
Business School-Industry Cooperation: Lessons from Case Studies in the Automotive Industry

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Abstract

There is evidence to suggest that firms wish to work with universities to gain access to new technologies, to knowledge of future technologies and their possible impact and to technical problem-solving capability. There is much less evidence to support the proposition that firms work with business schools to solve organizational and business problems in relation to innovation. Even though innovation is not largely driven by technology developments but rather innovations in business models and new processes. The barriers identified include those concerning management and leadership.

Following an overview of relevant literature, the research here reported is the outcome of investigations carried out by a network of academics and practitioners from the automotive industry. Through the examination of a number of case studies of joint efforts, a model for cooperation is developed. Critical success factors for sustainable networks, relating to the different modes of collaboration, are put forward.

Finally, areas for further research are identified.

Keywords: Business-school; universities; cooperation; knowledge transfer; automotive industry; case studies; key success factors.

Introduction

In economies where research-based innovation is seen to be a crucial element of competitiveness, the issue of university-industry collaboration has been raised by many scholars, industry analysts and policy makers. Since the 1990s, policies to facilitate knowledge transfer from universities to companies have been implemented in many countries covering areas such as legal frameworks, the creation of specialist technology transfer offices, the creation of collaborative R&D and the transfer and mobility of personnel (Fontana et al., 2004). Gustavs and Clegg (2005) suggest that for universities, hard pressed financially, partnerships with industry represent a strategy for developing new markets but also are a means for gaining government approval and continued financial support. For organisations, they suggest that partnerships can assist in codifying their employees' tacit knowledge and hence making it more widely available for the organisation's benefit.

Unfortunately the abundant literature in economics and management sciences¹ is mostly focused on the issue of technology transfer between the academic and the corporate worlds. Particularly, the literature examines the search by the business community for a contribution to the innovation process of basic and applied research and development (R&D) carried out by universities and public laboratories. Despite the recognised benefits to be derived from linkages, empirical evidence of their actual contribution is limited (Cyert and Goodman, 1997) and findings inconsistent (George et al., 2001).

¹ All articles and reports quoted in this paper do have useful lists of references. Readers are referred to a review of university-industry knowledge transfers by Agrawal (2001). This is an extensive literature review of academic inputs.

Such collaboration, however, is obviously not limited to commissioned research: it is developing on a continuum from knowledge transfer such as education and training up to basic knowledge generation through research.

The diversity of the objectives and structures of business-university alliances is seen as problematic for researchers seeking an understanding of the processes and trying to put forward generalisations.

This paper restricts its scope to the following questions: how could long-term sustainable relationships between business schools and enterprises be created and developed to their mutual benefit? What lessons can be learnt from case studies of current practices? What are the critical success factors to build sustainable collaborative activities?²

The study of university-business relationships is based on an analysis of five case studies. Four cases were selected as representing successful practice in relationships as in each case they had been in existence for some considerable time and had secured major resource investment from the parties involved. The fifth case is based on the unsuccessful development of a corporate university. The cases demonstrated different approaches to building university-business relations. The four cases were initially presented by a representative of the academic institution leading the work. The fifth case was presented by a senior executive responsible for the project but also holding a part-time faculty post. Following internal review, all cases were then subject to cross examination by members of the project team and invited guests in

² The paper is based on a project carried out between 2001 and 2004 by a consortium of European vehicle manufacturers and business schools entitled ELAN2 (European Learning Automobile Network) funded under the European Leonardo da Vinci programme. The core partners for ELAN2 were DaimlerChrysler, Ford, Volkswagen Coaching, Volvo, RWE Thames Water, TRW, ACES-Lyon, Henley Management College, Nijmegen, Skovde, Wende Consulting.

order to identify learning points of general relevance. The summaries presented here reflect that analysis. The write-up of these meetings was agreed by those making the initial presentation.

1. University-Business collaboration – prior research

1.1 Technology transfer

As already stated, whilst the literature is extensive, most of it is, de facto, dealing with issues associated with business-university collaboration on R&D and innovation, particularly from policy makers seeking to explain, justify and regulate the interactions between firms and universities. As pointed out by Chakrabarti & Santoro (2004), the literature is primarily focused on a resource-based view of benefits that indeed tells us only part of the story, e.g.:

- Technology transfer: content, mechanisms, organization, experiences, funding, etc. (Claridge, 2004).
- Forms and types of collaboration: cooperative research centres (Adams, Chiang, Starkey, 2001), partnerships, incubators,
- Benefits of collaboration: impacts, barriers and success factors, innovativeness (Fontana, Geuna, Matt, 2003), clusters and geographical agglomeration advantages (Caniëls & Romijn³, 2001; Martin & Sunley², 2001), reputational effects (George et al., 2002), reduced R&D costs (George et al., 2002), reduced risk for SMEs in New Product Development (Klink et al., 2001).
- Costs of collaboration: administrative, specific managerial competence (George et al., 2002).

³ The authors present an interesting literature review.

At a theoretical level, the literature has obvious weaknesses. The main contributions come from:

- The economics of technological change and innovation, in particular its “geographical” approach dealing with *communities of practices, clusters, agglomeration* and science policy oriented studies looking at *systems of innovation*;
- Industrial organization and managerial economics, analysing relationships amongst economic organizations (or actors/agents), in particular researchers working on *networks, learning and trust*.

Whilst much research has been aimed at understanding the nature of the business environment and its impact on innovation within business enterprises, some researchers have focused on the processes of relationship building between firms and universities or other knowledge intensive organisations. However, it is recognised that the relationship between university and industry is a ‘complex and heterogeneous phenomenon’ (Fontana et al., 2003) and also that such collaborations are ‘messy, complex and interconnected... social systems’ (Bradley et al., 2004).

Dodgson published an important paper on trust in collaborative research in 1993. Dodgson (1993) pointed out that successful collaboration requires a high level of inter-personal trust between scientists, engineers and managers in the different partner organisations. In particular, he stressed the key role of communities of interest, openness to external inputs, and inter-personal relations.

Chakrabarti & Santoro (2004) also emphasized the role of social capital based on trust, socialisation and member interaction within the university-industry relationship to make possible and efficient the sharing and exchange of knowledge as well as the learning capability. Laursen and Salter (2004) advocated that openness is a key success factor in innovation performance support. Ahuja (2000) pinpointed that firms embedded into collaboration networks are likely to have better innovation performance.

Cohen, Nelson & Walsh (2002) made an important contribution by analysing the links and impacts of public research on industrial R&D. The authors analysed in particular the various channels of knowledge transfer. They reported that publications and reports are by far the dominant channel, followed by informal information exchange, conferences and consulting. According to their survey, licensing and personal exchange are the least important. It is highly significant that non-market related “open science” looks much more efficient than private money-based exchanges.

The bulk of literature focuses very much on the strengths and weaknesses in scientific and technological R&D collaboration but largely neglects organisational and managerial challenges and the potential for cooperation with business and management schools and colleges.

However, the following managerial and organizational issues have been dealt with by researchers:

- Strategic alignment of technical and business goals (Johnson & Johnston, 2001)

- University spin-off firms within science parks acting as organizational incubators that provide a catalyst to transform pure research into production (Kitagawa, 2004; Löfsten & Lindelöf, 2001; Thorburn, 2000);
- Clusters and poles: a fair amount of literature is dealing with such geographical concentrations of competencies. Carrie (1999) sees integrated clusters as a key organizational approach for increasing the capability to be agile. Siegel et al. (2003) point out the need for firms to be proactive and the need for co-operative effort on all sides;
- Entrepreneurship: Hughes (2003);
- The impact of public research on the organisation's overall innovation process (Fontana et al., 2004);
- Intellectual property rights: they are to be analysed with different angles in particular economic, financial and legal (Hernes & Martin, 2000; Newberg & Dunn, 2002);
- A strategic perspective on the part of universities (Siegel et al., 2003);
- New knowledge acquisition;
- Pricing: overhead charging in collaborative R&D (Cameron & Wallace, 2003).
- Quality control, co-ordination time, shared credit and communication issues (Jano, 1996);

- The reconciliation of multiple agendas (Slaughter, 1990);
- Incompatibilities between cultures such as an emphasis on secrecy vs. free dissemination of knowledge (Bower, 1992);
- The firm's absorptive capacity and the role of learning. a weakness in prior research is the lack of insight into learning as a result of alliance membership (George et al., 2001).

Differences are reported in the approaches adopted by large and small firms and by different sectors. Large companies emphasise the recruitment of new graduates, informal contacts and contract research (Arundel and Genna, 2004); low-tech sectors favour formal collaboration more than high-tech sectors.

George et al. (2001) identify the absence of a unifying framework clarifying antecedents and consequences of university-business alliances.

1.2 The forms of cooperation

From a survey carried out in 2000, Schartinger, Schibany & Gassler (2001) found the forms of interactions between universities and innovative firms shown in Table 2:

Table 2. Interactions as recognized by universities and innovative firms

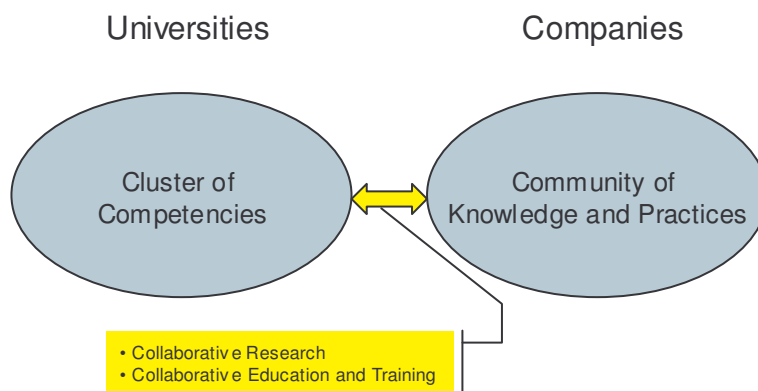
	Universities	Innovative Firms
Employment of graduates		⊗⊗⊗⊗
Supervision & financing of PhDs and Masters theses	⊗⊗⊗	⊗⊗⊗⊗
Lectures by firm members at universities	⊗⊗⊗	
Contract research	⊗⊗⊗	⊗⊗⊗
Joint research	⊗⊗⊗	⊗⊗
International research networks		⊗⊗⊗
Employment of university researchers in the business sector	⊗⊗⊗	⊗
Joint publications	⊗⊗	
Training of firm members	⊗⊗	
Spin-off formations of new firms	⊗	
Temporary movement of university members to the business sector	⊗	
Licence agreements		⊗

>40%: ⊗⊗⊗⊗; 30-40%: ⊗⊗⊗; 20-30%: ⊗⊗; <20%: ⊗. Source: Schartinger, Schibany & Gassler (2001)
 Source: Schartinger, Schibany & Gassler (2001).

There are forms that provide existing knowledge transfer such as through education and training and the generation of new knowledge, in particular through contract and joint research illustrated in Figure 1.

Fig. 1

Bridging Two Worlds and Cultures



Need for:

- Building up extensive networks towards multi-lateral cooperation
- Implementing explicit and formalized management of the relationships

According to Burgoyne and James (2003), scholars suggest two types of cooperation in research or knowledge production:

1. “Mode 1” research equates to pure research or research developed in a separate context from that in which the problem or issue stimulating the research originates.

2. “Mode 2” research originated with Gibbons et al. (1994) and was brought to prominence for management researchers by Tranfield and Starkey (1998) and Starkey and Madan (2000). This type of research is developed by joint efforts between the various actors in the context of its application, solving a “live” problem for those for whom the research is produced.

Elaborating on mode 2 knowledge production, van Aken (2001A) points out that it could be applied in the field of management⁴ in order to increase the relevance of its products outside academia due to intensive interaction with application and “scientific” methods used in managerial problem-solving such as multiple case studies, action research towards tested and grounded rules. Such an instrumental use provides the external relevance (van Aken, 2001B)⁵.

Mode 1 and mode 2 research could be characterized as shown in Table 3.

Tranfield and Denyer (2004) build on such arguments and pinpoint that producing knowledge “in the context of application” should constitute a new and critical mission for management research in the 21st Century.

⁴ Van Aken (2001) describes mode 1 research in the field of management as description driven and is problem-focused rather than solution-focused.

⁵ This second working paper by van Aken (2001B) provides an interesting discussion about the « scientization » of management research.

Table 3. Key Characteristics of Mode 1 and Mode 2 Knowledge Production

Key Characteristics	Mode 1	Mode 2
Context governed by	Academic community	Application
Discipline	Single	Transdisciplinary
Nature	Homogeneity	Heterogeneity
Organisation	Hierarchical	Heterarchical
Quality control	Less socially accountable	More socially accountable reflexive
Preferred research style	Single researcher	Collaborative research from different disciplines

Source: McLaughlin & Thorpe (2000).

According to Kelemen and Bansal (2002), the stylistic differences between Mode 1 and Mode 2 research are shown in Table 4.

Table 4. The stylistic differences between research targeted to academics and to practitioners

	Academic	Practitioner
Orientation of research	descriptive/predictive	descriptive/prescriptive
Focus of research	process	outcome
Attitude	reflexive	projective
Data collection/analysis	thorough	ad hoc, ambiguous
Data aggregation	high	low
Referential system	theory	practice
Rhetorical devices	narrow and institutionalized	wide and eclectic
Criteria of goodness	methods rigour	practical appeal

Kelemen and Bansal propose the dimensions of Mode 1 and Mode 2 shown in Table 5.

Table 5. Dimensions of Mode 1 and Mode 2 research

	Mode 1	Mode 2
Context	Cognitive	Social and Economic
Research boundaries	Disciplinary	Transdisciplinary
Aim of inquiry	Theoretical replicability	Gaining insights useful to industry, government, society
Stakeholders	Academics	Networks of academics and practitioners.
Research ideology	Elitist	Pluralist
Outcome	Basic research and applied research	Applied research
Type of knowledge	Codified	Tacit and codified
Theoretical development	Linear	Incremental
Knowledge growth	Homogenous	Heterogeneous
Chronology	Consumption subsequent to production	Simultaneous production and consumption
Knowledge dissemination	Institutionalized disciplinary channels	Embedded in the practical context
Methods	Bound by discipline	Negotiated within the specific context
Type of reflexivity	Method reflection	Socially and contextually bound
Criteria of goodness	Excellence defined by disciplinary peers	Social accountability

In an important article, Huff and Huff suggested to distinguish a Mode 3 research that would capture the human inputs to organizational activities or their human consequences.

Business executives are under increasing pressure to compress development times for innovation to secure future business. On the surface, Mode 2 research appears to give greater prospect of meeting their needs than Mode 1 with its long gestation period and detachment from the processes under investigation.

1.3 Cooperating with business schools

The literature dealing explicitly with the relationships of industry with business schools is indeed very limited. One of the key articles by Watling, Prince and Beaver (2003) emphasizes the changing dynamics of business education rather than the various potential facets of cooperation. The authors rely heavily on a report by the European Foundation for Management Development (EFMD, 2002) on the corporate university challenge. The major trends supporting an increase in collaboration are:

- Increasing awareness by corporations of the importance of their employees and of their development;
- Search for more flexible and individualized approaches to developing managers;
- Developing less structured and more context specific training and development interventions;
- Setting up stronger links to competence frameworks;

- Moving from open to “in-company” externally accredited programmes.

Such trends are seen as pushing towards developing corporate universities, increasing the use of new technology, increasing outsourcing of major HR functions and changing buyer-supplier relationships for true intensified and diversified partnerships between businesses and business schools. However, a more critical perspective is presented by Gustavs and Clegg (2005) who question the benefits to stakeholders concluding from a close study of one case that ‘impression management is the major part of the knowledge game’.

1.4 The content of the cooperation

1. Knowledge transfer through education and training

It is quite obvious that industry needs the competence of universities to get access to appropriately educated and trained staff through degree awarding programmes or professional training.

Many authors deal with cooperation in higher education, e.g. for general undergraduate programmes and dedicated undergraduate programmes (Muskett, 1996), general MBAs: (Edwards, Loveys, Wareing, 1993) and dedicated MBAs (Birchall & Chanaron, 2004).

According to the EFMD Executive Education Meeting hosted by the University of Stellenbosch Business School on October 12-15, 2003 (Slater, 2003), the best partnerships in executive education are those which are set up to meet a particular need, which are therefore sponsored and co-organized with a designated institution. Needs-based partnerships are seen as the most efficient. As pointed out by Betts and Santoro (2003), four variables are

determining the success of the learning and technology outcomes of the industry-academe cooperation at both initial and continuing levels: trust, intellectual property right policy, communication and champions. Concerning vocational training through collaboration, there are plenty of case studies reported in the academic literature. Another track for collaboration is indeed within corporate universities (Allen & Renaud-Coulon, 2002; Renaud-Coulon, 2002).

Leenamajja (1994) is considering industry-business partnership as the only available way to develop lifelong learning since, on the one hand, it is not the job and the expertise of employers to provide continuous education and on the other academic institutions need access to information about future working needs. In this view, implementing lifelong learning requires new strategies from both academy and the business community through partnerships.

1.5 Access to knowledge through consulting

There is a wide spread debate on the issue of access to up-to-date explicit knowledge through academic institutions. Ankers & Brennan (2002) consider that the managerial relevance of academic research is a topic of enduring interest. The authors point out the inherent divide between theory and practice. Rynes, Bartunek & Daft (2001) also qualify this misfit as the great divide.

Some scholars point out the irrelevance of knowledge produced by business school professors and researchers since many are driven by scientific assessment criteria for their careers (Tapp, 2003) as well as their income (Oviatt & Miller, 1989). Oviatt and Miller (1989) found many reasons for business professors to resist pressure from practical-minded executives to make their research and teaching more applicable to current and future business problems. Rynes,

Bartunek & Daft (2001) note that management researchers rarely turn to practitioners for inspiration in setting their research questions. A complementary weakness of academic institutions and staff is their poor communication skills (Tapp, 2003).

On the other hand, business executives are also suffering from their reluctance to reflect their own practices from theoretical inputs (Tapp, 2003) and their distance from theoretical models (Christensen & Raynor, 2003). Rynes, Bartunek & Daft (2001) point out executives typically do not turn to academic findings in developing management strategies and practices. Christensen & Raynor (2003) advocated very convincingly the absolute need for executives to care about management theory.

Starkey & Madan (2001) suggest the alignment of stakeholders in the future of management research to bridge the relevance gap through changes in the academic mind-set as well as in firms' involvement in the research process, in particular through appropriate collaboration in the knowledge creation and dissemination. Pharr (2001) emphasizes the need for cooperative research efforts between business schools and the private and public sector. As an example, Nambisan & Wilemon (2004) suggest that industry should help define the agenda for technology management education. This places further emphasis on the relevance of Mode 2 research. Such cooperation can combine the more conceptual from the academic with the action-orientation of the executive for the benefit of all parties.

2. Towards an Interpretative Model

A recent report (Bradley et al., 2004) concluded that 'productive business-university collaboration depends critically on an adequate understanding of and differentiation between classes of problems. It also depends on putting in place modes of collaboration that are

appropriate for the class of problem’. They point out that it is naïve to assume ‘a one size fits all solution’. The nature of knowledge transfer (codified vs. new knowledge) seems a determinant of the form of engagement. Also, since the development of relationships is not without cost, the time horizon of the engagement will influence the depth of relationship sought. For both parties, the business-university link is part of a wider and more complex set of relationships – all competing for resources – as illustrated in Figure 5.

2.1 The Model

The following matrix (Figure 2) is proposed inter-relating the time span of the cooperation between university and business with the nature of such relationships as far as knowledge is concerned. Examples of practical actions are proposed in each of the four “boxes”.

Figure 2. A Time-Nature of Knowledge Matrix for University-Business Cooperation

Long Term	Master Courses Personal Development	Mode 1 Research Funded R&D
Short Term	Short Courses Forums & Clubs Licensing Consulting	Mode 2 Research Collaborative R&D
	Transfer of Knowledge	Generation of Knowledge

The acquisition and transfer of knowledge in the short term is oriented to problem-solving and includes short courses, discussion forums and clubs, licensing and consulting. On the longer term, it is aimed more at personal and organisational development. But the production of knowledge is mainly of academic origin. This is, in the main, a one-way learning process.

This one-way transfer is also the case for producing new knowledge with a long-term perspective as illustrated by Mode 1 research.

On the other hand, Mode 2 research tends to be confined in the short-term partnerships for generating new knowledge through a shared learning process as well as shared ownership. It is dedicated to practical application.

Table 6. Key characteristics of the relationships

	Objective	Ownership	Definition
Short term knowledge transfer	Practical application	Provider's ownership	Academic design
Short term knowledge generation	Practical application	Shared ownership	Shared problem
Long term knowledge transfer	Academic oriented	Provider's ownership	Academic design
Long term knowledge generation	Academic oriented	Provider's ownership	Academic design

The characteristics of relationships between business schools and industry are described in Table 6.

2.2 Case studies

2.2.1 The multi-sponsor club – the TIME initiative

TIME, standing for analysing the impact of Technology and Innovation on the Management of Enterprises, is an initiative launched by Grenoble Graduate School of Business – Grenoble Ecole de Management – in 1993. It was initially created for raising sponsorship from local businesses and organizations and managing applied research and consultancy in the management of technology. At first, there were two clubs, one open to large organizations and one to SMEs. Since 2002, the two clubs have been merged.

The interesting point with the TIME model is the search for synergies beneficial to all sponsors. TIME is feeding its sessions with knowledge inherited from its applied research and consultancy activities that indeed rely on experiences and practices of club members. The

knowledge developed in such projects is also integrated into initial education, executive training and coaching activities carried out in different departments within the business school.

TIME is evolving along four parallel lines of action with an increasing extent of cooperation with its business partners:

1. Networking and exchange of ideas, concepts, methods;
2. Applied research;
3. Coaching and strategic marketing for SMEs;
4. Initial education and vocational training.

Key success factors

- The very nature of GGSB as a department of the Grenoble Chamber of Commerce and Industry whose missions are aligned and totally dedicated to local businesses;
- The pre-existing personal relationships and interactions between the school's management and local business representatives;
- The pre-existing demand by large-size corporations with local operations for ideas exchange, knowledge and best practices in the management of new technologies;
- The large variety of topics dealt with during the various club sessions mixing business representatives and academic researchers.

2.2.2 *The tailored Masters programme – The IBM MBA at Henley Management College*

In 1998, IBM chose Henley Management College to design and deliver the IBM MBA programme with two strategic objectives:

- The education of high potential managers;
- The development of the company's leadership in the creation and delivery of e-learning solutions for the management development marketplace.

In order to build up the cooperation, IBM stated two primary aims:

- To deliver a broad based business education relevant to the current business environment;
- To develop virtual, distributed team-working skills within the IBM management body.

IBM was looking for a postgraduate degree – MBA - that would be able to:

- Innovate at the leading-edge of e-learning;
- Deliver a high quality academic teaching experience;
- Operate a large-scale management education programme across a wide geographic area (predominantly Europe and parts of the Middle East).

IBM and HMC agreed to develop “a learning partnership in which both parties provide constructive feedback and support at each evolutionary stage of the programme” (Symons, Rose, 2003).

The programme puts considerable emphasis on the processes of learning as well as an up-to-the-minute curriculum, relationship building using technology and independent and interdependent learning. The learning processes are based on blended learning including networked learning based on team-work. The aim is a “holistic learning experience”.

Key success factors

Key aspects in developing the partnership have been:

- Developing a shared understanding: this has taken considerable time for all parties;
- Single point contact vs. multi point: both are needed for different elements;
- Managing through the cultural differences between a major global organisation and a small business school;
- Ensuring realistic expectations of all parties through open dialogue;
- Joint problem solving: no “hiding” issues but rather early confrontation;
- Maintaining relationships in a dynamic business where staff changes are inevitable.
- Innovation but in what? IBM is particularly interested in technology but Henley’s main emphasis is pedagogic innovation

2.2.3 Knowledge Management Forum

A forum bringing together academic researchers and business practitioners is a useful format to deal with up-to-date information in a fast changing discipline, e.g. an emerging one in the

case of knowledge management. Henley Management College has experience over a five-year period in building a bridge between these two communities with forty multinational corporations or government institutions involved in its Knowledge Management Forum.

The KM Forum initiative is based on “bench learning”, i.e. sharing knowledge and know-how in knowledge management with people who are not at the same level of development in their organisation. In addition to regular forum meetings, sub-groups are formed to investigate specific issues. Research projects involve participants within a working group, two co-champions, i.e. one industry representative, one academic researcher, and based on an interactive research philosophy, a Mode 2 approach

Each year research groups meet and develop new projects. Outcomes of research projects are business papers and white papers (co-authored). This can result in academic papers where theoretical and literature-based information is added. Presentations result to the Forum’s annual conference and to other international academic conferences.

Key success factors

1. The development of a common language of knowledge management between experts and academics not only for dialogue within the Forum but also for practitioners later in each organisation.
2. Coping with the multi-disciplinary context with theoretical inputs from Economics, Organisation Theory, Information Management and Political Science.
3. Reconciling the preference of academic participants for conceptual ideas and business practitioners for real-world applicable ideas.
4. Coping with a changing level of membership that has evolved down the traditional hierarchical lines. In the early stages most participants were chief knowledge officers,

then the Forum was attended by the deputy or the next level down the hierarchy. In 2003, the Forum did welcome two members from each participating organization. It might be time now to open up a two-tier Forum – one with experienced leaders, the other for operational staff.

5. The leading role has clearly been taken by the academic institution. Business organisations were not seen to be in a position to run such initiatives. But there is an obvious requirement for the continuous commitment of a core team built of active representatives of both sides.
6. The quality and commitment of these leaders in building up trust and confidence.
7. There is a heavy dependence upon the personal relationships of a few key individuals.
8. Formalisation of working methods and a clear framework (aims and objectives, methods, tasks, etc.) for cooperation between the two communities – business and academia – are also key conditions for success.
9. Constant refreshing by new members but integration into existing networks needs careful planning; as well as a constant refreshing of themes and topics.
10. Concerted efforts are needed to ensure the delivery of benefits to all parties.

2.2.4 Model research – The Fraunhofer Gesellschaft

It is indeed very common practice throughout Europe (and elsewhere) for universities to seek corporate sponsorship for their research activities. Fraunhofer Gesellschaft is one of the most active institutions in Germany and is an interesting example of a specific industry-university relationship.

Founded in 1949, it has grown to 12,000 staff in 2002 with a research turnover of 1 billion euros. It is running 57 laboratories that are operating as profit centres. 50% of the turnover

comes from government projects and 50% from industrial clients. Projects are sponsored either by one single client or by a consortium of clients.

It is worth pointing out that Fraunhofer Gesellschaft is run as a business-oriented organisation even when dealing with European Union funded research projects. The goal is explicitly to make profit from research activities. Fraunhofer Gesellschaft takes advantage of:

- Accumulated academic knowledge
- Available university staff.

For its industrial partners, since it is operating strictly as a publicly owned consulting company, Fraunhofer Gesellschaft is acting in line with the real needs of its corporate clients in undertaking research assignments.

Key Success factors

- Having a commercial approach to research;
- Having internal access to research expertise;
- Offering a diversified range of capabilities;
- Gaining breadth and depth of knowledge in numerous fields;
- Being responsive to industry needs;

2.2.5 Corporate university

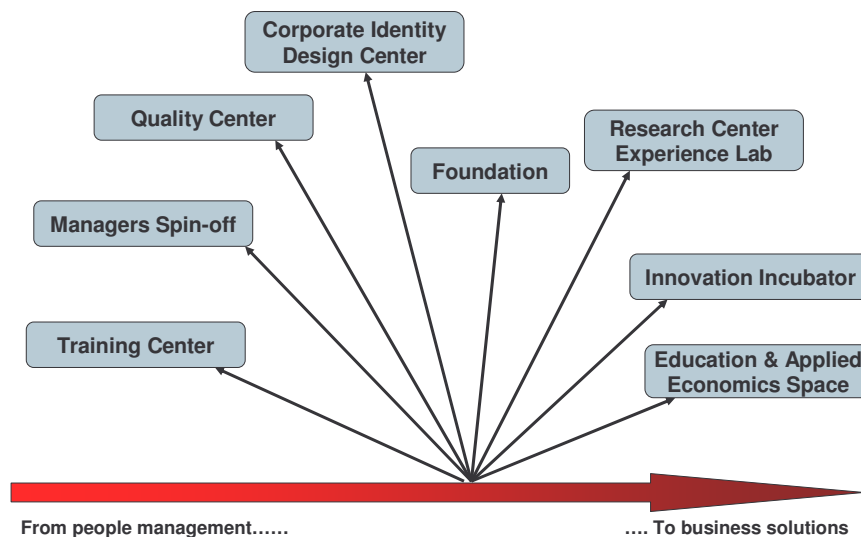
Corporate universities have various forms and objectives. According to Lewandowski (2003), their initial common philosophy was to be a tool for creating a meaning and a structure for corporate culture. Since then, corporate universities have aimed to improve the organization's

performance through resolving transversal issues and problems, seeking to become true knowledge sharing platforms.

There is neither a single model nor a one-best-way. (see Figure 3 for an illustration of the variation). But the corporate university may be seen as offering the opportunity to span the four segments in Figure 2.

Figure 3

Towards a Typology of Corporate University



Source: A. Renaud-Coulon, 2002.

The Mikado Minerals University is an illuminating example of a failed project of an innovative corporate university from which some key lessons can be learnt. Its aims were:

1. To transfer 'knowledge' to customers by providing expertise, competencies, integrated solutions.
2. To raise significantly the competency level of the customer interface in products, processes, customer operations, management and economics.

3. To be able to develop real two-way partnerships with customers by understanding customer key levers and strategies, identifying best ways to assist customers, providing feedback on own business lines (R&D).
4. To develop an internal knowledge sharing management
5. To support innovation by developing the innovation process.

Despite considerable planning, the Mikado Minerals University project was abandoned even before it was launched for the following reasons:

1. Cost in the context of a massive worldwide cost reduction programme;
2. Priority given to a huge e-learning project;
3. Managerial and organizational problems following a mega-merger;
4. Strong bargaining power of technical and departmental training managers;
5. Strong imbalance of power between HR managers and technical product line managers;

Many lessons for a corporate university strategy have been learnt from this project.

Key success factors

Partnerships with universities were seen as crucial key success factors in order to:

1. Use the best possible competencies for internal training.
2. Have enough training resources.

3. Benefit from their audience (e.g. include some of corporate materials to universities).
4. Develop joint programs focused on customers.
5. Develop joint R&D, joint Centres of Demonstration/Development.
6. Open the circle and be more in phase with world changes.

2.3 Case analysis

In this paper we are suggesting a framework for representing possible relationships between firms and business schools. We saw these relationships as enabling technology transfer (technology being defined in a broad sense). We have identified key success factors as seen by the actors. However, we have made no attempt to systematically assess the specific impact of the collaboration.

For the firm, the acquisition of up-to-date knowledge about business is seen as essential in developing management capability. Much of this transfer is of codified knowledge. However, at the other extreme, it may be in the interest of the firm to be involved in the generation of new knowledge in the expectation that its application can impact the firm's competitive position in the long term as well as have side benefits, e.g. reputation, recruitment opportunities.

In accessing codified knowledge, the firm may use business schools for their short course provision. This may be a cost effective way of gaining access for individual managers to acquire new knowledge and skills. The firm may have several preferred suppliers. But in illustrating the nature of a shallower relationship, we used the example of a business school that offers members a series of one-day events.

In establishing a closer relationship with a business school the firm is making a longer term commitment to having a business school provide more comprehensive development programmes. This was illustrated by the IBM MBA, a long-standing programme catering for intakes of 160-180 per annum. Here the firm is expecting more from the business school than would result from individuals being dispersed across many different MBA programmes. The business school is also in a better position to respond to the company's needs. This knowledge transfer essentially involves the acquisition of existing knowledge and its absorption into company operations.

We illustrated the short-term development of new knowledge by describing the Knowledge Management Forum. This Forum adopts a Mode 2 research approach to investigate emerging themes but over a relatively short period, e.g. 6 to 8 months. By researching in partnership, the academic knowledge base can be usefully combined with a practitioner perspective. Additionally, the firms, through their involvement in the process, get early access to the emerging ideas and findings.

Mode 1 research, with its longer term horizon and hence greater commitment from the sponsor, was illustrated by the Fraunhofer case. This is the more traditional approach for firms to commission research. This research, unlike the model 2 case, has clearly specified deliverables (usually relating to technology development and application). It is usually assumed that the research institute has the expertise to deliver without heavy involvement of practitioners from the firm.

In looking again at Figure 1, we can summarise the key success factors. In Figure 4 we can see some clear differences. In Box 4, we can see the focus placed on the business school

having an offering that is attractive to business and contacts with business. The transactions are of a short-term nature.

Figure 4: The key success factors in the different forms of relationship

<p><u>1. Executive Masters</u> Developing shared understanding Clear channels of communication Reconciliation of cultural differences Realistic expectations Openness Coping with staff changes Constant development</p>	<p><u>2. Mode 1 Research</u> Commercial approach of research institute Access to research expertise Range of capabilities Breadth and depth of knowledge Responsiveness to industry needs</p>	
	<p><u>5. Corporate university top management commitment</u> Clear mission aligned to strategy Quality of staff</p>	
	<p>Clear projects and resources Early partnership with academic institution</p>	
<p><u>4. Forum</u> Focus on: Customer needs A business demand Personal relationship between business leader and academics Choice in offerings available to the firm</p>	<p><u>3. Mode 2 Research</u> Development of a common language Reconciling differences of objectives Coping with changing membership Leadership and way of operating Personal relationship Clear ways of working</p>	

In Box 1, where a greater commitment is needed from both parties, development and maintenance of relationships is key as well as a constant emphasis on refreshing the offer.

In Box 3, where new knowledge is sought not in the form of fundamental scientific principles but rather as application knowledge. Developing shared understanding benefits all parties and good working relationships and methods are seen as key to success.

Box 1 involves more fundamental research where access to appropriate capabilities is key.

But this capability has to be focused on the needs of the project.

The final area, Box 5, is the Corporate University. Here the firm is taking the lead, developing a solution to meet its own need for capability building. It can embrace the content of Boxes 1

to 4 but not necessarily. In Figure 3, we highlighted the range of aims embraced within corporate universities from basic training to knowledge creation. But the overall aim is to support the development of the business. The case presented here did not proceed beyond the design phase. However, useful lessons can be learnt. The degree of dependence upon strong business school links, seen as important in this case, is not generally seen as essential. In some instances corporate universities have sought the right to deliver and award their own degrees, something which in many countries is seen as the sole right of academic institutions. But corporate universities could choose to work in partnership with academic institutions.

We can see from this analysis that the key success factors in each box differs depending on the time span for the relationship and the nature of the technology transfer. One would assume that the capabilities needed to sustain operations in each area will vary. Also, the strategies of both business and business schools will vary. Some business schools will aim to secure relationships in different areas, depending on their business model and opportunities. Those schools able to operate in Box 2 are likely to be less subject to competition since the resources are relatively unique. Box 4 contains the areas most easily replicated by competition due to the codification of knowledge and hence opportunities for rapid commoditisation. The costs of moving from Box 1 are likely to be high since the capabilities needed are not readily acquired.

Conclusions

Based on an overview of the literature on business school-firm cooperation, we identified a range of business needs and business schools offerings. Through cooperation, businesses need mainly to recruit talented and properly educated people, to expand their executive training and

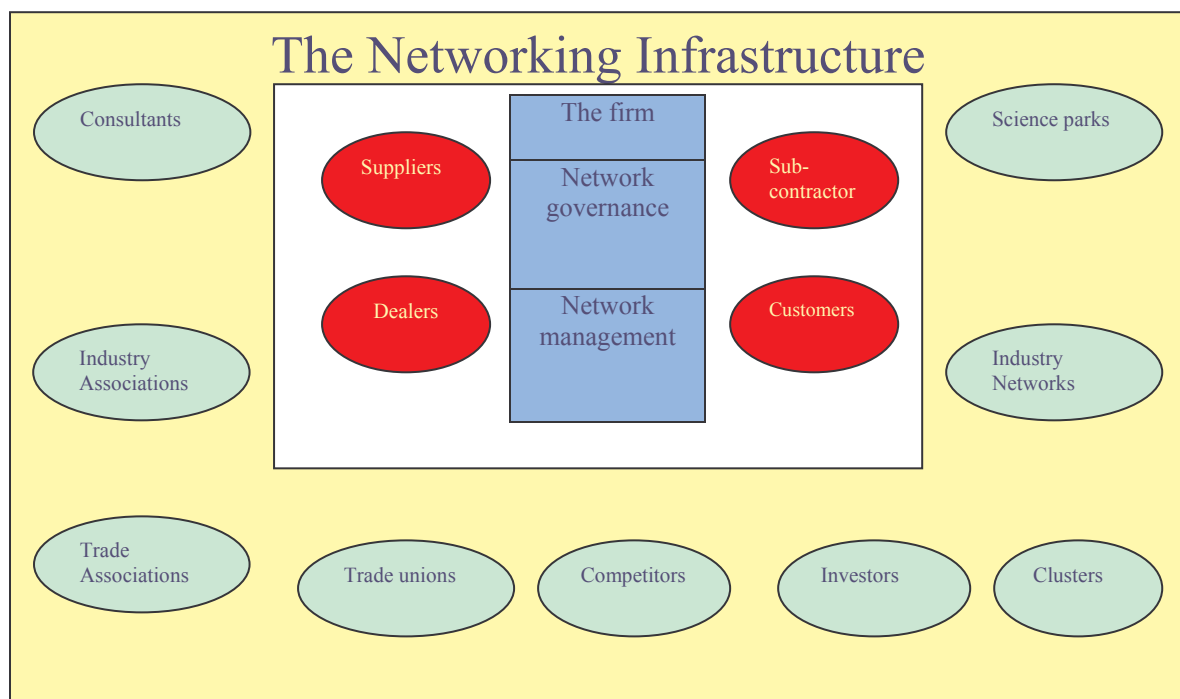
their research capabilities. On the other hand, business schools offer up-to-date knowledge, a range of graduates and post-graduates and research expertise.

In constructing a framework two dimensions were considered – the nature of the knowledge to be transferred and the intended time span of the relationship. There are then four different options: long term or short term knowledge generation, long term or short term knowledge transfer.

The case study findings to a large extent confirm the success factors from the prior literature, but also interesting new case-specific success factors were revealed. This enabled comparisons to be drawn in relation to the framework.

Amongst common key success factors there are: sharing understanding and realistic expectations; solving problems jointly in an open manner; personal commitment of key leaders from both sides; implementing formal structures and processes for cooperation.

Figure 5: The networking infrastructure, adapted from Pittaway et al. (2004)



It is felt that the analysis could prove useful to both firms and business schools in examining their current approaches, their future needs and then determining how they may then need to refocus their efforts in order to improve and expand the cooperation to their mutual benefit.

The paper provides new information about the key success factors in the different forms of cooperation between business schools and enterprises. In order to validate these findings, further research should first of all cover more case studies, including analyses of less successful collaborations. Future studies could also try to assess the impact of these collaborations and, if possible, to develop frameworks for measuring the success of cooperation.

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