

## CHAPTER 2

### LITERATURE REVIEW

In the past, neo-classical economics has recognised only two factors of production: labour and capital. Knowledge, productivity and education were regarded as exogenous factors – which are falling outside the system. New Growth Theory is based on the work by Stanford economist Paul Romer and others, who have attempted to deal with the causes of long-term growth, something that traditional economic models have had difficulty with. Following from the economists such as Joseph Schumpeter, Robert Solow and others, Romer has proposed a change to the neo-classical model by seeing technology (and the knowledge on which it is based) an intrinsic part of the system. Knowledge has become the third factor of production in leading economies (Romer 1986,1991).

Romer's theory differs from neo-classical economic theory in several ways:

1. Knowledge is the basic form of capital. Economic growth is driven by the accumulation of knowledge.
2. While any given technological breakthrough may seem to be random, Romer considers that new technological developments, rather than having one-off impact, can create technical platforms for further

innovations, and that this technical platform effect is the key driver of economic growth.

3. Technology can raise return on investment, which explains why developed countries can sustain growth and why developing economies, even those with unlimited labour and ample capital, cannot attain growth. Traditional economies predict the diminishing returns on investment. New growth theorists argue that the non-rivalry and technical platform effects of new technology can lead to increasing rather than diminishing returns on technological investment.
4. Investment can make technology more valuable and vice versa. According to Romer, the virtuous circle that results can raise a country's growth rate permanently. This goes against traditional economies.
5. Romer argues that earning monopoly rents on discoveries is important in providing an incentive for companies to invest in R&D for technological innovation. Traditional economies see 'perfect competition' as the ideal.

Interests in the systematic use of "knowledge management", as a means of gaining a competitive edge in business situations has grown considerably in recent years (Lloyd, 1996; Brooking, 1997; Skyrme and Amidon, 1997; Davenport et al., 1998; Nahapiet and Ghoshal, 1998). Several reasons have been advanced for the implementation of knowledge management within large companies, including widespread digitalisation of business

environments (Clippinger, 1995), the rise of time-based competition as a marketing weapon – requiring firms to learn as much as possible in very short periods (Seeman and Cohen, 1997); the integration of advanced manufacturing technology with design and marketing, globalisation of operations and the high incidence of mergers and take-overs whereby two or more enterprises which need to bring together different information gathering and dissemination systems (Bennet et al., 1999).

Nerney (1997) reports that data suggests, that in 1997 a quarter of US blue-chip companies used knowledge management, and that another 70 percent planned to introduce it in 1998. Likewise Skyrme and Amidon's (1997) survey on knowledge management practices of 430 European and North American companies revealed that one-third of them were developing programmes to improve their capabilities in the field of knowledge management. Ninety-six percent of the sample regarded customer knowledge as the most important asset for maintaining competitiveness, followed by knowledge of best practices, and market trends.

The biggest constraint on the spread of the New Economy globally will not be inflation or product shortages. Rather, the main problem will be finding enough skilled and computer-literate workers to staff rapidly growing information industries (Business Week, January 31, 2000). Based on the American example, technology-driven growth creates many more jobs than it destroys (Business Week, January 31, 2000). Davenport et al. (1998) survey

of knowledge management projects in 31 large US companies identified four dominant objectives within knowledge management programmes:

1. The creation of knowledge repositories;
2. The improvement of knowledge access;
3. The enhancement of the knowledge environment;
4. The development of knowledge as a corporate asset.

Bennet et al. (1999) examine the influence of organisational factors on the implementation of knowledge management within large companies. Graham and Pizzo (1996) argue that effective knowledge management is most likely in businesses that find the right balance between organisation systems which on one hand are sufficiently open and flexible to allow creativity to flourish, but on the other possess enough formality and discipline to ensure that creativity produces tangible outcomes.

According to Bennet et al. (1999), bureaucracy and formal communication inhibit spontaneity, experimentation and the freedom of expression necessary for innovative responses to environmental change. Equally, however, a formal bureaucracy might facilitate the "rapid and continuous transformation of ideas into superior products and services (Graham and Pizzo, 1996). They acknowledge a great deal of knowledge originates from personal intuition, networking and chance encounters, but contend that structured and standardised procedures are needed to capture, control and connect the knowledge thus gained to business objectives. Other researchers have

similarly concluded that mechanistic organisation structures are better for internal knowledge dissemination (Menon and Varadarajan, 1992). Thus it has been alleged, formal and centralised systems facilitate communication flow via their extensive monitoring and reporting requirements, and through their increased utilisation of marketing plans and policy implementation programmes which demand large amounts of information. Centralisation of decision making, in particular, has been found to facilitate the implementation of innovations as it enables the developments of precise and definite control procedures throughout the company (Gatigon and Robertson, 1985; Fletcher et al. 1996).

Centralisation is said to assist the introduction of any technological innovation, which requires for its proper adoption (Parthasarthy and Sohi, 1997). Knowledge management systems depend on organisational standardisation as they are usually tied to standard hardware, software and training. Therefore, according to this argument, large centralised organisations are more likely to adopt knowledge management innovations. John and Martin (1984) claim the existence of empirical evidence of positive linkages between centralised bureaucratic formalisation and the implementation of innovative programmes.

Wilkstrom and Norstrom (1994), assert that fits best with an open organisational environment "capable of eliciting the creativity, the problem solving capacity and the social and business competence represented by its

employees mainly because the quintessentially innovative character of knowledge generation, which requires an organisational climate based on flexibility, variation and renewal". Ekvall et al. (1987) also conclude that bureaucratic organisation structures restrain internal knowledge dissemination consequent to their hierarchical, complicated and time-consuming communication channels.

For most companies the immediate challenge is to create a knowledge-based business, which can capitalise on the opportunities afforded by the emerging knowledge economy. This includes the challenge of gaining acceptability within the organisation of the theory and practice of Knowledge Management. It also includes the challenge of institutionalising the Knowledge Management process, with attention to both sharing existing knowledge and creating and commercialising new knowledge (Skyrme and Amidon, 1997).