



Figure 16.5 Knowledge Economy revenues from overseas earnings on royalties and license fees (US\$bn). Source: UK Competitiveness White Paper (drawn from official sources in those countries). Copyright UK Government, Department of Trade and Industry

the forms of it needed to succeed will vary between applications. The knowledge requirements in designing mobile communications will be different to those needed to print a news-paper, for example. On this definition, GIS people are likely to be part of the knowledge industries – but only if they are required to innovate and have skills to develop and exploit tacit as well as codified knowledge.

Our definition is conceptually clear and not industry-specific. But not everyone uses it. There are some good reasons for this, for example, there is a need for simple cross-national and cross-industry comparisons of the “knowledge

industries”. Without international comparisons, management of economies is difficult. For this purpose, the Organization for Economic Cooperation and Development (OECD) defines knowledge industries by industrial sector – a less than perfect, yet simple, approach. To OECD, the knowledge-based industries are made up of knowledge-based services and high-tech industry. Knowledge-based services are taken as telecommunications, computer and information services, finance, insurance, royalties, and other business services. The high technology industries are defined as aerospace, computers and office equipment, pharmaceuticals, and radio, TV and communications equipment. On these definitions, the entirety of GIS is clearly a part of these “knowledge industries” and the “knowledge economy”!

Irrespective of the detailed definition, those active in GIS are working in the knowledge industries and contributing to the Knowledge Economy.

Since knowledge – however defined – is becoming so crucial, it is no surprise that investors increasingly recognize the growing importance of knowledge assets in the way they value firms. Box 16.5 demonstrates one approach to categorizing knowledge in commercial enterprises. However, intangible assets occur at least as frequently in government-based organizations though valuing the equity in such cases is even more complex. It is also obvious that intangible assets may be

Box 16.5 How do we place a value on knowledge?



In fast-growing sectors like biotechnology and computer software, including some parts of GIS, a large part of the value of the company resides in the knowledge embodied in its patents and in its staff. Sveiby (1997) pointed out the huge growth in the difference between Sun’s stock market value and its book value in 1995–96 because of the announcement of Java; this represented a major increase in its intangible assets. He categorized the different types of intangible assets as below.

Visible equity (book value) Tangible assets minus visible debt	Intangible assets (stock price premium)		
	External structure Brands, customer and supplier relations	Internal structure The organization: management, legal structure, manual systems, attitudes, R&D, software	Individual competence Education, experience