



## **The Knowledge Economy**

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### **Abstract**

The knowledge economy has emerged to dominate economic activity, as products and services become more knowledge intensive, as knowledge itself is traded as a commodity, and as organisational learning becomes central to competitive advantage.

But knowledge has features different from every other commodity:

- using knowledge does not consume it;
- transferring knowledge doesn't lose it;
- producing knowledge resists organisation; and
- much of it walks out the door at the end of the day.

This places a premium on an organisations' ability to manage its knowledge resources, to increase their productivity, and to generate new advantages through their fusion and application.

## The Knowledge Economy - what are the rules?

Knowledge in the form of technology and market information, is the principal resource in the world economy, especially knowledge in its dynamic form as the capacity to generate new technologies and to market new products.

There is a growing recognition of the dominant contribution of knowledge to economic competitiveness in this age of globalisation. The traditional resources of the economists - land, labour and capital, always required the application of some knowledge: how to grow crops, use a shovel, borrow money. But now it is knowledge itself which is at the heart of generating value, and wealth. The material, labour and even capital content of your latest personal computer is a matter of a few dollars. It is the embodied knowledge which provides the performance, and commands the price.

In the terms of the knowledge economy, innovation had been redefined as:  
the creative process through which additional economic value is extracted from the stock of knowledge.<sup>1</sup> (OECD, 1995)

OECD analysts have demonstrated that the variable economic performance between nations can be explained by differences in science and technology resources and capabilities. Moreover, such divergences seemed to be less a matter of levels of investment in research and development (R&D), than of the strength of mechanisms for learning, knowledge-sharing, and cooperation.

ICT technology has drastically reduced the costs of handling, storing, and moving information. The gathering of data is (sic) still expensive... What is even more costly is the competence to use the relevant data in an efficient way. Information flows are becoming so rich that the main problem has become how, where and when to dip into these flows... **Knowledge is abundant, but the ability to use it is scarce.**<sup>2</sup>

The capability to learn and to apply learning to the processes of production and sales becomes the most important dimension to the viability of the modern firm. Management skills become related to the establishment of routines and rules which stimulate interactive learning.

In this era specialisation goes hand in hand with communication and cooperation between workers, departments, firms and even competitors. All parts of the organisation become involved in cooperation and many parts also involve themselves in external communication and cooperation. **One consequence is that knowing how to do things in isolation is not the decisive type of knowledge anymore. Knowing how to communicate and cooperate becomes much more important than before.**

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<sup>1</sup> OECD, Conference on Creativity, Innovation and Job Creation, Background Paper, 25 July 1995

<sup>2</sup> Lundvall, B.A., and Johnson, B., 'The Learning Economy', *Journal of Industry Studies*, Vol. 1, No.2, 1994, p.25.

In the learning economy all the different categories of knowledge are combined in the innovation process.... Entrepreneurial knowledge consists of **know-what, know why, know-how and, to a considerable extent, of know-who, when and where**.

The characteristics of the knowledge economy shift the focus of attention:

the overall innovation performance of an economy depends not so much on how specific formal institutions (firms, research institutes, universities, etc) perform, but on how they interact with each other as elements of a collective system of knowledge creation and use, and on their interplay with social institutions, such as values, norms, and legal frameworks.<sup>3</sup>

In this model, knowledge systems within industrial firms are characterised as:

- differentiated and multi-layered, involving the complementary development of very different types of knowledge
- highly specific, organised around a relatively limited set of functions which firms understand well;
- developed through costly processes of search, learning and adaptation, and therefore cumulative;
- internally systemic, as part of an overall production and marketing system, including identifying and integrating technological and market opportunities, financing new product and process development, training, design, engineering and prototype developments; and
- interactive and external systemic, based on structured interactions between institutions, involving processes of mutual learning and knowledge exchange.

One extremely important component of this model rests on the recognition that firms are severely constrained in their knowledge horizons, and hence in their capacities. As a consequence, they are likely to have great difficulty in identifying and accessing information from outside their restricted environment. They also rarely have costless access to a generic knowledge basis, and therefore are required to invest in the location and 'purchase' of highly specific knowledge to achieve their innovative goals. A great deal of knowledge is not available as a commodity for purchase, and must be obtained through investing in the establishment of non-market relationships.

As a consequence, it is:

knowledge of how to develop new knowledge, how to locate and acquire rapidly knowledge generated elsewhere, how to diffuse knowledge throughout an organisation, how to recognise possible inter-connections between two distinct pieces of knowledge, how to embody knowledge in products and services, how to obtain access to the learning experiences of customers - all of these are the challenge for the modern manager.

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<sup>3</sup> OECD, 'Interactions in Knowledge Systems ; Foundation, Policy Implications and Empirical Methods', DSTI/STP/TIP(94)15, Paris, 1994.

## **Knowledge Management**

Knowledge Management is a relatively new concept in the corporate world. Managers, and companies, are being presented with arguments for dramatically increasing the efficiency and effectiveness of their knowledge management, in order to survive and prosper in the next bout for competitive advantage.

Some of the strongest proponents are software companies, offering system solutions for this task. These solutions are based on the provision of organised access, via computer networks, to enhance information availability. While access to relevant information can obviously provide value, an important question remains as to what extent, and with what limitations, this constitutes knowledge management.

On the basis of surveys of a substantial number of major Australian firms, a five-component process can be identified to achieve effective knowledge management:

- establish effective information capture and management systems and processes;
- identify and locate organisational and individual knowledge capabilities within the firm;
- establish processes to codify this knowledge where possible (but ensuring that the invaluable non-codifiable knowledge is not then discarded);
- establish mechanisms and promote a culture that supports and rewards the sharing of knowledge; and
- promote individual knowledge development.

The major issues for knowledge management, particularly from a strategic perspective, are:

- how do you achieve, or even measure an optimum knowledge/information balance?
- how do you design your organisation to provide the free social conditions appropriate to knowing and the focussed economic conditions that allow its value to be captured?
- how can competence in knowledge management be best applied to business strategy and competitive positioning?