Survey. The latter helps to capture concepts for which objective (or hard) data are typically unavailable.

This data, despite its subjective nature, is crucial to an adequate understanding of many essential factors underlying a nation's or region's innovative performance. Examples of the latter include concepts such as the quality of corporate governance, the overall excellence of scientific institutions and the quality of intellectual property rights protections.

The framework groups the eight pillars of innovation into two categories: Inputs and Outputs.

The five Input pillars:
Institutions and Policies
Human Capacity
Infrastructure
Technological Sophistication
Business Markets and Capital

These represent aspects which enhance the capacity of a nation to generate ideas and leverage them for innovative products and services.

The three Output pillars:
Knowledge
Competitiveness
Wealth

These represent the ultimate benefits of innovation for a nation - more knowledge creation, increased competitiveness and greater wealth generation.

Each pillar of the GII model is measured by a number of quantitative and qualitative variables. The averaged scores for the Input and Output pillars together give an overall score - the Global Innovation Index.

Calculating the GII

The Global Innovation Index for any given country is calculated in the following manner:

1. The values of each variable for the country are scaled on a range of 1 to 7.
2. The values of all variables for the country under a particular pillar are averaged to yield a score from 1 to 7 for that pillar for the country.
3. The scores of all five Input pillars are averaged to give an overall score (on a scale of 1 to 7) of the country for the Input dimension.
4. The scores of all three Output pillars are averaged to give an overall score (on a scale of 1 to 7) of the country for the Output dimension.
5. The overall Input and Output scores (steps 3 and 4 respectively above) are averaged to yield the overall Global Innovation Index score (on a range of 1 to 7) for the country.

The five inputs and three outputs (our 'eight pillars'), by which countries' innovative capacity was measured, are listed in detail below.

INPUTS

Institutions and Policies
Independence of judiciary
Demanding regulatory standards
Prevalence of laws relating to ICT
Quality of IPR
Soundness of banks
Quality of scientific research institutions
Quality of management/business schools
Legal obstacles to foreign labour
Time required to start a business
Time required to obtain licenses
Rigidity of employment index
Investor protection index
ICT priority for government

Human Capacity
Brain drain
Quality of human resource approach
Quality of maths and science education
Graduates in engineering
Graduates in science
Population 15-64
Urban population
Schools connected to the internet

General and ICT Infrastructure
Quality of general infrastructure
Quality of national transport network
Quality of air transport
Fixed line penetration

Mobile penetration
Internet penetration
International bandwidth
ICT expenditure
Personal computer penetration
Mobile price basket

Business, Markets and Capital Flows
Access to loans
Sophistication of financial markets
Issuing shares in local share market
Corporate governance
Buyer sophistication
Customer orientation of firms
Domestic credit to private sector
FDI net inflows
Gross private capital flows
Gross capital formation
Extent of clusters
Commercial services imports
Manufactured Imports
Private investment in ICT
Informal economy estimate

Technology and Process Sophistication
Country's level of technology
E-Participation index
E-Government index
Government procurement of advanced technology
Internet use by businesses
Competition among ISP providers
Company technology absorption
Telecom revenue
Secure internet servers per 1,000 people
Spending on R&D
Royalty and license fee payments
Business/university R&D collaboration

OUTPUTS

Knowledge
Local specialized research and training
Nature of competitive advantage
Quality of production process technology
High-tech exports
Manufactured exports
ICT exports
Insurance and financial services
Patents registered (domestic and non-domestic)
Royalty and license fee receipts

Competitiveness
Growth of exports to neighboring countries
Intensity of local competition
Reach of exporting in international markets

Commercial services export
Merchandise exports
Goods exported
Service exports
Listed domestic companies

Wealth
Final consumption expenditure
GDP per capita, PPP
GDP growth rate
Industry, value added
Manufacturer, value added
Services, value added
International migration stock
Value of stocks traded
FDI net outflows