



**Chapter XXI**

**Knowledge Assets in the  
Global Economy:  
Assessment of National  
Intellectual Capital**

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This article has the following objectives: to develop the need for assessing knowledge capital at the national economic level; to review a national case study of how intellectual capital assessment was done in the case of one nation state; to suggest implications of use of such assessment methods and needed areas of advancement; and highlight caveats in existing assessment methods that underscore the directions for future research. With increasing emphasis on aligning national information resource planning, design, and implementation with growth and performance needs of businesses or nations, better understanding of new valuation and assessment techniques are necessary for information resource management policymakers, practitioners, and researchers.

Our government is filled with knowledge... We have 316 years' worth of documents and data and thousands of employees with long years of practical experience. If we can take that knowledge, and place it into the hands of any person who needs it, whenever they need it, I can deliver services more quickly, more accurately, and more consistently.

— From Knowledge management: New wisdom or passing fad? In *Government Technology*, June 1999.

Emergence of the service society after the last world war brought increased realization of the role of employees' knowledge and creativity in adding value to the company. Attempts to capitalize company investments in people on the balance sheet in the 1970's failed because of measurement problems. The subject gathered increased interest more recently in the 1990's, with the rapid emergence of information and communication technologies (ICT). As business processes became increasingly "enabled" by large-scale information systems, information

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systems designers attempted to capture employees' implicit and explicit knowledge in "corporate memory" by means of intranets and other similar applications (Malhotra, 2000a, 2000b).

In contrast to the knowledge of individual employees, such corporate knowledge does contribute to the company's value-creation capabilities as well as financial valuation by analysts. Hence, such organizational knowledge or intellectual capital must be accounted for in the company's balance sheet that has generally focused on the traditional factors of production such as land, labor, and capital. The topic is not only pertinent to individual enterprises, but also to national economies that are making a rapid transition to a society based on knowledge work.

This article develops the case for assessment of national intellectual capital by drawing upon existing research, practice, and a recent study of a nation representative of countries making a transition from "developing" to "developed" status. The issues discussed herein are important for information resource management policymakers, practitioners, and researchers for assessing their contributions in terms of new measures of performance. More importantly, as the world economies transition from the world of "atoms" to world of "bits," they would be expected to plan, devise, and implement information and knowledge management systems that provide differential advantage in terms of "intellectual capital."

## Knowledge Assets and Intellectual Capital

Traditional assessment of national economic performance has relied upon understanding the GDP in terms of traditional factors of production—land, labor and capital. Knowledge assets may be distinguished from the traditional factors of production—in that they are governed by what has been described as the "law of increasing returns." In contrast to the traditional factors of production that were governed by diminishing returns, every additional unit of knowledge used effectively results in a marginal increase in performance. Success of companies such as Microsoft is often attributed to the fact that every additional unit of information-based product or service would result in an increase in the marginal returns. Given the changing dynamics underlying national performance, it is not surprising that some less developed economies with significant assets in ICT knowledge and Internet-related expertise are hoping to leapfrog more developed economies (*San Jose Mercury News*, 2000).

Despite the increasingly important role of knowledge-based assets in national performance, most countries still assess their performance based on traditional factors of production. Today's measurement systems are limited in their capability to account for tacit knowledge embedded in the human resources, although there is some agreement on measuring a few categories of knowledge-related assets, such as patents and trademarks. However, the emerging knowledge economy is characterized by industries that are more knowledge intensive and a service economy that is increasingly based on information-based intangible assets. Knowledge assets or intellectual capital may be described as the "hidden" assets of a country that underpin its growth, fuel its growth, and drive stakeholder value. There is increasing realization about knowledge management as the key driver of national wealth, the driver of innovation and learning, as well as that of the country's gross domestic product (GDP). Increasing importance of knowledge assets and intellectual capital have been drawing greater attention of not only company CEOs, but also national policymakers, to non-financial indicators of future growth and performance.

Knowledge asset measurement relates to the valuation, growth, monitoring, and managing from a number of intangible but increasingly important factors of business success. In the context of knowledge assets, knowledge represents the collective body of intangible

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