

THE EVOLUTION OF BUSINESS KNOWLEDGE

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THE EVOLUTION OF BUSINESS KNOWLEDGE

1 Executive Summary

This programme takes as its starting point the critical role which knowledge and learning play in economic competitiveness and organizational performance.

The knowledge-base of the enterprise – what it knows how to do well – is seen as playing a key role in profitability and growth. Although knowledge has always been important to economic activity, a number of factors have combined to make it one of the most crucial factors in the current environment. These include scientific and technological changes which have enabled knowledge to be communicated, packaged and analysed in new ways, the increasing rate of innovation, and the development of networks which enable new processes for producing and applying knowledge. As a result of these changes, business organizations, including those in hitherto mature or craft-based sectors, are having to acquire and apply knowledge from a much wider range of sources, both internal (as generated from the analysis of market and customer information) and external (as acquired from supplier firms, universities and research institutions). Relevant forms of knowledge include ‘learning by doing’ by the firm itself, the knowledge encoded in technologies, embodied in people, embedded in standards and routines or obtained by various forms of networking with other organisations ¹.

The study of the evolution of knowledge addresses the challenges which these developments create for business organizations and managers. Increasingly, it is not the possession of knowledge itself which provides competitive advantage, but the ability to continuously acquire, integrate and apply knowledge from a variety of sources which ultimately leads to success. These processes involve developing and managing knowledge and learning as directly productive resources for the firm, and not as a cost or an accidental by-product of its activities.

As yet, we have only a limited understanding of what shapes an organization's ability to exploit knowledge more effectively than its competitors. This is partly because knowledge and learning cannot be treated as commodities; they are not easy to identify or measure and they are closely bound up with the way organizations and the people within them think, work and interact. It follows that the more effective development and exploitation of knowledge involves not simply increasing our ability to communicate, but may also require shifts in practices and relationships amongst organizations, managers and employees. This programme will mobilize the distinctive contribution of UK social sciences and international research to develop a better understanding of the processes which enable and constrain such shifts, and thereby enhance UK organizations' ability to grow and exploit their knowledge-base.

2. Programme Objectives

This programme seeks to develop our understanding of how knowledge is produced, acquired, transferred and utilized, and how new forms of research might be developed to improve the interface between theory and practice. The evolution of knowledge is understood as a pervasive phenomenon which creates new relationships and opportunities for learning across sectors (ranging from technological to cultural industries) and groups of managers. In studying the Evolution of Business Knowledge, the core objectives of this programme are to:

1. Challenge existing thinking by developing current concepts and creating new theories and tools for addressing the means and effects of the exploitation of knowledge for business performance and economic competitiveness.
2. Influence policy and perceptions by providing rigorous evidence of the human and economic implications of the evolution of knowledge within different organizational, sectoral and institutional contexts.

3. Demonstrate the value of an interdisciplinary and interactive approach to social science research by pioneering and validating new roles, relationships and methodologies.
4. Stimulate research into the changing role of management practices and forms of work process in appropriating economic value from knowledge within and between business organizations.
5. Improve the ability of enterprises to exploit and develop their knowledge-base by developing new concepts, tools and measures which increase awareness of the value, dynamics and implications of different forms of knowledge and learning.
6. Enhance the value of inter-organizational relationships, including the role played by consultants, customers and supplier firms, through greater understanding of their impact on the production, transfer and utilization of knowledge.
7. Identify the distinctive implications of the British national and institutional context for the evolution of knowledge by contrasting it with wider international experience and the apparent demands of globalizing strategies for business.

3. Programme Rationale

The rationale for the study of the Evolution of Business Knowledge is defined in part by a growing awareness of the role that knowledge plays in economic performance and competitiveness. There is an increasing tendency to view knowledge as the critical resource in competitive environments. What is distinctive about the challenges confronting contemporary business organizations, however, is not simply the centrality of knowledge, but rather the opportunity to intensify its production and utilization². The evolution of knowledge thus involves an accelerating cycle in which the distinctions between the activities of knowledge production, transfer and utilization are increasingly

blurred, with consequent implications for the roles and relationships of the different groups involved. Such an evolution is advanced by the development of new technologies, processes of learning, and organizational forms which are involved in the embedding and disembedding of knowledge in work practices. Moreover, this process throws into sharp relief new roles and capabilities for management in leveraging knowledge as a productive resource, though not as an end in itself. The scope of the programme thus encompasses not only the processes of knowledge intensification but also their wider implications as they unfold in tension with changing organizational and institutional contexts.

The role of knowledge and its impact on economic performance and social relations have long been a hotly debated feature of contemporary society³. Recent contributions to that debate, however, have highlighted a shift away from the conventional science model as the basis for grasping the role of knowledge (see also the specifications for ERSC's 'Science in Society' and 'Cultures of Consumption' programmes) towards perspectives which collectively provide a very different account of its formation and production. By highlighting the socially situated nature of learning and the importance of tacit knowledge, these perspectives emphasize the production of knowledge in the context of its use⁴. They have led to a radical shift in our view of business knowledge. Where business organizations have sometimes been conceived as a means of economizing on knowledge, the new perspectives have asserted their importance as social institutions in shaping its production and transfer⁵. This has prompted new ways of conceptualizing the firm itself and of the means by which it gains competitive advantage. Business firms are seen to compete over the long-term through their endogenous production of knowledge and capabilities and through their ability to acquire and exploit external sources of knowledge, such as new technologies or capabilities, often via inter-organizational relationships. The existing distribution of knowledge within the firm may be viewed as both a gateway and a barrier to the acquisition of new knowledge⁶.

This shift in our understanding of business knowledge has important implications for policy and practice. At the policy level, it raises the challenge of

creating a national and institutional context in which the long-run competitive advantages accruing to knowledge and learning can be fully appreciated and appropriated by business firms. The scale of that challenge can be gauged from recent studies which have addressed the notion of the 'knowledge driven economy' and which have highlighted the persistence of 'low skill, low quality' tendencies in some parts of British industry⁷. The implication of such studies is that existing means of accounting for and controlling business performance tend to exclude managerial consideration of the long-run or less visible factors influencing such performance. In short, far from viewing knowledge as a primary resource, many businesses may be unwittingly damaging their own knowledge-base – for example, the social capital which supports knowledge exchange⁸ – through decisions which are predicated only on what can currently be measured and controlled.

At the level of practice then, the key challenges arise from the need to bring about the changes in managerial and organizational behaviour required to constitute knowledge and learning as a productive resource for the firm. This not only has implications for the design of strategies, structures, technologies, work processes and incentive systems, but also for the underpinning fabric of social relationships which emerge from and provide the context for these developments⁹. The nature and importance of these implications thus highlights the wide-ranging contribution which insights from the social sciences are able to make to our understanding of the evolution of knowledge.

It follows from the above that research for this programme is challenged both by the multi-faceted and interdisciplinary nature of the enquiry and by the relevance of its outcomes to the policy and practitioner groups engaged by it. The key challenges can be summarised as follows:

- The problems posed for decision-making and innovation processes of transferring and integrating different forms of knowledge and learning across diverse communities and business settings¹⁰.

- The implications of the evolution of knowledge for the institutions and practices that regulate the formation and utilization of expert knowledge¹¹.
- The interplay between market forces, including product, labour and capital markets, and the production, measurement and representation of knowledge.
- The emergence of new roles and tasks for management – partially and optimistically characterised at the moment as ‘Knowledge Management’ - in valuing, configuring, transferring and cultivating knowledge and learning.
- The role and limitations of ICTs (Information and Communication Technologies) in the evolution of knowledge, including their mediating effects on the distribution of economic activity and power within and between enterprises.
- The institutional and cultural constraints on the evolution of knowledge created by relations within and between producer and customer communities, including the roles played by expert and intermediary groups.
- The development of concepts and approaches which span different levels of analysis, ranging from micro-level practices in firms to the development of strategic competitive capabilities.

4. Thematic profile of the programme

The programme will be made up of two types of project. First, projects addressing major and emerging themes which are likely to be critical to contemporary debates. Second, a further group of projects which are more exploratory or theoretical in nature. These will address areas of prospective

academic and practitioner interest, some of which may be only partially represented in this programme, but which are capable of generating important new lines of enquiry for future research and practice. The programme, including both major and exploratory studies, will comprise the following themes:

4.1 *The relationship between the evolution of knowledge and the constraints created by different organizational, sectoral and institutional contexts.*

Knowledge is not a free-floating resource or commodity, but is implicated in social roles, relationships, learning processes and practices. The economic pressures on the cycle of knowledge production, transfer and utilization are intertwined with the social conditions of its formation, distribution and exchange. The evolution of knowledge is thus reciprocally linked to changes in social relationships and practices and the business and institutional contexts in which they develop. Such changes include:

- The embedding and disembedding of knowledge in social practices, including the effects of different forms of organizational learning on work practices and behaviour ¹².
- The multi-faceted effects of network relationships on the acquisition, exchange and utilization of knowledge amongst individuals, groups and organizations.
- The social and cognitive processes of integrating knowledge from different communities and contexts in the pursuit of organizational change and innovation.
- The interplay between the evolution of knowledge, systems of management control and forms of work organization across a range of organizational and sectoral settings ¹³.

4.2 *The dynamic features of knowledge and learning in organizations and their implications for business strategies.*

There are many ways of defining knowledge. Debate on taxonomies, however, may be less relevant to the performative aspects of knowledge than studies which highlight the implications of different kinds of knowledge, and interactions between them, for the creation and appropriation of economic value. Business strategies will be shaped by these implications in a number of ways, including:

- The emergence of new 'recipes' for the intensification of knowledge and learning across a range of organizations from small firms to multinational enterprises . Such recipes may encompass linked changes in structural forms, management practices, work processes, products/services and technologies.
- The interplay of specialization and complementarity in knowledge production and the implications for the appropriation of learning and development of innovations across inter-organizational networks ¹⁴.
- The challenges of managing an increasingly distributed knowledge-base with its implications for in-house management capabilities and the development of external networks.
- The development of tools and concepts for linking the production and transfer of knowledge to rapidly changing market and competitive forces, both at the level of management practices and in the determination of business strategy ¹⁵.

4.3 *The implications of new approaches to the capture, codification and diffusion of knowledge for its utilization within local contexts.*

Recent technological and organizational innovations have greatly enhanced organizations' ability to codify and diffuse knowledge as forms of information,

including the development of standards, rules and knowledge objects. These shifts are often evident in the development of globalizing strategies by multinational firms. A number of studies have shown, however, that the *direct effects* of information systems on the transfer and utilization of knowledge may be less significant than is sometimes assumed: greater access to information has tended to highlight the distinctive role of knowledge in the interpretive and decision-making processes of organizations¹⁶. On the other hand, this does not deny the importance of the *indirect or unintended effects* which changes in information flows may have on the formation and distribution of knowledge in organizations. In this way, qualitative shifts in systems of information may help to change the context for interpretive and decision-making processes¹⁷.

This theme therefore encompasses the following topics:

- The relative effectiveness of different organizational and technological means of managing knowledge in bringing about changes in work processes and social relations within organizations.
- An appreciation of the mediating effects of ICTs on the way knowledge is perceived and constituted in the relationships between different groups.
- The implications of the development of ICT-based innovations for the development of organizational forms and processes of decision-making.

4.4 *The interplay between the evolution of knowledge and changing relationships between organizations and employees.*

The growth of knowledge work has stimulated extensive debate about the need for new approaches to long-standing questions of management and control. However, the implications of the evolution of knowledge for employment relations extend beyond the adaptation of Human Resource (HR) policies to the

pressures of a highly qualified category of labour. Rather, industrial and business strategies generate new and different kinds of knowledge work in the way that they produce, transfer and appropriate knowledge and learning. Such strategies highlight the impact of management practices and the wider organizational context which shapes the formation and exchange of knowledge. This includes the following:

- The emergence of distinctive cultural contexts which influence the exchange of knowledge and learning through the accumulation of social capital, shared values and norms of reciprocity.
- The impact of job mobility and career systems on the development of social networks and the formation and transfer of knowledge within and between organizations .
- The importance of the development of social and organizational identity in shaping individual, group and managerial responses to knowledge-intensive settings.
- The implications of the emergence of 'communities of practice' for knowledge exchange and organizational performance.
- The development of HR and business strategies which link the production and appropriation of knowledge to policies for selection, development, career progression and rewards ¹⁸.

4.5 The development of management knowledge in the UK and its influence on organizations' ability to produce, appropriate and apply knowledge and learning.

Managerial behaviour – for example, managerial responses to organizational control systems – plays a critical role in determining the adoption and implementation of new means of intensifying knowledge. Managerial cognition

and the spread of management discourse exert an important influence on organizational responses to the opportunities and pressures associated with the evolution of knowledge. Such managerial knowledge is multi-faceted and is influenced by a range of internal and external factors, including:

- The influence of intermediary groups, including professional associations, consultants and 'knowledge entrepreneurs', on the production, diffusion and utilization of new concepts and technologies.
- The mediating role played by key social institutions, including the media and business schools, in shaping and embedding new discourses within managerial practices.
- The cumulative effects of discourse on managerial practices over time and within different organizational settings.
- The implications of new systems of 'Knowledge Management' for the practices and political influence of different groups of managers ¹⁹.

4.6 *The measurement and management of intangible assets*

Intangible assets are becoming increasingly important determinants of innovation, competitiveness and economic growth. However, the current inability of financial and management reporting systems to adequately reflect the value of, or rates of return to, intangible assets tends to distort the allocation of resources in a number of areas, resulting in; higher cost of capital and under-estimates of value for firms which are highly reliant on intangible assets; inefficiency in the allocation of resources within firms; and inefficiency in determining organizational boundaries for generating and appropriating the value from intangible assets, including restructuring and merger activity.

Available definitions of intangible assets are broadly-based and the development of metrics is more advanced in some areas than others ²⁰.

Candidates for study here, therefore, are those intangible assets which are knowledge-based, substantively linked to business competitiveness, and which are amenable to improved information flows leading to the more efficient allocation of resources within and between firms.

The key themes of research on intangible assets can be summarised as follows:

- The creation and dissemination of a more precise understanding of the nature of knowledge-based intangible assets, their implications for management and accountancy practice, and their impact on business and economic performance ²¹.
- The role of intermediaries – including business services - and supply networks as intangible assets ²².
- The specificity of intangible assets and its implications for comparability between firms and sectors ²³.
- The analysis and development of innovative measures which advance the dialogue between relevant communities (including finance, professional groups, managers and academics).
- The identification of barriers to the implementation of new measures created by the social and institutional embeddedness of accounting and financial reporting practices.

5. Methodological approaches

It is important that the investigative methodologies adopted in this programme reflect its overall aims and concerns. The programme provides an opportunity for social scientists to make a significant contribution to academic and policy debates about the evolution of knowledge and its management. It will do so by

developing theories and approaches that not only enhance our understanding of the Evolution of Business Knowledge, but also apply that understanding to the problems and practices from which it derives. This defines the following methodological requirements:

- Interdisciplinarity; the programme will create opportunities to integrate the insights of diverse social science disciplines into evolving theory.
- Interactive social science; the programme will develop critical and constructive perspectives on practice through research that is informed by the business context and is shaped throughout by the active collaboration of a range of business and other user groups.
- Comparative analysis; the programme will address the importance of context in the evolution of knowledge by developing comparative accounts across sectoral (including public - private comparisons where appropriate), institutional and national contexts.

Although the focus of the programme is *on* management, this should be in no way taken as restricting contributions to those working *in* management schools or departments. In principle, researchers can contribute to this programme from a background in every one of the 17 disciplines within the ESRC remit, using the full range of research methodologies.

6. Partnerships with collaborators, users and beneficiaries

The research is to be organised within a framework of the co-production of knowledge between researchers and the users of research. Involvement of potential users throughout the research process will also assist the diffusion of theoretical and practical insights on how to manage the evolution of knowledge, of the complexities of this process and of barriers to knowledge dissemination and uptake. In the process, the programme will help to develop managers who are better equipped to understand and theorise effective

action and who will be more demanding and responsive users as well as co-producers of future research. The programme offers good prospects for collaborative funding of projects. Project co-funding might be sought from businesses, professional associations and government bodies, both in the UK and overseas.

7. Relevance to ESRC Thematic priorities

The Evolution of Business Knowledge programme is highly relevant to the thematic priorities of *Knowledge, Communications and Learning, Work and Organisations* and *Economic Performance*. It will highlight the importance of knowledge and learning in the interplay of organizational forms, management practices and human activity which secures business performance and economic competitiveness. It will survey the nature of knowledge within different organizational and industrial contexts, and analyse the means of its more effective exploitation through the study of processes of production, transfer and utilization. This will encompass the co-evolution of technological and organizational forms and the exploitation of knowledge through innovation.

8. Management and dissemination of the programme

The ESRC has appointed Harry Scarbrough – currently Professor of Organizational Analysis, University of Leicester Management Centre – as Programme Director. From 1st April 2002, Professor Scarbrough will be located in Warwick Business School, University of Warwick.

The Programme Director will:

- Lead and coordinate the programme
- Engage with government, industry and other user groups and potential beneficiaries.
- Represent the programme to relevant national and international

communities.

- Build cross-national links with a view to creating collaborative social science research partnerships abroad.
- Ensure the programme exploits links with other funding agencies and interested bodies.
- Coordinate programme dissemination, review and feedback.
- Have the opportunity to direct a research project within the framework of the programme.

Results of the programme will be disseminated through a variety of means including; workshops, seminars and conferences, on-site discussions, working papers and books. A web-site will be established to provide regular information on the progress of the programme and this will provide links to project web-sites. Interaction between projects will be encouraged where this may support the interdisciplinary and comparative elements of the programme. Individual projects will be expected to act as a resource to the programme as a whole in providing expertise in specific areas and in making information available to other projects. Project award holders will be required to participate in and collaborate with communication activities throughout the life of the programme. With the cooperation of project teams and in partnership with user groups such as managers and professional bodies, the programme will also develop output to stimulate management development, training and teaching activity. As the programme is dealing with issues with important public policy implications, a particular strategy will be developed for the involvement of, and dissemination to, parliamentary bodies.

The Director will be provided with a budget to carry out communication activities which arise from the programme as a whole. However, responsibility for programme dissemination will be collectively shared amongst all its constituent projects. Applicants should consider this responsibility when designing their project proposals and budgeting their time and financial commitments.

The programme officer is David Guy, [David.Guy@esrc.ac.uk], tel. 01793 413125.

9. Resources and implementation of the programme

The ESRC's Research Priorities Board has allocated £2.97 million to this programme over 5 years, beginning January 2002. This will be disbursed through one funding round, for which decisions will be communicated by a Commissioning Panel, chaired by a member of the ESRC's Research Priorities Board. This panel will consist of leading academics as well as representatives from key user groups, including industry, government and professional bodies. To ensure coherence of the overall programme, the Commissioning Panel may require amendments to research proposals as well as collaborative arrangements as conditions of awards.

As outlined above, project proposals will be invited at two levels of funding. First, projects addressing major or emerging topics likely to be at the centre of existing debates. The indicative funding norm for these projects will be £250 - 400,000. Second, a further group of projects which are more exploratory or theoretical in nature. The indicative funding norm here will be £40 - 100,000. Additional funding for research on the Measurement and Management of Intangible Assets has been provided by the UK Government's Department of Trade and Industry (DTI). Within an overall contribution of £500,000, the aim is to fund several projects at the £100,000 level, as well as a small number of more theoretically-oriented projects at £40-50,000. However, the DTI is keen to have business involvement, particularly in the larger projects, and the precise allocation of funding will depend on the co-funding which applicants are able to obtain.

Proposals at both levels will be considered initially as outline applications. The deadline for submission of outline applications is 15th May. Those applications selected for submission of full proposals will be announced by 28th June. Full proposals will be submitted by 20th September. It is intended that decisions on the projects in the £40-100,000 category will be communicated by December

2002, with decisions for the larger range of projects being communicated by March 2003.

Key dates

2002

Mid – May	Outline proposals close
Mid – June	Commissioning panel meets
End of June	Applicants advised
Mid-September	Full applications close
Mid-December	Decisions advised on £50-100,000 projects

2003

March	Decisions advised on £250,000 - £400,000 projects
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10. Guidelines to applicants

The topics outlined above may be addressed through a number of different disciplinary and methodological approaches. Proposals will be particularly welcome, however, from applicants who are able to demonstrate a track record in research which addresses the interface between theory and practice, and which has involved the active engagement of user groups. The relative commitment of business and other groups to the proposed research is an important selection criterion, and may be demonstrated in a variety of ways, including co-funding (in cash or kind) and other forms of support. Proposals should also demonstrate an ability to develop interdisciplinarity in their approach which is appropriate to the breadth and scale of the topic being researched. Applicants may wish to address these issues in a covering letter for their proposal.

The outline application form (ORP v 1.6) for electronic submission may be found on the ESRC website at <http://eforms.esrc.ac.uk> . Please also see the revised ESRC Research Funding Guidelines.

11. Further Enquiries

Requests for clarification on the substance of the programme, or on guidelines for applicants, may be addressed to the Programme Director, Professor Harry Scarbrough who may be contacted (until end March 2002) at hs28@le.ac.uk. Enquiries relating to ESRC research funding rules and application procedures should be addressed to Veronica Littlewood, Management, Psychology and Linguistics Research Support Team, ESRC, [Veronica.Littlewood@esrc.ac.uk], tel. 01793 413025.

Further details of the requirements associated with participation in ESRC research programmes are given in the document annexed to this, entitled *Participation in ESRC research programmes: Notes for Applicants*.

ANNEX : PARTICIPATION IN ESRC RESEARCH PROGRAMMES: NOTES FOR APPLICANTS

The ESRC's Research Priorities Board supports co-ordinated networks of research projects at geographically distributed sites. Research programmes are, except in exceptional circumstances, multidisciplinary in nature and capable of producing, through the co-ordinated network, added value over and above the sum of outputs from individual projects. Some programmes are explicitly aimed at building research capacity in certain areas, while all are expected to be centrally relevant to the concerns and priorities of prospective users of the research output. Programmes are managed, on behalf of the Research Priorities Board, by a Programme Director and Advisory Committee.

This mode of funding allows the Council to address topics of strategic national importance by recruiting social scientific expertise wherever it is located. In addition, it enables researchers to participate in larger scale social science than they might otherwise.

While there are clear benefits to be derived from participation in research programmes, applicants should also be aware that there will be certain requirements in terms of their participation in programme-wide activities. These responsibilities are outlined below:

(i) Co-ordination of the Programme

The Programme Director will be responsible for organising a range of activities to ensure effective communication between projects and the dissemination of research findings. All project holders will be expected to co-operate fully in these activities.

(ii) Programme Workshops and Seminars

As part of the programme networking activity, the Programme Director may organise workshops to facilitate the exchange of information and collaboration between projects. All award holders will be expected to contribute to these activities; normally workshops will be held once or twice a year.

(iii) Communication

Project holders will be expected to actively seek to engage in dialogue with potential users of their research. All award holders will be expected to cooperate with the Programme Director in programme communication activities such as meetings/seminars with non-academic research audiences.

(iv) Reporting

As part of his role in monitoring the progress of the Research Programme, the Director will, from time to time, require updates from award holders in relation to their own progress. In addition, award holders will submit an annual progress report to the Programme Advisory Committee. The Director will submit an annual report to the Committee and to the Research Priorities Board.

(v) Dissemination

In addition to the usual requirements regarding the active and effective communication of research results, award holders will be required to contribute to the Director's overall strategy for the dissemination of the programme as a whole. This might include contributions to publications and presentations of the supported research.

(vi) Acknowledgement

All publications arising from work supported by the Programme will be expected to acknowledge this involvement. An appropriate form of words will be agreed.

(vii) Publicity

A copy of all publications (including press releases and press cuttings) should be sent to the Director.

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