



# The identification and application of knowledge capital within small firms

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## Abstract

**Purpose** – Research has shown that employers in small businesses may not provide, or fund, off-the-job training for reasons including that they believe that no training was considered necessary in their business. The research reported in this paper aims to focus on a study of software-related companies that form part of an important sector for potential growth.

**Design/methodology/approach** – This article reports findings from a study of 20 software related small- to medium-sized enterprises (SMEs). The overall purpose of the research was to establish a model whereby companies within the cluster could identify the training and development needs of their employees, and also of their management team(s). Interviews were held with owner managers and senior staff, and a training needs analysis was conducted in each organisation.

**Findings** – A number of factors were hindering the development of managerial talent in the sample. These included their small size, a lack of resources and availability of personnel for release to undertake development programmes as well as a shortage of specialist human resource management (HRM) expertise.

**Originality/value** – This research contributes to the growing body of knowledge in the field of strategic human resource development in SMEs. However, the identification, understanding and development of knowledge capital are vital to compete within international markets and the knowledge economy. The approach suggested by the research provides a framework for improvement by identifying requirements for a “toolkit” that meets the needs of organisations and bridges the gap within the existing literature and empirical evidence.

**Keywords** Knowledge economy, Small to medium-sized enterprises, Training needs, Computer software, Scotland

**Paper type** Research paper

## Introduction

The development of a knowledge-driven economy has become a key priority for both local business development agencies and central government as the way forward to sustain economic growth and enhance skills levels across all sectors (Burton-Jones,

The project that this paper is based on has been supported by the European Social Fund: Project Reference: 3S2001/2/4A.1/4; Priority: Priority 4A: Competitive Economy; Measure: 4A.1: Positive Actions for Workforce Training and Learning; Project Title: Training Needs in Software Development. The authors wish to thank participating organisations, the SEEL Team led by Bill Templeman and Scottish Enterprise Grampian.



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1999; Department of Trade and Industry, 1999; Hewitt, 2000). The cluster strategy developed by Scottish Enterprise (SE) (Scottish Enterprise, 1998, 1999) has led to the identification of key sectors where focused effort could lead to increased opportunity and long-term growth. Critical mass is an essential factor in the growth and development of the organisations that can be regarded as a cluster, as reflected in the successful evolution of areas such as Silicon Valley, route 128 and the research triangle in the USA (Cooper and Folta, 2000) and the Silicon Fen (Cambridge) (Segal Quince Wicksteed, 2000) and M4 corridors in the UK. These successes include a blend of large organisations and adaptable, innovative small firms. However, in the current climate, economic growth opportunities in Scotland are recognised as occurring significantly less often within large corporate organisations and rather more frequently within the small- to medium-sized enterprise (SME) sector, where individual owner/managers are demonstrating and utilising entrepreneurship and developing entrepreneurial skills as a long-term strategy for their companies' development. Part of such a strategy must be the long-term personal development both of the owner/manager him/herself and of their staff, many of whom will have come to work in that SME environment with different expectations from those they might hold if they were working in a large concern.

Within what is known as the knowledge economy (see OECD, 1996), at the level of the firm, developing strategies to differentiate the organisation (Amidon, 1997) in the marketplace, creating knowledge in the organisation (Nonaka and Takeuchi, 1995) and utilising human assets (Boisot, 1998) are essential ingredients for success. The utilisation and development of the human capital of the SME is just as important, however, as it is within the large corporate environment of a multinational organisation or a large public body. Burton-Jones (1999) states:

The firm's most valuable knowledge capital tends to reside in the brains of its key workers, and ownership of people went out with the abolition of slavery.

Therefore, there is a need for strategies for developing potential and identifying those in whom a long-term investment should be made, no matter what the size of the business. In the UK, the requirement for changes in the skills base is being recognised (British Chambers of Commerce, 1998), particularly in the handling of knowledge and information (Department of Trade and Industry, 1999) and the ways organisations have to utilise their knowledge base (Senge, 1990; Drucker, 1995; Chase, 1997; Stewart, 1997; HM Government, 1997; Kanter, 1999) in order to compete. For the SMEs within a specific cluster to be effective in their broad business development, investment in good practice human resource management activities and the identification and development of talent are key. This paper describes some recent research undertaken to investigate how a sample of software-related companies are working to identify and develop skill sets and utilise their human resources more effectively as part of a longer term strategy for growth. It highlights some of the issues facing SMEs in determining their human capital requirements, attracting good quality personnel, and developing them in a way that retains such investment for the longer-term growth of the company. Outputs from the research include feedback to participating respondent companies on human resource good practice for the identification and development of their human capital; how to maximise their use of knowledge; and how to consider the design and implementation of a planned programme for owner/managers in order to develop their entrepreneurship skills and abilities. Another output from this phase is an outline for a

toolkit (based on identifying training needs) that will assist the SMEs to focus their energies in order to ensure longer-term survival.

Many observers have commented on the low level of economic growth in Scotland compared with the rest of the UK (Deakins and Freel, 2003), which has led to government concern, north of the border, about how Scotland can create a knowledge driven economy (Scottish Office, 1999) to support the growth required. Government policy has focused on the development of cluster policies (Molina and Kinder, 2001) to foster growth in key identified sectors, namely oil and gas, food and drink, electronics, semiconductors and biotechnology. Scottish Enterprise's (1998) strategy document sets out a number of objectives including the stimulation of enterprise and entrepreneurship and the encouragement of organisations to realise their ambitions and build dominant positions within their global marketplace. At the heart of this strategy the definition of what constitutes a "cluster" is fairly wide and has changed as knowledge and experience have been gathered (Department of Trade and Industry, 2001; Scottish Executive, 2001). Broadly, the term cluster refers to groups of companies in an industrial sector, or in related industries that may have some economic links or may utilise the same types of skills and information in a local geographic area (see Porter, 1985, 1990; Cooper and Folta, 2000). Thus, for example, whilst many companies in the oil and gas industry may be in different industrial sectors, they will supply to and operate within the oil and gas cluster, although they may be geographically dispersed.

The research reported in this paper focuses on a study of software-related companies based principally in the central belt of Scotland and a smaller number from the Grampian area of Scotland, around and including Aberdeen. Such companies are recognised as key players in the development of the knowledge economy in Scotland. Similarly, the acquisition and transfer of knowledge through the marketplace is vitally important in the international arena (Burton-Jones, 1999). The original research was undertaken with financial support from the European Social Fund (ESF) with assistance in kind from both Scottish Enterprise Edinburgh and Lothian (SEEL) and Scottish Enterprise Grampian (SEG), the two local economic development agencies responsible for the study areas. The central belt of Scotland is home to a number of software development organisations, many of which operate within the SEEL network; the location of a number of these SMEs in the science and technology parks is due to proactive policies by the respective business development agencies to support this sector (see [www.scottish-enterprise.com/edinburghandlothian](http://www.scottish-enterprise.com/edinburghandlothian)).

The outcomes of the research are three fold. At a broad national policy level the research provides evidence of support for the strategic aims of Scottish Enterprise, such as economic growth, sustainable development of a competitive economy, and information on how to assist with the development of a flexible labour market. Previous research (including Hollingsworth *et al.*, 1999) has indicated that organisations can expend a great deal of their efforts unproductively and, although expert in software requirements, the entrepreneurs may not be aware of alternative routes to improving their return from their value efforts (Keogh *et al.*, 2000). These findings are borne out by recent research in the SME sector. Futureskills Scotland (2003) suggests that whilst skills shortages in the micro workplaces are uncommon, their impact on these small businesses can be severe. Their recent study found that where employers in small businesses do not provide or fund off-the-job training, the main reasons given for this were that no training was considered necessary in their

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business. Yet companies do not appear to have well-established methodologies for identifying such gaps, nor ways of dealing with them in an innovative and strategic way. Employers in small businesses also identified “soft” skills and advance IT skills as areas of deficiency.

At a more local level in the Edinburgh area, the strategic plan publications from SEEL are supported by the research findings outlined below. Similarly it is expected that SEG will also benefit from such information in their policy development activities. Thirdly, for individual participant companies in the research, feedback is being provided to participants in the sample, to assist them with their future development, in particular in their overall approach to people development, the growth and strengthening of their human capital through more sophisticated methods of managing their human resources, and through the development of a specific university-based training programme for entrepreneurs in the software sector who wish to enhance their skill and knowledge levels to add value to the way they grow their businesses.

Overall within the cluster it is expected that the specific feedback will assist with expanding knowledge about potential improvements in the operation of organisations in that area through such things as improving added value, increasing human resource potential, identifying knowledge capital and applying it within the firm for commercial advantage, and assisting in the identification of knowledge gaps and how these can be filled. In order to build a high performance organisation and encourage participation in cluster activity, companies must be aware of their capability as they interact with each other. The research detailed below represents a first step towards enabling organisations to appreciate their strengths and weaknesses to achieve this.

### **Research rationale**

Traditionally owner/managers of SMES, often the “real” entrepreneurs who can build a business, do not pay a great deal of attention to their own development, in large part because of a perceived lack of time, or inclination to pursue such an investment, when other priorities compete for attention. Small businesses have a distinct pattern of jobs, compared with others in the private sector (Futureskills Scotland, 2003), with a higher proportion of managers and senior officials. Arguably this group requires investment in development just as much as other staff within the business. Where the owner/manager is highly entrepreneurial, the focus of business development is often on technical, financial or marketing based initiatives rather than on people development. Often very small firms do not have the luxury of employing a human resources specialist to help with the identification, design and delivery of development opportunities, nor indeed do they think of locating such activities strategically within company plans. Where this does happen, it has been found that the positive attitude of the owner/manager and his/her understanding of business benefits that might accrue, are the key driving forces (Kerr and McDougall, 1999).

Small businesses are more likely to face problems filling vacancies than other workplaces in the private sector, the reason being not the skills deficiencies of the applicants themselves but rather the overall low number of applicants wishing to work in a small firm environment, which is becoming a matter for concern. Employers need to find ways of making their workplace attractive; one way might be the provision of high quality, interesting development opportunities. Employers in the SME sector are

more likely than those in larger businesses to attribute skills shortages to weaknesses in “soft” core skills such as customer handling skills, oral communication skills and problem solving. The Federation of Small Businesses in Scotland (FSB) confirms such findings and has suggested that improved targeting of skills development within the education sector is one way of addressing these issues (Futureskills Scotland, 2003).

The overall purpose of the research discussed here was, therefore, to establish a model whereby companies within the cluster could identify the development needs of their employees, and also for their management team(s). It was considered that by identifying training and development needs of owner/managers of high technology SMEs, and by exploring related human resource management and development issues within a framework of good practice, data would emerge to inform the design and delivery of an appropriate development programme for a group of such managers. Whilst a number of generic manager development programmes exist, available within the university sector in Scotland and the UK, a particular focus of the proposed programme would be the fostering of entrepreneurial skills alongside the development of management skills.

Within such a programme, as a further output from the research, managers would be made aware of tools for identifying effectively staff development needs and how to take these forward within a planned framework of strategic human resource (HR) planning. In this way HRM development would be positioned in the cluster group as a key element for engendering business growth and enhancing economic viability. Human capital development, for the employees, as well as the senior management, would also be given appropriate emphasis as part of this growth activity.

### **Research methodology**

A total of 20 SMEs from the sector took part in the research and they were identified and targeted, using a random selection, from a database accessed through Scottish Enterprise Edinburgh and Lothian (SEEL). Participation was around the expected level and those respondents who declined the opportunity to participate tended to do so because of pressure of work. A series of semi-structured interviews with company owners/directors was conducted; senior personnel interviewed were all at the chief executive/managing director level, other than in five companies where it was the IT director, two HR managers and two senior managers who provided data to the research team. Interviewees were asked to provide data about company size and location, current activity and market information, and the way in which development needs for staff, and in particular managers, were identified and taken forward.

Of the companies interviewed five were micro firms (< 10 employees), 12 were small (10- < 50 employees), and three were medium -sized (50- < 250 employees). Whilst all were software engineering companies, the services provided to clients ranged from the design of specific software (e.g. for geographical mapping and computational biology), the design and development of e-business solutions (e.g. for recruitment and psychometric profiling), to the provision of software support/IT network support and help with internet and custom built websites.

All interviewees, except three, were male and one managing director was female. Most of the respondent companies had been in business for some time. Four companies had been in business less than two years, ten had been in operation for between two and five years, and six for between six and nine years. Two of the largest companies in

the sample were in that last category; the remaining larger company (79 employees) had been in business for just over two-and-half years.

### Analysis

Respondent companies were asked to provide data on not only the way in which development needs for owner/managers are identified and satisfied currently, and how such decisions impact on planning, but also the context of such planning and delivery of training. In particular, they were asked to demonstrate what plans they had, if any, for the development of entrepreneurial skills for this employee group. This context included their approach to working with a range of quality initiatives to enhance their business opportunity.

Results are shown in Table I. Where companies have achieved the Investors in People national standard, this has been a key driver in terms of taking forward the business, helping with expansion, and putting in place appropriate structures and systems. As one respondent indicated:

It has helped to structure the company for growth. It has also improved communications throughout the company at all levels; staff relations have also improved.

Other benefits perceived to have come from working with these standards included help with training at the planning, implementation and evaluation stages. This included carrying out training needs analysis (TNA) activities.

When questioned about who was responsible for human resource management/training and development activities within respondent companies, a range of managers was found to be working in this area. The majority of respondents indicated that this was done by the most senior manager him/herself. Only those managers who worked in the HRM/HRD area were found to have formal HR qualifications.

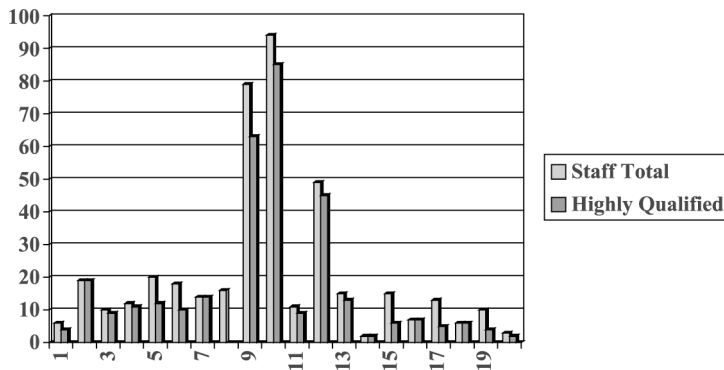
Given the nature of the companies that participated, the researchers expected to see a high proportion of companies employing highly qualified, technical staff. This was found to be the case, as shown in Figure 1. Many respondent companies employed staff of graduate calibre, with most seeking to recruit graduates with additional specialist qualifications, such as project management experience.

In one of the largest companies 75 per cent of staff were graduates. However, degree and/or other academic qualifications were not always seen as necessary; some respondents suggested that the personality, attitude and creativity of the person were as important. One respondent suggested that the belief internally amongst staff was that academic qualifications were not a pre-requisite for success and in one case, were a distinct disadvantage as they inhibited creativity and “came with mindsets”. A number of organisations recruited against a competency framework and/or job descriptions. In the latter case these were written to industry standards. In some cases recruitment agencies were used for initial screening of applicants being placed.

As the specific focus of the research was to examine the development needs of senior and middle managers, respondents were asked to provide information on the way they identified needs for these groups, and how such needs were prioritised and built into business and training plans. Within HRM planning activities, the identification of training and development needs is seen as fundamental to building quality into a business (Bramham, 2000). Whilst such training and development is

**Table I.**  
Quality-related initiatives  
currently undertaken by  
respondent companies

Company	IIP	Comments	EFQM	Comments	ISO9000	Comments	ISO14000	Comments
1.	No		No		No		No	
2.	Yes	June 2001	No		No	Using Framework	No	
3.	Yes	December 2000	No		No	Unlikely	No	
4.	No	Considered	No		No		No	
5.	Doing	Started 2001	No			Planned	No	
6.	Yes	2000 – very quick	No			Considering	No	
7.	Yes	Assessed	No			Considering for technical area	No	
8.	No		No		No		No	
9.	Yes	January 2000	No		Yes	March 2000	No	
10.	Yes	2001	No		Yes	2001	No	
11.	No	Possible	No	Ultimately	No		No	
12.	No	Considering	No		No	Considering	No	
13.	No	Considering	No		No	Considering-have BS7799 internet security standard, shortly to be accredited for ISO1779	No	
14.	Yes	May 2001	No		No		No	
15.	No		No		No		No	
16.	No	Considering	No		No		No	
17.	No		No		No		No	
18.	No	N/A	No	N/A	No	N/A	No	N/A
19.	No	Too expensive	No	Too expensive	No	Too expensive	No	Too expensive
20.	No	Not at present	No		No	Required by some customers but not practicable	No	



**Figure 1.**  
Number of highly educated staff

important for all employees, the definition of the needs for managers is, arguably, of critical importance in terms of the management of the business and its future growth.

Just over half of respondents (11) undertook some form of analysis of training needs of their managers, although some of the methods used were quite informal. Others had established formal performance appraisal systems and used this as the mechanism to talk through requirements and identify needs. Those companies that had achieved Investors in People accreditation were, as might be expected, working with performance review and identification of development needs within this framework. In some cases, companies indicated that the identification of technical skills was carried out to keep up to date with market requirements as much as anything else. The identification of “people” skills in their managers, however, was much less prevalent, although some respondent companies recognised that this was an area requiring attention and development in the future.

Eight respondent companies had a specific training and development budget, but only four of these allocated specific monies for management development. This was generally decided upon on an *ad-hoc* basis; in some cases it was supplemented by funding from the Local Enterprise Company. A certain lack of sophistication was apparent in determining such needs; most companies dealt with this on a very informal basis.

Whilst many respondent companies lacked a specific training and development plan all had a business plan, although very few included in that plan specific goals and targets relating to staff training and development. Similarly, management development requirements were generally not specifically outlined in such a plan. This was recognised as a failing by one respondent: “we miss out on this”. Others suggested that their business plan, whilst not including training and development, did include growth, skill numbers required and job functions. Some respondents talked about their use of a skills matrix to list requirements; others provided very little information about such activities. Those who had worked for large companies, previously, were more inclined to put in systems and processes from the start. Anderson (1993) suggests that understandably small firms are very money conscious with regard to the resourcing of training. The smaller enterprise is more dependent on key employees than the larger organisation; what will be important will be the state of the local rather than national labour market when planning for such training, and the availability of locally based provision.

Six respondent companies had identified and undertaken development for their owner/manager(s). These activities included studying for an MBA (two respondents), a Royal Society of Edinburgh Enterprise Fellowship, and some employment legislation training. Others recognised that this lack of development for this individual, the owner/manger, might become a weakness as the company grew. Where the companies were still quite small, the founder/owner was the key driving force behind business development in terms of decision-making. However, it is often the case, as in some of the sample organisations, that the owner/manager does not place himself/herself in centre stage when HRD needs are being identified and as a result his/her needs are not foremost on the training and development agenda (Blaydon *et al.*, 1999).

Related to this are the issues of entrepreneurship and/or intrapreneurship for the sample. A popular view of the “entrepreneur” is someone who starts, owns and operates a small business (Williams, 1999). What will be important in terms of business development for the participant organisations will be the uniqueness of the idea, and the ability of the founder to take this forward in a commercial capacity. Many people who display entrepreneurial characteristics may in fact choose to work in larger organisations where they will operate as “intrapreneurs”. The development of entrepreneurs as managers will be, arguably, a key element in the ability of the organisation to grow and develop. Many people who demonstrate entrepreneurial flair will have a particular skill set which may differentiate them from more traditional managers. Entrepreneurs, whilst demonstrating creative flair and associated characteristics, will be able to translate their drive, motivation and creativity into action. They will bring about change and make things happen for them and their business. Williams (1999) describes entrepreneurial management as:

- opportunistic: continually searching for new opportunities;
- value-driven: based on personal values and drive;
- value adding: seeking to increase the value of organisational resources;
- risk taking: able to accept some risk in introducing changes; and
- creative: able to innovate and take forward ideas into sustainable development.

The interesting question, therefore, is whether or not such entrepreneurial spirit and activity can be developed through training or whether it is an inherent part of individuals and will naturally evolve. If we take the former view, in developing such individuals a range of development opportunities may need to be made available. This could include the development of managerial skills to enable real business growth to occur.

The predominant personality and style of entrepreneurs and the nature of the IT sector itself may tend to make the entrepreneur less likely to value systems and processes – these would be seen as a nuisance rather than a benefit (*note*: from team experience this also varies due to management style). Yet the IT sector is often providing system solutions. This is an interesting dichotomy, as entrepreneurial IT specialists will expect their organisations to adapt and respond to opportunities. When asked whether they had provided development activities in entrepreneurship, very few indicated that they had. However, eight respondent companies suggested that this would be a useful area to their business, one that would benefit both the individual and the company. Some had used such things as MBA programmes to develop their

managers, and a range of soft management skills programmes, financial planning and coaching, and institute of director programmes as the vehicles for manager development. Others suggested that they were either “too busy” to look at such an issues, or that they were “past that stage”.

A total of 17 respondents suggested that they would support a high level skills development programme were one to be made available through the university. Numbers of staff that might be sent on such a programme are shown in Table II.

Three respondents indicated that they might consider such a programme in the future. When asked to comment on the content of such a programme the majority of respondents indicated that they would look to the university to provide managerial skills training rather than technical development. Technical training sought included programming, Microsoft solutions, and software programming. At this stage in their company growth they saw soft skills as the area in which value could be added to their managerial teams. From knowledge in the research team a list of key options was prepared relating to commonly reported needs of developing SMEs. Respondents were asked for other needs and requirements. The specific types of skills with which they felt they needed help with development, on an external basis, including those shown in Table III.

The other skills sought included implications of growth, time management, HR legislation, team building, software quality improvement, and database management.

Such content would enable participants to add to their existing technical skill base in a way that would enhance both their capability and marketability. This latter issue was recognised amongst respondents as one of the key problems about investing in staff development, yet the arguments for doing so are stronger than those for not. Interestingly, the soft skills identified for development are often now included in mainstream undergraduate programmes, even for technical graduates, yet respondents felt these areas were key for their personal development and were still required, even

Number	1	2	3	4	5	Don't know
Expected number of staff to be sent on programme	3	5	3	3	1	2

**Table II.**  
Possible numbers of staff to be sent on a senior development programme

Type of development need	Number of firms reporting development need	Percentage of firms reporting development need
Communications	15	75
Project management	14	70
Motivation	14	70
Human resource management (including personality/team profiling)	13	65
Marketing and sales promotion	12	60
Strategic planning	12	60
Finance for non-financial managers	11	55
Continuous improvement	5	25
Other	6	30

**Table III.**  
Types of development needs

although many themselves came from a technical discipline. At postgraduate level many Masters programmes also include such soft skills content, even where these courses have a highly technical component. Such is the recognition of the importance of manager development now that university programmes compete side-by-side with more commercial offerings, although the former has the advantage of being able to offer accreditation and therefore arguably more marketability. Whilst a view exists that most of what managers learn about managing does not come from such structured programmes (Dawes *et al.*, 1996), there is still plenty of evidence that university based programmes do provide enhanced learning and development. Indeed the opportunity to meet and mix with colleagues and peers on such programmes will in itself provide greater learning opportunities than just attendance.

Table IV illustrates how certain factors impacted on their choice of training provider. The key consideration for respondents was content over cost, implying that the design of such programmes against identified needs of participants will be critical. This in turn suggests the importance of participants themselves understanding their needs, within the context of both their personal development requirements and those of their employing organisation. It is evident therefore that organisations need an appropriate mechanism to identify such needs, one of the suggested elements of the proposed toolkit.

One respondent indicated that content was irrelevant. When pressed, he suggested that his staff had the necessary skills but they needed a Microsoft certificate to prove this. This was not a view held by others however.

Reputation of the provider was also deemed to be important. As noted above, universities face competition in the market for manager learning and development, but the experience of an institution in both design and delivery of programmes will be a key selling point. The importance of local availability of course was also apparent with nine respondents giving this the highest priority rating.

### Findings and conclusions

The development of a knowledge economy implies that organisations, which constitute part of that economy, must be able to develop appropriate skills amongst their people and deal with knowledge transfer both in and out of their environment. An overriding influence in achieving this will be the calibre of the managerial team and their ability to not only demonstrate entrepreneurial behaviour, but also to inspire and motivate their

Factor	Importance of factor					
	High 1	2	3	4	5	Low 6
Content	14	5*				
Costs	4	6	8	1	1	
Location	4	8	2	3	1	
Time away from work	3	3	5		4	1
Reputation of provider	2	10	6	1		
Customisation of programme	2	4	10	4		
Opportunity to mix with other companies	1	9	5	2	1	1
Follow up opportunities for project work	1	8	5	1	2	
Delivery mode	1	3	4	5	4	

**Table IV.**  
Key influences on choice  
of training provider

employees towards improved capability. Whilst managerial capability is not the only type of talent that companies need to be successful, it is central to the “war for talent” (Michaels *et al.*, 2001). Recently many observers have identified talent as the key to sustainable development for most organisations. Globalisation, deregulation, and technological change are all challenges that cannot be met if organisations lack highly capable managers to tackle such things. A shortage of effective, experienced managers will have a major impact on economic growth whatever the size of the organisation.

Yet it is not just large corporate organisations that seek and require such talent; many SMEs also need this type of capability. In the SME sector in particular the combination of entrepreneurial skill with commercial focus and continued knowledge acquisition and application will be the key drivers of success. The growth of high-tech start ups, a key feature of the 1990s, has attracted many highly qualified and experienced managers into that arena. Indeed, many venture capital companies wishing to invest in such start-ups also make it a prerequisite for the SME to have some demonstrable management team capability in place to take things forward. Arguably, this is a very good reason for the SME to invest in staff and, in particular, managerial development. With regard to training and development, small businesses are far less likely than other larger concerns in the private sector to have funded or arranged off-the-job training. Nor are they likely to get involved in national training programmes. Again, research is needed to be undertaken to identify ways to encourage these concerns to make this type of investment as part of a longer-term business development strategy. HRM and HRD activities are generally more developed and applicable in the larger concern where the management of numbers of employees as much as anything else require specialised knowledge and the application of good practices. The more enlightened SME, however, can be just as effective in the management of its human capital as the large concern, if appropriate attention is paid to the attraction, retention and development of its workforce. Two levels of development are required, at senior management and the lower employee levels, both of which are extremely important in the growth and development of the SME.

Research findings suggested that development needs of senior and middle managers of SME software development companies appear to fall into two broad categories: a need for updating of technical skills, and some development of the skills of managing the business. Government agencies and other commentators have suggested that the development of such key skills is critical to the continued growth of this sector, which in turn is critical to the development of the economy as a whole. To add in some development of entrepreneurship, through a planned programme of study and practical development tasks, is one way of ensuring that business growth is taken forward.

Respondent companies are recruiting highly qualified staff with degree level and above qualifications. In doing so they buy in some initial expertise which can then be developed on-job. Most respondent companies used some form of external training for their senior/middle managers but this was limited to soft skills activities, in most cases. Again this is a good reason for taking forward managerial development in a more focused way.

Where companies were working with the national standard of Investors in People or had achieved accreditation, a framework of good practice had been established by which development needs of managers and others could be identified. This activity

was clearly aligned with performance management activities and the overall business plan. Where other quality initiatives were being used, or considered, these were thought to have been helpful. However, many respondent companies did not consider using such frameworks as they were either perceived to be irrelevant, or too costly. Some convincing of the benefits of such approaches, through their study on a development programme for senior personnel, would be relevant.

A range of personnel were found to be responsible for HR activities, including the identification of development needs. In many cases this work was undertaken by senior managers/directors themselves. A pattern of involvement by such parties is common in the SME sector. Methodologies used were found to be quite informal, although in some cases use was being made of performance appraisal as a development tool for needs analysis, as well as for monitoring overall performance. It was not evident, however, from interviews that any systematic approach was being taken, rather needs were identified on an *ad hoc* basis in many cases. Some of these needs were based on factors such as perceptions of the market place and in what direction the business might need to respond.

What was interesting was the lack of specific allocated funds for management development. This was not to suggest that monies could not be found if required, but rather that such an element had not really been factored into overall training planning. This perceived lack of need is borne out by recent research by Futureskills Scotland (2003). One reason for this might have been the fact the so few respondent companies had specific training and development plans because they did not know how to produce these or use them as a business development tool. Some respondents recognised this lack within their overall business planning activities more generally.

With regard to development for the most senior manager, who often would be the owner of the business, relatively few examples of development for this group were found. Yet it was recognised that this individual was often the driving force behind the business. Too little time was one reason cited for non-involvement in development activities. In designing a programme to be attractive to such a group, it would be necessary to ensure that content, pitch and relevance were considered at the design stage.

Whilst a number of respondent companies had supported managers through MBA programmes, 40 per cent suggested that they would be interested in some programme on entrepreneurship by the university. Given that existing MBA programmes would cover a number of the key management skills identified as requiring development, the emphasis of a new programme on entrepreneurship would have to have a different content and focus, to catch the interest of the target audience. Practical relevance and a programme available locally, with strong content, were identified as the key requirements. Cost, although important, was not seen by respondents as the overriding factor. The opportunity to mix with other, like-minded managers was seen as a key benefit of such a programme, facilitated by the programme requirements to undertake activities such as case studies and perform group work. These are of course models used very widely on existing MBA programmes.

Two conflicting views were given on the issue of the value of this mixing with other delegates however. One view supported the idea, suggesting that potential business might accrue from the contacts. The other view taken was that by mixing with others on a course of this kind, some staff might be "poached", or would, through being

commercially unaware, reveal some company secrets. From the evidence gathered it would appear that a viable programme in entrepreneurship, with a strong management focus, could be developed and marketed by the University in response to identified needs amongst this group of companies.

In terms of a toolkit to be developed to help these SMEs professionals, their approach to managing their human capital and ensure longer-term growth, a number of areas of content were identified from the research. These included:

- strategic HR planning including assessment of labour availability;
- professional recruitment and selection;
- training needs analysis of new and existing personnel;
- performance appraisal;
- pay and reward strategies;
- career planning and development;
- HR policies and procedures; and
- employment legislation.

The development of such a toolkit, written in a simple, readable style, with multiple examples of activities, will be a highly practical outcome of this research. It would also be possible to cover some of these areas through placing a particular HR focus on soft skills development included in any senior management development programme to be run by the university.

In terms of the overall findings from the research, it was very obvious that the companies studied were considering how to grow their managerial talent at both the top of the organisation and at the next level down. However, a number of factors such as lack of resources, availability of personnel for release to undertake development programmes and types of development opportunities available were hindering their progress. Their small size and lack of specialist HRM expertise, in terms of strategic HR planning, talent identification and utilisation in terms of career development, were very obvious. It is only by addressing critical issues such as these that SMEs will reap the full benefits from their knowledge capital and the wider economy will benefit from their increased contribution to knowledge and wealth creation.

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**Further reading**

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