

Tri-partnerships in Knowledge Transfer: changing entrepreneurial mindsets.

Christopher J. Brown

c.3.brown@herts.ac.uk

University of Hertfordshire, de Havilland Campus, College Lane, St Albans, Hertfordshire
AL10 9AB, United Kingdom.

Diane Proudlove

d.m.prodlove@herts.ac.uk

University of Hertfordshire, de Havilland Campus, College Lane, St Albans, Hertfordshire
AL10 9AB, United Kingdom.

Abstract

The challenge to the UK's continual drive towards a low-carbon economy is the relatively low take-up by SMEs across the sectors. Over the last twenty years the government has invested considerable resources and time into supporting initiatives and demonstration projects associated with driving SMEs to develop wider and more diverse sustainable market opportunities in this areas. The Higher Educational Institutions (HEIs), universities, have a significant role to play in this, being both the potential source of know-how and technology transfer, and being a relatively unbiased/trusted source of business advice to the business community. Using knowledge transfer is not an effective or efficient way of integrating knowledge, instead knowledge exchange includes the additional activities of understanding and integration both of which involve a cost to industry. Yet, at the back of this is the need to open the business entrepreneurs' mindsets to change, to change as a consequence of reflection-in-action. There is existing research that suggests that entrepreneurs mindsets, and the way they think about opportunities and threats in their environment is largely driven by their ability to adapt, and this is influenced in some small way by their cognition processes. This paper reports on the findings of a longitudinal study into six enterprises involved in Knowledge Transfer Partnerships, exploring the motivations, attitudes and practices of the entrepreneurs, intrapreneurs and academic supervisors engaged in these short- to medium-term projects. The principal outcome was a framework by which entrepreneurs and outside agencies could understand the sensemaking behind business model changes, and so achieve increased value from these knowledge exchange partnerships.

Keywords: Sustainability, Innovation Management, Networking, Learning through practice, Open Innovation

1. Introduction

Small- to Medium-sized Enterprises (SMEs) account for over 99.9% of all UK businesses, in 2005 they generated £1.23 trillion and employed over 13 million workers (DEFRA 2006). Since the very early 90s the UK government has encouraged Small- to Medium-sized Enterprises (SMEs) to take up greener management practices, hoping at the same time that these same enterprises would see the environmental opportunities for new products and services, this presented (BERR 2010). Unfortunately, the overall uptake by SMEs has been very weak, very few enterprises, less than 137, took up the UK governments' Small Company Environmental and Energy Management Assistance Scheme (SCEEMAS) which helped with the implementation of an Environmental Management Scheme, providing a 50% subsidy on all consultancy fees related to the project. Research studies evaluating the limited uptake of 'greening business processes' have suggested two principal reasons:

1. the relatively limited dissemination of learning experiences from either being involved in pilot studies, or attending knowledge transfer workshops/events;
2. the apparent failure of business support services to influence deeper responses from the targeted SMEs.

The problem/challenge is generic across all sectors, it revolves around knowledge exchange between knowledge hubs, those parties who regularly create and develop new knowledge (technologies, know-how and processes), and the enterprises that have significant experience of marketplace needs and wants. Yet, research (Agrawal 2001; Bekkers and Bodas Freitas 2008) on knowledge exchange between universities and enterprises often explores two principal areas of knowledge transfer, academic research through publications and patents; and collaborative and contract research or consultancy. This knowledge transfer is not an effective approach to integrating knowledge (Ensign and Hebert 2009), knowledge exchange involves more sharing, and a joint commitment to the understanding and integration of that knowledge within the business community, and it is this that would normally result in a general improvement of enterprises' business model, leading to improved financial and non-financial performance. This same research discussed the very different needs resulting from the diverse range of sectors, and particularly the characteristics of the entrepreneurs, and innovators, seeking this new knowledge/technology. Yet, these same studies talked about knowledge transfer, supposing that the knowledge/information is only in one direction, little has been actually researched into the needs of Universities in acquiring knowledge from industries/entrepreneurs.

The UK government has created initiatives like the Knowledge Transfer Partnership (KTP), one of Europe's longest and largest running knowledge transfer programmes. This brings together knowledge portals, like Universities, and Enterprises who need knowledge to help drive strategic change. This government driven initiative heralds the potential to enact an important transition for universities, transforming them from mere teaching/research institutions into ones that combine teaching, research and business engagement (Etzkowitz and Leydesdorff 2000), and thus benefit both the public and business community alike. Yet, research focusing on the Top 6 research-intensive universities found that only 18% of the universities engagement with outside enterprise was related to providing work or technical experience, over 50% of the knowledge exchange was associated with university disseminating generic knowledge on the universities facilities or its research outcomes, and not out at the enterprises (University_Of_Cambridge 2003).

This study looks at impact of entrepreneurial mindsets to successful knowledge exchange between knowledge hubs, like universities, and enterprises needing specific technology and knowledge:

- the entrepreneurial mindset business model towards knowledge exchange, is there evidence of change?

Exploring the issues and challenges of knowledge exchange through investigating existing empirical research on these factors, and using case studies to explore both the enablers and barriers to it.

2. KNOWLEDGE EXCHANGE

At the beginning of this research paper, the authors suggested that green processing was a principal driver for SMEs to obtain lower costs and better profit margins, but of course these are not the only benefits from SMEs engaging in the UK's low carbon economy. Equally as important, are the opportunities that arise from enterprises' and consumers' demand for low carbon/sustainable goods and services, representing opportunities to new start-ups and existing enterprises. Not forgetting, the importance of the strengthening and diversification of local/regional economies, this helps build low-carbon infrastructures and overall productive capacity, important ingredients in supporting successful knowledge exchange (BERR 2010).

At the heart of the challenges and issues associated with sustainable development is the drive towards a low-carbon economy, and the impact this has on enterprises' business model. How will these enterprises and business entrepreneurs gain access to important knowledge and technology to support the transition? The future success of SMEs and entrepreneurs to unlock the talent, knowledge and skills held in these knowledge portals, will largely depend on their ability and motivation to engage with them. Research in the public-private science interaction (Cockburn and Henderson 1998) suggested that absorptive capacity of the enterprises was important, but equally so was the encouragement and reward given to staff to actively engage with these public sector knowledge portals. Knowledge portals or knowledge hubs are often a combination of government, sector or knowledge institutes that have the responsibility to facilitate and speed-up the diffusion of innovative knowledge to the business/research community (van Baalen, Bloemhof-Ruwaard et al. 2005). Entrepreneurs, intrapreneurs and innovators have always used outside professional and business networks to gain access to important knowledge and skills essential to their respective roles and responsibilities in driving innovation.

Yet, at the heart of enterprises' search for external knowledge, is the approach they take in identifying appropriate knowledge sources and the depth of knowledge available. This identification of external knowledge sources is linked very closely to previous methods of obtaining knowledge/technology: informal networking with public and private entities, R&D collaboration and specific technology acquisition (Kang and Kang 2009). Knowledge exchange is a critical tool or activity in sustaining an enterprise. Who are these knowledge hubs and what role do they play in creating value in the knowledge exchange activity?

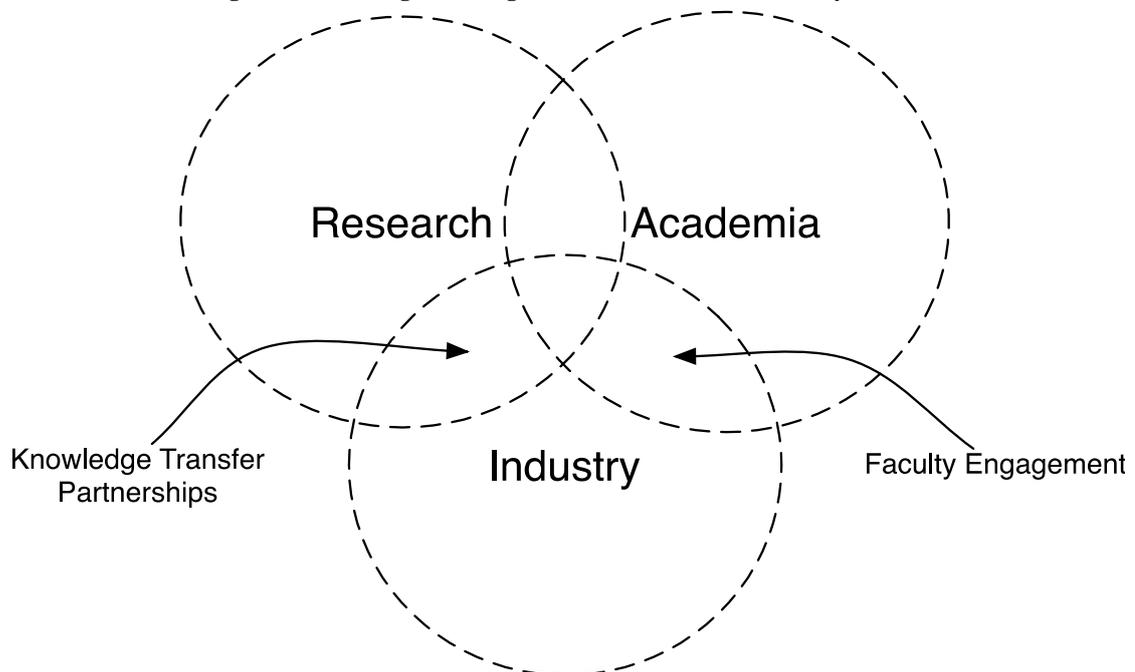
2.1. Knowledge HUBS: their value

Knowledge exchange has depended over the years on specific intermediaries to bring together global scientific knowledge and embryonic technologies and present these to enterprises who can best develop viable product and services. These intermediaries help generate specific scientific know-how and importantly conduct some of the early-stage development of product concepts (Yusuf, 2008).

2.1.1. Role of Universities

Universities are generally perceived to be large public bodies that have a significant hand in the production of human and social capital, which most communities acknowledge as being important for both the functioning and growth of any knowledge-intensive based economy. The main funding body of Higher Educational Institutes (HEIs) in the UK, the Higher Education Funding Council for England (HEFCE) talks about the pivotal role that HEIs play in sharing and transferring knowledge with the business community. HEFCE list the activities associated with this KE to include the commercialisation of new knowledge, and the provision of professional training, consultancy and other services (HEFCE 2009). In 2007-08 the income generated from these activities totalled £2,812 million, up by 6.5% from the previous year.

Figure 1: Knowledge Exchanges Academia/Research/Industry



UK government has not been slow to see the pivotal role that Higher Educational Institutions (HEIs) can and should play in building a 'knowledge-based economy':

- Funding is now available for HEIs from the Higher Education Innovation Fund (HEIF) to support the critical links between learning & teaching, research and business communities (Lockett, Cave et al. 2009);

3. LINKING SENSEMAKING, BUSINESS MODELS AND STRATEGIC ORIENTATION

3.1. Sensemaking

Enterprise research has suggested that individuals, entrepreneurs and intrapreneurs, analyze the action-outcome relationships associated with specific enterprise processes, and then create cognitive maps (Alexander 2004). These individual cognitive maps ascribe specific interpretations to observed collective actions, enterprise events and innovative outcomes, and it is the reinforcement and modification of these that supports, or amends, their future actions. This sensemaking process has some hierarchy, a proposed taxonomy of sensemaking is presented below (Brown 2006), see figure 1.

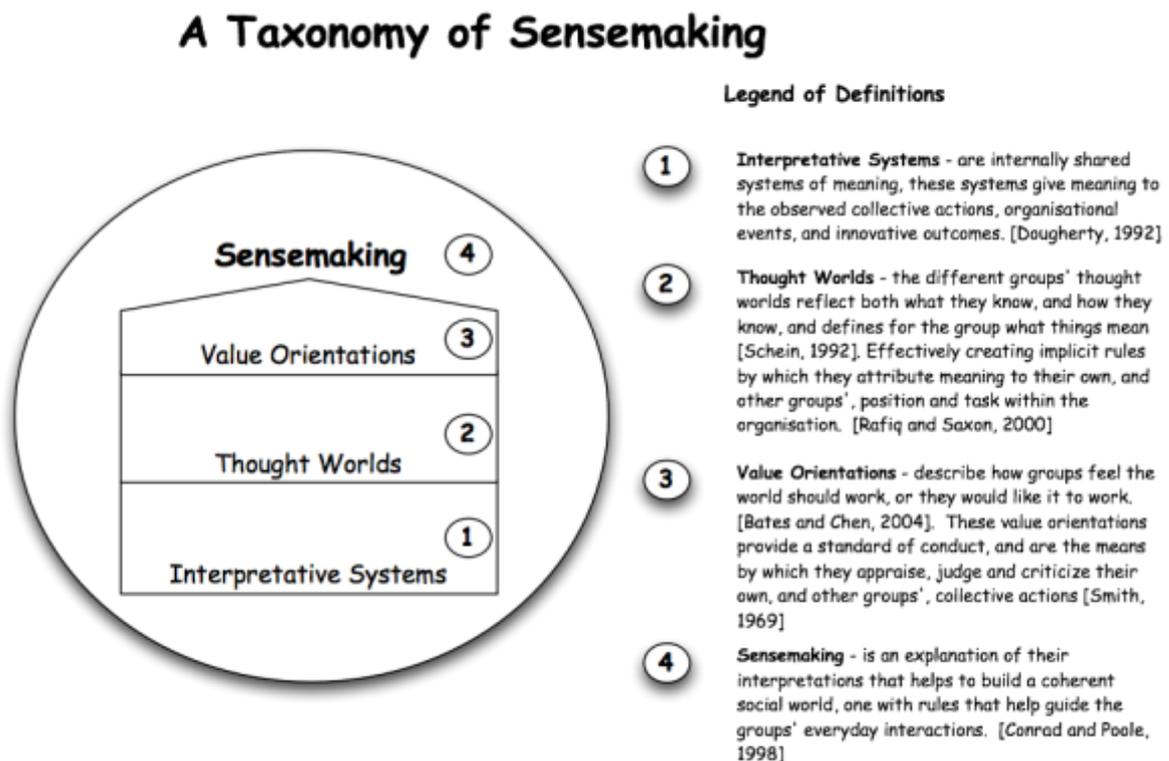


Figure 2. – A Taxonomy of Sensemaking (Source: Brown, 2006)

The entrepreneurs' or intrapreneurs' interpretative systems are their internally shared 'systems of meaning' (Dougherty 1992), and these are used to give meaning to the observed collective actions, their own, and other sub-cultures', organizational events, and innovative outcomes. Dougherty's (1992) research suggested that these individuals organize their thinking and actions around this interpretative schema, and that over time these can create major barriers to relationships and collaboration between the individuals, sub-cultures and collaborative partners.

Overlying this are the entrepreneurs' or intrapreneurs' thought worlds, these reflect both what they know, and how they know, defining unique meanings to the social/business world, based on past experiences, and their professional training. Recent research on business entrepreneurs and their experiences has suggested that beyond a certain level of business experience, type of businesses and functional roles, they exhibit a dip in their ability and propensity to identify opportunities (Ucbasaran, Westhead et al. 2009). It is these entrepreneurs' or intrapreneurs' thought worlds that help attribute meaning to their own, and other sub-cultures', position and task within an enterprise (Rafiq and Saxon 2000), especially associated with any innovative initiative (Brown 2007).

Sensemaking then is a integrative process of communicative sharing of relevant information pertaining to the challenge; interpretative act of directing and shaping of that information; and then

interpreting it (Neill, McKee et al. 2007). Through this sensemaking activity entrepreneurs close the loop of their understanding and interpretation on action/outcomes differences in their business model.

3.2. Entrepreneurial Mindset Business Models

The literature on business models is expansive, yet there is no clear general definition of what a business model or what forms its constituent parts. For the purposes of this study, we focus on three distinctive categories of value creation, the economic, strategic and operational, research into entrepreneurship (Morris, Schindehutte et al. 2005) often cites market, internal capability, competitors strategy, economic and investor factors as making the key elements of an entrepreneurial business model. Therefore business models are: “ a concise representation of how an interrelated set of decision variables in the areas of venture strategy architecture and economics, are addressed to create sustainable competitive advantages in defined markets” (Morris, Schindehutte et al. 2005) .

SMEs main purpose for knowledge exchange is to understand and interpret the needs of their customer base, through the satisfaction of existing needs and the delivery of future wants. This will call for a change to their business model. Any enterprise and the business entrepreneur driving it, has a perception of the means by which that enterprise survives and grows. Research (Giesen, Berman et al. 2007) has shown that this business model includes three important building blocks, linked very closely to strategic, economic and operational factors:

- Industry model** an understanding of how the enterprise creates and maintains its own white spaces, differentiators, in the sectors/industry environment;
- Revenue Model** an understanding of how the enterprise generates revenues, and the careful balancing of pricing strategies against product & services offerings. Rationale for the product & services against the enterprises’ customers experiences, choices and preferences;
- Enterprise model** an understanding of how the enterprise fits within the current or future value chains, and the rationale for the business processes and structure that have been created to service these markets.

The fundamental role of the business model is to help conceptualize how value is created, developed and delivered – and by so doing understand what knowledge is needed to sustain the overall enterprise (Morris, Schindehutte et al. 2005). It is this that entrepreneurs use to qualify the value of any knowledge that is sought or that is derived from entrepreneurs or enterprise members engaging in network activities.

In our research study we explore the entrepreneurial business model, to help understand and interpret its value to the enterprise, and areas of strength and weakness for which knowledge exchange can deliver positive results.

3.3. Entrepreneurial Strategic Orientations

Research in the 70’s suggested that problems in enterprises are most often rooted in past decisions rather than any present marketplace dynamics or events (Miles and Snow 1978; Greiner 1998; Aragon-Sanchez and Sanchez-Marón 2005). Research by Miles and Snow presented a typology that linked strategic orientation to those enterprises’ evaluation of internal and external environmental factors, and that these triggered changes in their strategic orientations – management style, structural, cultural and process orientated. The research suggested that these strategic orientations result from the business entrepreneurs’ and the enterprises’ analysis of internal and external environmental factors (competitiveness, marketplace uncertainty and ambiguity, market orientation, economic growth), and reflect their values, attitudes and practices towards ecologically-driven innovation:

- Defenders** these enterprises often focused on a narrow or limited product market, creating a niche for themselves where they have subsequently developed a leading position. These enterprises fall into a strategy of trying to protect their market share and revenues/profits.;
- Prospectors** these enterprises often start with a single successful product, but then steadily grow their product/service portfolio by their continuous search for new market opportunities by applying their knowledge and know-how to innovate and develop superior customer-valued products and services;

- Analyzers** these enterprises can act both, defensively, or prospectively, depending on their analysis of the environmental challenges and the perceived innovation-resources that would be required;
- Reactors** these enterprises are characterized by perpetual instability and inconsistency in their strategies, predominantly because of their incapacity to respond effectively to environmental changes.

This approach to reflecting on the entrepreneurs' sensemaking and their enterprises' strategic orientation is a very valuable and an example of reflection-in-action (Adams, Turns et al. 2003). We are now ready to explain how we captured our data, and analyzed it.

4. Research Methodology

Our general approach follows the classic grounded theory methodology of using the analysis of the data collected through interviews, observation, workshops and documentation research to generate links between emergent themes and sub-themes (Parker and Roffey 1997). Glaser and Strauss's perspective was that:

“the grounded theory approach is a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area” (Glaser 1992) pp. 16.

The initial analysis involved over thirty Small- to Medium-sized Enterprises (SMEs), we carefully screened these businesses to find atypical problems/challenges that would highlight the broad range of business entrepreneurial mindsets within SMEs facing particular environmental opportunities and threats, and focused on just six SMEs.

4.1. Six SME Case Study

Our final six SMEs have all engaged in six to twenty-fourth month KTP or KEEP projects, and have all subsequently continued to flourish. Table 1, provides some background information about their operations and characteristics, and initial reasons for undertaking a Knowledge Transfer Partnership (KTP).

Table 1. – Six Business Case Studies

Firm Characteristics	Strategy	Management Team/Style	Market Dynamics	Reasons for KTP
Enterprise A <50 employees	Differentiation	Business Owner	Regional Limited Sectors	Diversification
Enterprise B <100 employees	Differentiation	Partnerships (2) Designer/Sales	European Hospitality/Distribution	Improved Effectiveness and New Markets
Enterprise C <50 employees	Cost Leadership	Partnership (2) Trainer/QA	Regional Social Care Training	Improved Effectiveness and New Markets
Enterprise D <100 employees	Market Entry	Partnership (3) Operations/Sales/Designer	International Safety Equipment	New Market Entry
Enterprise E <20 employees	Differentiation	Partnership (2) Scientist/Accountant	European Pharmaceutical	Market- orientation
Enterprise F 150-200 employees	Diversification	Business Manager Leadership PLC	European Retail Technologies	Improved Market Diversification and Product portfolio

5. Analysis and Key Findings

The findings are presented in the form of the six enterprise case studies, extracts are provided of the entrepreneur, intrapreneur, and academic perspectives of the project deliverables. Though in all projects the academic and intrapreneurs values, attitudes and practices and therefore their strategic orientations coincided.

5.1. Enterprise A

This enterprise operates in a fragmented medium-value manufacturing sector, servicing its business client with high quality products.

Table 2. – Enterprise A Entrepreneurial Mindset, Strategic Orientation and Business Model Changes (Started¹ and Finished²)

Perceptions of needed Business Model change	Environmental Factors	Key Business Model Changes	Change in Values, Attitudes and Practices	Expected and Actual Impact (Performance Measure)
Enterprise A Entrepreneur	Sector uncertainty – falling sales ¹	Develop new markets and increase share of existing ¹	Reactive ¹	Previous success based on quality of product delivered – not turning into revenue/profit streams? ¹
	How to engage these new customers ²	Marketing best practice to existing markets ²	Analyzer ²	Slowly changing their value orientations from being process-driven towards being market-oriented ²

At the completion of the project, some fifteen months later, several important outcomes were noted. First, a market development plan was developed, highlighting potential sectors, lists of businesses likely to benefit from the enterprises' services, and strategy to contact and visit them. The BE's strategic orientation had changed from 'Reactive' to 'Analyser', but he was still very reticent to change market sectors or delegate more authority to the intrapreneur, as a consequence he left.

5.2. Enterprise B

The current Managing Director (MD) founded this business with another colleague to provide an output for their creative efforts, both were trained as industrial designers. The enterprise had successfully developed retail sales of its products through some leading-name High Street stores, and had also successfully set up an European sales network of small distributors selling into electrical retail outlets and to property developers.

Table 3. – Enterprise B Entrepreneurial Mindset, Strategic Orientation and Business Model Changes (Started¹ and Finished²)

Perceptions of Needed Business Model change	Identified Current Challenge	Identified Knowledge and technology Needs	Change in Values, Attitudes and Practices	Expected and Actual Impact (Performance Measure)
Enterprise B Entrepreneur	Stagnation in European Sales ¹	Develop new markets and increase share of existing ¹	Defender ¹	Quick solutions to market identification and sales inefficiencies ¹
	Managing the European Sales Network ²	Understanding how to drive sales efficiencies ²	Defender ²	Realization that the European Sales Network was not delivering full

value²

At the completion of the project, some nine months later, several important outcomes were noted. A tactical marketing plan was generated showing the key territories and applications where growth was possible, and suggested communication strategies to drive this. The MDs' strategic orientation had remained unchanged, very unwilling to change his thought worlds on how to drive more revenue/profit from his existing sales channels. Equally, unwilling to provide leadership on the search for new opportunities (market and product). During the project increasing conflict arose between the MD, intrapreneur and the university mentor on the project value deliverables.

5.3. Enterprise C

The Business Entrepreneur (BE) came from the public sector skill training sector, starting a training enterprise, with a close colleague, focused on utilizing government funding opportunities for client enterprises to increase the skills and core competencies of their employees.

Table 4. – Enterprise C Entrepreneurial mindset, Strategic Orientation and Business Model Changes (Started¹ and Finished²)

Perceptions of Needed Business Model change	Identified Current Challenge	Identified Knowledge and technology Needs	Change in Values, Attitudes and Practices	Expected and Actual Impact (Performance Measure)
Enterprise C Entrepreneur	Growth into other sectors ¹	Develop new markets and increase share of existing ¹	Prospective ¹	New market sectors and needs analysis ¹
	Training market uncertainty ²	Increasing the value of training provision – accreditation with Universities ²	Prospective ²	New market sectors and needs ²

At the completion of the project, some six months later, several important outcomes were noted. A tactical marketing plan was generated showing the market needs for training, pricing strategies and communication strategies. The BEs' strategic orientation had remained unchanged, but his mindset had changed, he was more aware of the importance of aligning his enterprise values to the new demands of the emergent sectors. One major challenge was a difficulty in communicating the legitimization of these changes to his business partner. Interestingly, the communications between BE and intrapreneur worsened over the duration of the project, they only communicated with each other via e-mails.

5.4. Enterprise D

The enterprise provides contract manufacturing to high-tech electronic manufacturers who need relatively low-volume manufacture, but high-quality and reliable service. The Managing Director (MD) was also the person who led the Management Buy-Out (MBO) only eight years previous.

Table 5. – Enterprise D Entrepreneurial Mindset, Strategic Orientation and Business Model Changes (Started¹ and Finished²)

Perceptions of Needed Business Model change	Identified Current Challenge	Identified Knowledge and technology Needs	Change in Values, Attitudes and Practices	Expected and Actual Impact (Performance Measure)
Enterprise D Entrepreneur	Concept of Market ¹	Understanding of the market demands and buyer needs ¹	Reactor ¹	Proof of Market and Product Concept ¹
	Concept of Market ²	Product technology evaluation ²	Reactor ²	Some proof of market ²

At the completion of the project, some six months later, several important outcomes were noted. A product trial programme had commenced at two principal sites, a further four were planned around the world. Marketing materials had been generated from the trial data and detailed pricing and systems specifications had been written for purposes of selling and marketing the product. The MD had not

changed his overall uncertainty and riskiness of the project, and therefore was unsure of the business value it could deliver. There was still no firm business model to support the project, and hence the MD was uncommitted to its continued funding. Interestingly, the communications between intrapreneur and MD were good, however, the relationship between the MD and his senior partner became strained.

5.5. Enterprise E

This enterprise was started by a husband and wife team, who gave up their previous salaried positions to start a new business helping companies to get regulatory approval for their products.

Table 6. – Enterprise E Entrepreneurial Mindset, Strategic Orientation and Business Model Changes (Started¹ and Finished²)

Perceptions of Needed Business Model change	Identified Current Challenge	Identified Knowledge and technology Needs	Change in Values, Attitudes and Practices	Expected and Actual Impact (Performance Measure)
Enterprise E Entrepreneur	Market development ¹	Understanding of the market demands and buyer needs ¹	Analyzer ¹	Increase marketing performance ¹
	Market and product development ²	Product gaps and software development ²	Analyzer ²	Increased marketing performance ²

At the completion of the project, some twenty-four months later, several important outcomes were noted. Generally sales leads had increased by over 100%, a comprehensive marketing strategy had been developed and the communications part of it had been implemented, with agreed KPI's. The MD was a very analytically driven entrepreneur, requiring detailed analysis on any proposal suggested, and a clear indication of the performance expected and the tools to measure this. The MD was willing to initiate change but unable to provide clear leadership on how to research and legitimize this change. Openness between entrepreneur and intrapreneur was evident, and this lead to strong mutual understanding, trust and respect for their relative contribution to business model change.

5.6. Enterprise F

This enterprise is a very different type of business having been a family run affair for over fifty years. The enterprise was an important system integrator for the retail sector, bringing together products and services to provide solutions that delivered value for its clients, and their customers. The enterprise was split into three separate business units, run by a dedicated and very sales-oriented Business Manager (BM).

Table 7. – Enterprise F Entrepreneurial Mindset, Strategic Orientation and Business Model Changes (Started¹ and Finished²)

Perceptions of Needed Business Model change	Identified Current Challenge	Identified Knowledge and technology Needs	Change in Values, Attitudes and Practices	Expected and Actual Impact (Performance Measure)
Enterprise F Entrepreneur	Integrated Product/market development strategy ¹	Understanding of the market demands and buyer needs ¹	Prospector ¹	Integrated Marketing and Product Strategy ¹
	Integrated Market and product development ²	Marketplace/Technology Roadmapping ²	Prospector ²	Integrated Marketing and Product Strategy ²

At the completion of the project, some twenty-four months later, several important outcomes were noted. Market and Product strategies were integrated, investment in product technologies and development of core skills and competencies was focused, delivering high improved revenue/profit streams. The MD was a prospective entrepreneur, requiring little analysis of a market/product opportunity to actually commit to it, this remained largely unchanged at the end of the project. The MD was quick to initiate changes in the business model, but was weak at legitimizing these based on

medium/long term benefits, again unchanged by the end of the project. A healthy relationship was developed between the BM and the intrapreneur, but the relationship was too distant, not enough leadership was provided in more critically evaluating opportunities versus costs.

6. Conclusions

This study illustrates the very real difficulties of Knowledge Exchange (KE) with Small- to Medium-Sized Enterprises (SMEs) engaging with Higher Educational Institutions (HEIs) on specific knowledge and technology exchange activities.

6.1. Development of a Business Model Change Framework

An interesting development from the work with all the enterprises involved in either the KTP or KEEP projects was a business model change framework that both helped explain the need for change, and also became a most useful tool in sensemaking the entrepreneurs and intrapreneur mindset regarding both internal and external influencing factors.

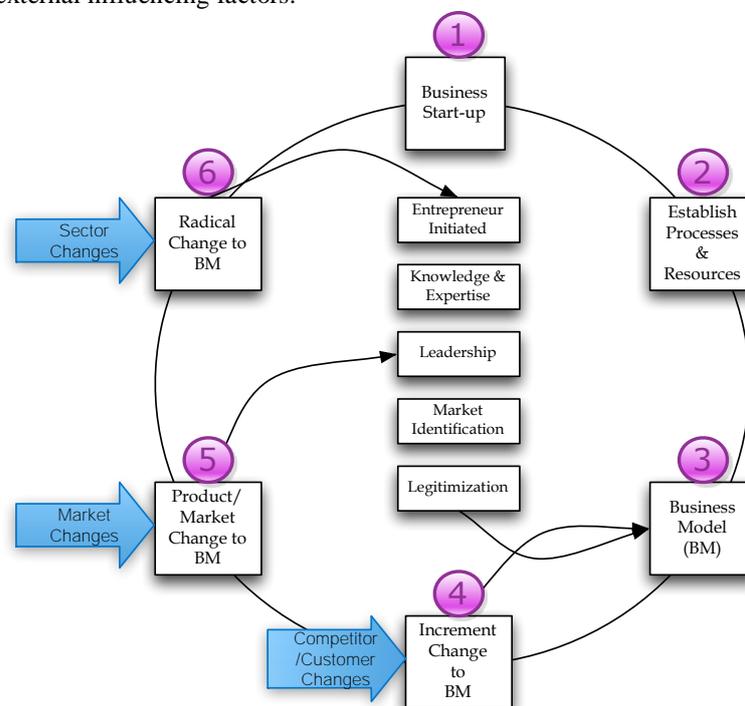


Figure 1: Business Model Change Framework

SMEs will generally start out with a prospector strategy, developing a single product/service, and then steadily growing its market position, securing sustainable revenue/profit streams. Some SMEs will then adopt a more conservative position – either attempting to defend its current marketplace, or others who react to changes in marketplace – sometimes too late. Other SMEs instead take a more active role, some analyzing the marketplace dynamics carefully and changing their strategies, first defensive, and then prospective, carefully weighing up the benefits and costs of any change; prospectors take a more aggressive and proactive stance, continuously searching for new opportunities and ways of challenging the status quo. The business model change framework, above see figure 1, was developed out of the careful analysis of the six case studies, the key components of this model are:

- 1 Business Start-up** the entrepreneur could readily describe what the main premise was for his start-up, what the market was, what he would deliver and how they would make money from it?
- 2 Establish Processes** this helps explain the business processes set up to deliver to the initial mindset business model;
- 3 Business Model** either a strategic plan identifying the principal strategic markets targeted, with detailed information about products and services delivered, and the

- expected revenue and profit streams resulting. In less formal enterprises this is still evident by the sales/marketing forecasts produced for each year;
- 4 Incremental Change** Small changes are often evident in the Business Model as the enterprise reacts to customer/competitor changes, and/or initiates innovations to their products/services;
 - 5 Product/Market Changes** more dramatic changes in the product market stimulates some more dramatic changes to the product strategy, a next generation product line to help re-position the product;
 - 6 Radical Changes** this is where product innovation alone can not address the external environmental threats and/or opportunities, they need a new direct or significant external knowledge/expertise.

The inner circle is something that often happened as a consequence of the KTP initiation, the process was fairly consistent, though the order changed depending on the nature of the challenge/issue:

- Entrepreneur Initiated** ultimately, this was where the enterprise approached the knowledge hub, the university in this case, looking for help and guidance. They initially needed help in the area of problem recognition;
- Knowledge & Expertise** an important part of the project was the identification of relevant knowledge and expertise in the knowledge hub, and matching this to the requirements for the intrapreneur's skills and competencies, and the internal supervisor of the intrapreneur (senior manager);
- Leadership** the critical issue of identifying the key gate-keepers, those managers or individuals who hold sway over the need resources for the project to work;
- Market identification** identifying the important 'white space' for the new products/services originating out of the project, and the projection of sales. All important information relating to the industry & revenue components of the business model;
- Legitimization** this is ultimately how the business entrepreneur perceives the new mindset business model, and how they will legitimize it to their other senior managers and work colleagues. The weighting of the benefits and costs, the likely impact on the existing business model, is sufficient to address the business challenges and sustain the business for the medium- to long-term?

The business change model framework did help all businesses understand the important link between environmental threats and opportunities, their sensemaking of the potential changes needed in their mindset business model, and the practical issues of then implementing changes in their business model – the consequences of this on all aspects of their business processes. Collaboration between enterprises and outside parties is very difficult in most circumstances, with Knowledge Transfer Partnerships, this is especially true. In most research (Wilson, Littler et al. 1995) on collaborative research/projects the difficulties have been put down to individuals diverse backgrounds, values and interests. Yet successful collaboration is largely down to the individuals involved having an investment in the success of the overall partnership. To better understand the challenges and issues likely to affect the success or otherwise of the partnership, the researchers undertook a careful evaluation of the business entrepreneurs' motivations and expectations of the KTP, and its impact on business model. Research findings from these early stages of interviews and general discussions with the business entrepreneurs heading the projects indicated the following:

- They had a clear perspective on how these new environmental opportunities and threats would likely impact on their business model, and hence the reasoning for their engagement with the KTP scheme;
- There was also a clear match between their prospective strategic approach to the challenge and their own unique vision, value and practices;
- Their mindset business model of the likely impact of these opportunities and threats were directed by their own personality traits, experience and overall feasibility and desirability of marketplace change;
- All business entrepreneurs in this study were experiencing high hostility in the marketplace to its products/services, and it was this that ultimately drove them towards engaging in the KTP to acquire valued knowledge and expertise and most importantly their need to seek guidance.

The conclusion to our in-depth study indicates several important resultant themes that emerged as pivotal to the business entrepreneur's mindset business model transition, and hence the overriding value of engaging in the first place with a Knowledge Transfer Partnership (KTP).

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