
Editorial

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Biographical notes: Professor William Keogh is Enterprise Coordinator at Heriot-Watt University, Edinburgh. He has been leading teaching and research activities in the area of science and technology, seeking to widen access to enterprise teaching across the University. Prior to joining Heriot-Watt, William held the Chair in Entrepreneurship at the Robert Gordon University in Aberdeen (1997-2000), where he was also Deputy Director of Research for Aberdeen Business school. His main research interest lies in the use of knowledge in innovative, entrepreneurial technology-based small firms. He is currently a member of the Editorial Boards of five journals, including the *International Small Business Journal (ISBJ)*, *Small Business and Enterprise Development*, and the *Journal of Strategic Change*. He is also an external examiner for entrepreneurship at a number of universities and a Director of the Institute for Small Business Affairs (ISBA).

Professor McAdam is Professor in Innovation Management at the Faculty of Business and Management, University of Ulster. Rodney has recently received The Distinguished Research Fellowship Award from the University of Ulster for his contribution to management and organisational research over the past 10 years. He has a large number of publications (150+) in the area of knowledge, innovation, quality management, and business improvement. He is a regular conference speaker at international conferences and supervises a number of PhD students in the area of innovation, quality and organisational change management. He has extensive consulting experience in leading public and private sector organisations throughout the UK and Europe.

This special edition seeks to explore key issues in Knowledge Management (KM) in relation to the development of entrepreneurial activity in individuals and organisations. The links between entrepreneurship and knowledge base are becoming increasingly important as we move into what has become known as the Knowledge Economy. Several pieces of literature are emerging concerning the knowledge economy including entrepreneurship education, innovation, high-tech small firms and areas of policy such as globalisation and support for innovative Small- and Medium-sized Enterprises (SMEs). At the macro level, the knowledge base and knowledge capital of a country are vitally important in areas of competitiveness, globalisation and new market penetration. Sometimes, at the micro level, KM plays a vital role in supporting entrepreneurial activity and encouraging intrapreneurship and growth strategies. At times, the knowledge residing in the organisation may not be utilised. In other organisational situations, special knowledge may have to be brought in. Utilising knowledge in complex situations requires different approaches to management at all levels. In the entrepreneurial small firm, the entrepreneur may also be the manager of the organisation and be the main source of ideas and driver of the venture. Dealing with knowledge transfer in most forms, for example, the incubation process or developing new markets with innovative products (or processes/services) brings with it far-reaching management skills. These are the skills that reside in teams rather than in an individual. For example, in launching new spin-out firms from universities, new skills and knowledge are required that go beyond the parent organisation. At the strategic level, political will and support are added to the complexity. Only by providing information from experts and informed sources do things move forward.

The environment wherein the three elements of entrepreneurship, management and knowledge base varies greatly. This environment encompasses other elements such as innovation, education and developing new ways of working. Thus, the external environment plays an integral part in success or failure. For example, fiscal policies that make investments attractive to venture capitalists or government initiatives that promote entrepreneurship and commercialisation from universities are vital. From materials emerging in the general area of the knowledge economy, the use and application of new technologies, education, innovation and entrepreneurial activities are necessary for economies and organisations of the future to grow and prosper. At the micro level, a growing awareness in the value of knowledge in organisations and the intellectual capital available to them from individuals lead to different relationships among individuals, organisations and policymakers.

This special issue begins with two papers that ask questions from a theoretical perspective. In the first paper, Lange investigates the use of economic theories in the realm of knowledge. This approach is relevant as much of what we have researched in entrepreneurship began with economic theories. Lange argues that the definitions of what constitutes 'knowledge' are not in agreement. He points out from the outset that 'The Economics of Knowledge Management is arguably an embryonic area for development'. From another theoretical approach, Franken and Braganza investigate organisational frameworks and explore issues surrounding organisational form and management of knowledge. In this paper, the organisational form framework developed by Miles and Snow is integrated (for the first time) with the knowledge management models by Nonaka. By integrating these two frameworks, Franken and Braganza aim to show that, in order to reap anticipated organisational benefits, 'the choice of knowledge management approach cannot be unqualified but must be closely aligned with the

organisation's strategic and operational form'. They propose new approaches to this difficult issue and indicate future areas of research. Ihrig *et al.* carry out a review of the theory behind the opportunity-based approach to entrepreneurship. Their paper suggests that there are several weaknesses in this new perspective. These weaknesses relate to the following: the fundamental and elementary factors that underpin the opportunity; the time after the initial exploitation of the opportunity; and the nature of the concept of 'opportunity'. Ihrig *et al.* argue that the opportunity-based approach to entrepreneurship is not the definitive conceptual framework for the field of entrepreneurship. Instead, they have adopted another approach by Boisot (1998). Using this approach, they propose a knowledge-based approach to entrepreneurship. Thus, this perspective considers entrepreneurship as a function of *knowledge* and *attitude*. The authors also describe the entrepreneurial process – from the venture idea to the newly formed business's strategic success – as the development of knowledge.

Cooper argues that the role of the entrepreneur in the start-up process is the most vital component. By understanding the knowledge and skills requirements which the entrepreneur requires in order to perform that role effectively, policymakers and support organisations, who are seeking to enhance the levels of new venture creation, can be assisted. Cooper explores the sources and development of knowledge and skills in a group of 94 high-technology small firm founders in software and electronics. From the research, marked differences are apparent in the background and experiences of entrepreneurs in the two chosen sectors. A key aspect is that founders of these firms have 'travelled contrasting routes to arrive at the entrepreneurial start-line'. The findings from this paper are of significance for agencies supporting technology-based firm development as well as for the would-be entrepreneurs who may be considering enterprise creation opportunities.

As stated above, innovation is a key element in the entrepreneurial process. Metaxiotis and Psarras ask the question, "Can effective KM create more successful innovation, and how?" They focus on the computer information systems community. In this paper, they seek to analyse the value of effective knowledge management leading to innovation. The authors explore issues in knowledge management practice. They point out that KM practices need to be supported by complementary efforts in different domains. For example, IT-related support activities and infrastructures play a very important role as they serve vital functions, tend to be complex, are costly and can often take some time to design and implement. Metaxiotis and Psarras identify a future research need to measure the real success of KM in the innovation process and to show quantitative benefits.

Moving from an investigation of knowledge management and innovation, Sulej and Bower investigate successful knowledge transfer and creation of innovation. This paper describes an innovative and highly successful process (The Fellowship Programme or FSP) that facilitates the transfer of academics from a research-based environment to the entrepreneurial business world. Issues resulting from the authors' experiences with the programme and research to date are discussed. Some implications for policy are highlighted. The increased focus on the activity related to the creation of spin-out companies from universities has been due to the drive for new knowledge-based technologies. Sulej and Bower explore the underlying structures in relation to knowledge

acquisition, knowledge transfer and knowledge translation. In this paper they not only indicate new research directions, but offer a potential model for facilitating the process of academic spin-outs and entrepreneurship in technology-based industries.

McAdam and Keogh's paper takes a stakeholder approach to the incubation process involving two relatively new case study university incubators. The previous paper (by Sulej and Bower) outlines a highly successful model that fits within the 'triple helix' of research, teaching and economic development (Etzkowitz, 2002). The FSP initiative fits within a powerful support network involving universities, policy makers and a Royal Society. In McAdam and Keogh's approach the key stakeholders are identified and their expectations and roles are explored. Data from an EU study (CSES, 2002) have been used to compare findings from the two universities with the performance indicators identified in the European study. The start-up process through incubators is estimated to generate 40 000 European jobs per year and is expected to contribute significantly to economies. The implications from the stakeholder analysis are that a complex interaction is constantly taking place. Another implication is that universities do not contain all the ingredients to complete the process on their own. Staying with university involvement, a key stakeholder group may well come from the student body. Ridder and van der Sijde's paper outlines a technology-push situation where the central issue is on how knowledge intensive entrepreneurship can be stimulated. Ridder and van der Sijde describe the Wireless Application Protocol (WAP) launching platform, its actors and activities. Their paper presents a short characterisation of five companies that were launched through this activity. This research monitored what happens when students are encouraged into an enterprise and utilise the opportunities presented to them (*i.e.*, new technology). WAP took off quite quickly. However, it collapsed shortly afterwards when it was overtaken by newer, more promising technologies. An important lesson for student-entrepreneurs is how to take the step from one-shot contracts for a specific product or service to customised, standardised products ('crossing the chasm').

Bellini and Io Storto's paper is based on explorative research. In this research, a sample was taken consisting of 80 Information and Communications Technology Small Firms (ICT SFs). Bellini and Io Storto propose a framework to inquire into strategic management of SFs. They focus their attention on the idea that a more coherent and careful conceptualisation of relationships between the firms' growth strategies and their knowing processes is operationalisable. They also define a model of the 'small firm as knowledge structure'. In this approach, they argue that 'an organisation can be treated not only as an asset of knowledge, but – in cognitive terms – as the outcome of a process of knowledge and competence accumulation aimed at achieving the strategic goals of entrepreneurs'. Their results indicate that observed patterns show that the profile of the knowledge structure within the SF affects the growth strategy performance of the firm.

Organisational involvement with corporate entrepreneurship is the focus of Åmo's case study approach to describe the process of employee innovation. This is seen from an employee perspective. In this paper he describes the reasons why five employees from three organisations involve themselves in a corporate entrepreneurship programme. The key findings from the research demonstrate that 'linking intellectual capital and organisational learning to reward increase our understanding of the motivation for employee innovation behaviour'. Implications from this paper 'could foster more and better aligned employee innovation behaviour in organisations'. The case theme is continued through Pavlovich and Doyle Corner's study of creating knowledge through co-entrepreneurship. Their paper features findings from analyses of the joint ventures

undertaken by the sample organisations. The examination of the relationships illustrates 'the role that social capital plays when partners collectively develop new knowledge to pursue entrepreneurial opportunities'. Pavlovitch and Doyle Corner's findings emphasise that relational aspects of trust, open communication and personal integrity are critical for close relationships to be formed. They argue that co-entrepreneurship is a contributory value-creating process where both partners transcend their differences in order to 'learn how to learn' for knowledge creation.

The global business environment is the subject of Gurău and Ranchhod's paper. Specifically, it focuses on knowledge at the level of the Top Management Team (TMT) and the internationalisation strategy pursued by the firm. International expansion is an essential ingredient of the 'Born Global' without having the necessary time to build business experience in the domestic market. Issues that affect these firms include the level of globalisation, target markets and market entry strategies. This paper is based on the analysis of primary and secondary data in pharmaceutical firms. It also investigates the relationship between the expertise of TMTs in terms of international experience, geographical knowledge and professional competencies. Findings from the research indicate that the professional experience of the TMT members can represent a possible way to reduce the risk of choosing and implementing a specific market entry strategy. At the strategic level, encouraging and supporting entrepreneurial activity can stimulate an economy for regional development. Influence on the economy comes in part from developments in information technologies such as internet trading and interactions in a global marketplace. The paper by Keogh *et al.* discusses the economic development taking place within the realm of the knowledge economy. The paper then compares Scotland with Minnesota regarding the discussion. An area of importance area for the visiting delegation was the understanding of the developments in the knowledge economy, particularly from the role of the State University, where many millions of dollars are planned for development of knowledge-based research and output.

At the macro level, policy support focuses on the developments in the economy including the environment for successful small firms. At this economic level, it is a major concern of the government as issues such as the supply of appropriate labour, education provision and standards and training requirements are strategic new technologies. At the micro level, the management of these essential small firms requires a complex balance of skills, knowledge and know-how. The final report from the fact-finding initiative was prepared to inform policy makers.

In summary, the papers selected for this special edition have covered many issues within the theme of knowledge and entrepreneurship. Both the theoretical and organisational aspects of this theme have been developed in the contributions. Moreover, the papers have covered multiple levels of analysis including corporate, management and employee levels. The special issue makes a contribution to knowledge and entrepreneurship in terms of helping to form research agendas and organisation applications.

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