
Innovation and learning in the knowledge-based economy: challenges for the firm

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The 1990's has witnessed a remarkable surge of interest in knowledge as the ultimate source of competitive advantage, not only for organisations but also for nations or regions. The ever increasing importance of knowledge-based resources in today's competitive environment calls for a shift of our thinking concerning organisational learning and innovation. In particular, it raises questions about how organisations create, develop, deploy, renew and store knowledge, in sum, how organisations manage their knowledge.

Business theorists have, for the sake of convenience, contrasted tacit knowledge with explicit knowledge as if they were distinct categories. However knowledge exists on a spectrum and all knowledge has tacit dimensions. At one extreme, it is almost completely tacit, that is, knowledge 'not yet explicated'. At the other end of the spectrum, knowledge is almost completely codified or explicit and accessible to people other than the individuals generating it.

Much recent attention has focused on the importance of tacit knowledge for sustaining firm's competitive advantage, and its role in organisational learning and innovation. In an increasingly dynamic and complex business environment, this type of knowledge, which cannot be easily articulated or transferred, represents the principal source of long term competitive advantage for the firm. The emphasis on the importance of tacit knowledge has emerged as a central theme in the resource and capability theory of the firm, knowledge-based view of the firm and knowledge management literature. Interest in tacit knowledge has also grown rapidly as studies of technological innovation have increasingly identified tacit knowledge as an important component of the knowledge used in innovation. More recently, it has been argued that the rapid change in the knowledge and scientific base and the growing complexity of technological systems has made tacit knowledge even more important in the process of learning and technological accumulation.

The theory of organisation has long been dominated by a paradigm that conceptualises the firm as a system that solves problems or processes information. However, as Professor Ikujiro Nonaka points out, any organisation that dynamically deals

with a highly changing environment must not only to process information and solve problems but also create knowledge. Thus innovation, which represents a key form of organisational knowledge creation and renewal, cannot be explained sufficiently in terms of information processing or problem solving, but can be better understood as a process in which the organisation actively creates and then develops new knowledge to solve these problems. Furthermore, innovation generated by one part of the organisation, in turn creates a stream of related knowledge, which might then trigger changes in the organisation's wider knowledge systems. The process of innovation is a rhythm of exploration, selection, synthesis, and cycles of divergent thinking followed by convergence.

This Special Issue of the *International Journal of Technology Management (IJTM)*, entitled 'Innovation and Learning in the Knowledge-based Economy: Challenges for the Firm', examines key topics in complex and turbulent competitive environments.

The subjects of innovation and learning are receiving increased interest both from the academic community and from companies because of the influence of innovation and learning on the achievement of a sustained competitive advantage for the firm in today's competitive environment. Innovation development is a very uncertain process, in which entrepreneurs undertake a sequence of events over a long period of time to transform a new idea into a product, service or process. What guides the process of developing an innovation? Undoubtedly, innovation depends upon the individual, group and organisational knowledge, skills and capabilities.

Literature on innovation and learning suggest that competitive advantage flow from the creation, ownership, protection and use of certain knowledge-base organisational resources. Superior organisational performance depends on firm's ability to be good at innovation, learning, protecting, using and amplifying these strategic intangible resources. That being so, the Economic and Social Research Council (ESRC) has fuelled interest in innovation topic, designating innovation as one of the nine research areas in their initiative agenda.

The aim of this Special Issue of IJTM was to offer a holistic view of the resources, tools, techniques, strategies and technologies necessary for the effective implementation of innovation and learning in organisations. Therefore the issue presents a collection of papers from outstanding academics and practitioners in this field of research.

Finally, we would like to thank Dr. M. Dorgham (Editor-in-Chief) for giving us the opportunity to make this issue a reality.