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# Leveraging Professional Intellect in the Virtual Age

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**Abstract-**The paper explores the nature of professional intellect and the requirements for managing it, an area acknowledged as being under-researched. Five case studies in the professional accounting services sector were conducted and the findings were used to identify the structure and evolution towards a knowledge-based accounting practice using Venkatraman's (1995) model of the virtual organisation. The majority of firms, with one exception, were in the first stage of evolution (extension of Business Process Re-engineering) for all three virtual dimensions, competence leverage, work configuration and market experience. The issues confronting professional accounting practices in moving to the stages of recreating the organisation and recreating value were identified as the need to maximise creative forms of professional intellect, making knowledge management a professional discipline and changing current organisational culture.

## I. INTRODUCTION

We are living in a world where old ways of offering products and services are being replaced by radical new ones. It could be said that we are entering a period in which organisation will practise creative destruction by destroying old ways in order to create new ways. Professional service firms, for example, constantly seek new ways in which to leverage their professional intellect. It is not surprising that the emergence of technology-enabled Knowledge Management (KM) has attracted much attention from firms, such as accountants, lawyers, architects and engineers, operating in the professional services sector. Their main assets are intellectual not physical. "Thus, it makes sense that managing those assets effectively is now looked at as a vital aspects of maintaining competitiveness." [1, p. 11]

Intellectual assets exist in various forms and their exploitation is only restricted by the capacity of humans to do so. Reference [2] observed that "The capacity to manage human intellect – and to covert it into useful products and services – is fast becoming the critical executive skill of the age. As a result, there has been a flurry of interest in intellectual capital, creativity, innovation, and the learning organization, but surprisingly little attention has been given to managing professional intellect." (p. 71) In this paper we aim to explore how professional intellect is managed in the professional accounting services sector in the virtual age of

the Internet. In particular, we addressed the following research questions:

- What is the nature of professional accounting intellect?
- How is professional accounting intellect supported by KM in small and medium sized accounting firms?

We conducted the empirical part of the research through a series of case studies that enabled us to propose a model on the structure and evolution of professional intellect in knowledge-based professional accounting services firms. The paper begins by providing an outline of the nature and characteristics of professional accounting intellect.

## II. PROFESSIONAL ACCOUNTING INTELLECT

Professional intellect operates at four levels [2] as follows:

- Cognitive knowledge (know-what). This is the basic mastery of a discipline that professionals achieve through education and training.
- Advanced skills (know-how). This is the ability to apply cognitive knowledge into effective execution in a complex real world.
- Systems understanding (know-why). The deep knowledge of cause-and-effect relationships underlying a discipline, expressed as highly trained intuition.
- Self-motivated creativity (care-why). This is the will, motivation and adaptability for success, enabling renewal of intellect in the face of today's rapid changes.

Accountants rely heavily on their knowledge to make professional judgments, such as when evaluating the financial affairs of their clients during audit assignments. Judgement is a highly complex and cognitive demanding task, the professional having to consider and trade-off a variety of information and criteria through the application of his/her knowledge set. Furthermore, the decision is difficult to evaluate because adequate and immediate outcome feedback does not exist. For example, the correctness of the auditor's opinion on the truthfulness or otherwise of the client's financial statements will only become apparent well after the opinion was issued.

To make these judgements, accountants in the first instance acquire cognitive knowledge (know-what) by undergoing education at university level. To advance their intellect (to reach the know-why stage) they enter into a

period of training in an accounting firm, usually in the form of articles of clerkship, under the supervision of an experienced accountant. As further knowledge is gained, the accountant is given titles (e.g. senior, manager) that reflect levels of expertise and the range of client services they are able to perform. The steady progression up the organisation ladder rewards accountants who have gained advanced levels

of professional intellect that enable them to demonstrate systems understanding (know-why) and self-motivated creativity (care-why). For professionals, the value of intellect increases markedly as one moves up the intellectual scale from cognitive knowledge to self-motivated creativity [2]. Figure 1 shows the various forms of professional intellect on the intellectual scale.

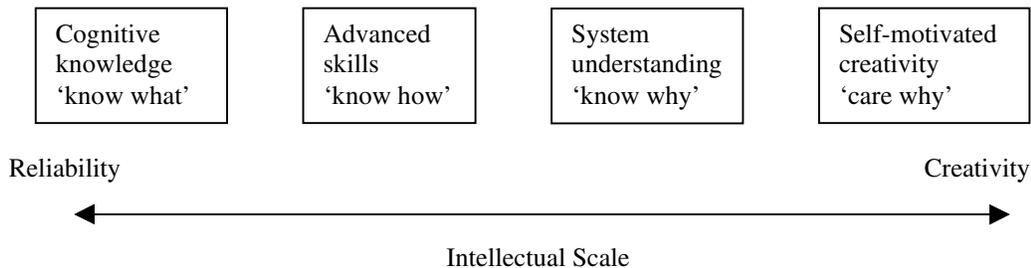


Figure 1: Professional Intellect and Value

Professional intellect can be managed more effectively within the electronic organisation. New forms of technology and systems such as intranets, data warehouses and mining, and knowledge repositories have emerged that ensure that knowledge across and within the organisation is identified, created, stored and shared [3]. The aim is to effectively manage intellectual assets through greater accessibility to accumulated knowledge. Outside the organisation, opportunities are sought to delivering electronic knowledge services to the firm's client base through the use of Internet technologies and to electronically work with other firms with the aim of developing collaborative inter-firm networks.

As stated earlier, professional intellect is of greatest value to the accounting practice when it reaches the care-why stage and creative work takes place. There are, however, a number of characteristics in the accounting services sector that work against the move towards creativity.

- The accounting profession is regarded as conservative since "Most of a typical professional's activity is directed at perfection, not creativity. Customers primarily want professional knowledge delivered reliably and with the most advanced skills available." [2, p. 72].
- Being highly regulated, the danger exists that the profession becomes a discipline-based cocoon, which is inward looking rather than customer focused and resistant to change.
- It is not easy for professionals to adopt a unified strategy because they regard their judgement and the judgement of fellow professionals as sacrosanct. They generally are not prepared to subordinate themselves to others or to support unified organisational goals especially if they are not completely congruous with their own.

There are, on the other hand, characteristics in the accounting services sector that support the move towards greater creativity.

- The profession has in the past demonstrated willingness and capability to undergo changes in reshaping accounting theories, practices and principles in response

to the changing environment and client needs. For example, the sector has adopted and exploited IT to increase the effectiveness and efficiency of its auditing, accounting, taxation, finance, and business service activities.

- The emergence of newer forms of Information and Communications Technologies (ICT) is changing the nature of accounting practices. For example, electronic networks are linking knowledge workers with each other and their clients, thereby enhancing interpersonal communications.
- Most professionals want to work with other highly qualified and experienced professionals. This provides them with obvious advantages such as reaching higher levels of intellect quicker and enhancing their career prospects. Knowledge and intellect grow exponentially when shared.

### III. CASE STUDIES

To establish current approaches to managing professional accounting intellect (we refer to this process as knowledge management) a series of case studies were conducted. These included small and medium sized professional accounting practices that were members of the Institute of Chartered Accountants in New Zealand. The reasons for selecting firms of such sizes was that they constitute by far the largest number of firms in the professional accounting services sector and the emergence of ICT has provided them with opportunities, available previously only to larger firms, to exploit intellectual assets.

The size of the firms ranged from 100 staff/10 partners to 18 staff/2 partners. Each firm was operating autonomously in the city of Christchurch, New Zealand, and all had international affiliations except the smallest of the firms. Being autonomous meant that profits were not shared with affiliated offices; an arrangement that provided them with the

authority to develop their practices, including KM systems, according to local requirements. The research was carried out by interviewing senior members in each of the firms who responsibility for KM systems.

The interviews were structured and sought to establish information on developments in relation to KM. This approach enabled us to obtain an organisational view of how professional intellect was managed. During the interviews information was gathered for the following areas:

- Use of information technology (IT). According to [4] there are eight knowledge-focused IT activities or projects currently attracting most attention, namely Intranet/Internet; data warehouse and mining; knowledge repositories; decision support, expert systems, knowledge-based systems; and groupware to support collaboration
- Organisational structures and cultures. The key organisational structure issue for KM is the change from a hierarchical to a networked structure to provide greater organisational flexibility and creativity. The traditional formal, hierarchical organisational structure is flattened and replaced by a more informal, networked one in which individuals and teams of professionals play key roles.
- Technology-enabled client knowledge services. Firms are seeking to become knowledge providers to their clients and clients aim to seek out knowledge of most use to them. Communications between service provider and clients take the form of a dialogue in which clients take ownership of knowledge and information about themselves and start demanding value in exchange for their custom [5]. To provide effective services, high levels of care-why intellect needs to exist within the provider.

### *A. Case 1*

This firm was the largest of the case studies (100staff/10 partners) and had commenced developments on an international scale of a KM system based on Lotus Notes software coupled with a knowledge repository. The system was not accessible to all offices around the world and was not available to the Christchurch practice. The knowledge repository was being constructed to contain information on jobs completed and experiences gained, people involved and expertise developed, and best practices for particular clients and industries. Staff had access to other databases, such as those available from the 'Gartner Group' for IT assignments.

E-mail was used extensively in the Christchurch practice. However, no formal procedures existed to extract knowledge from e-mail discussions and transfer them to knowledge repositories. There was little formal sharing of knowledge within the office although informal mentoring took place particularly in the taxation area. The reason given was that taxation laws change frequently and professionals had to keep each other informed of developments. The office adhered to a

hierarchically structure reflecting traditional titles and positions. Staff, except those at senior levels, stayed with the firm for about 4 to 5 years.

The possibility of delivering knowledge client services would depend on the nature of the work carried out. It was felt that this type of service would be strongly relevant to business services, somewhat relevant to financial services and IT services, but not relevant to audit services. In IT services, for example, generic knowledge (e.g. on how to conduct Business Process Re-engineering projects) could be made available but specific services (e.g. the selection of IT for a client) would not. Any specialised knowledge could be made available; for example the firm had developed expertise in forestry and could pass this on to the clients in that industry.

A number of inhibitors to providing client access to knowledge repositories through the use of IT were identified. First, there was concern about the quality and relevance of knowledge provided and it was felt that knowledge had to be applied in the context of clients' needs. Second, partners wanted to maintain personal contacts with their clients in order to reinforce relationships and/or seek opportunities for practice development. In the Christchurch office, relationships between firm members and clients were viewed in a 'social' context.

### *B. Case 2*

This practice (50 staff/9 partners) provided mainly general business services and little traditional accounting services. The firm did not formally recognise the area of KM and believed that a person with vision would be needed to make this area a success. Furthermore, it relied on software package vendors do provide them with up-to-date products, including KM systems, to enable them to service their clients effectively.

Two main software packages were in use. Microsoft's 'Outlook' provided an e-mail facility that was used extensively especially in forwarding and receiving attachments to and from clients. The package also supported a rudimentary knowledge repository in the form of 'folders' in which staff could store, and from which they could retrieve, experiences, suggestions, etc. These folders were referred to as 'gossip folders' and provided an effective means of threaded discussions. A second package 'Advanced' provided specialised accounting practice support. It incorporated electronic forms (e-forms) and workflow software, and kept track of staff working on projects viz. budgets, dates, fees, etc. The package contained a drill down facility; for example it could drill down from the amount shown as a taxation liability to the completed taxation return of a client.

The firm had attempted to be flatter and more responsive through adopting a matrix approach under which staff could work on different projects and readily move between projects. A deliberate strategy was adopted in the mid-1980s to engage people with a 'caring and sharing' attitude. This openness pervaded the firm and allowed staff to access all

folders with the exception of those containing payroll data and partners' meeting minutes. There had been a noticeable shift in redefining social references by the move to informality, highlighted by the feature that, with the exception of the audit partner, staff were not required to wear suits.

The firm endeavoured to use IT to reduce costs in delivering client services. Already some of its services were being delivered electronically such as the processing and submission of clients' General Sales Tax (GST) returns. The firm believed that technology-enabled knowledge services was only suitable for structured knowledge, i.e. it could be delivered as questionnaires (e.g. to ensure taxation law compliance). The potential for being a knowledge broker had not been considered but its success would depend on the availability of specialised knowledge.

### *C. Case 3*

The firm (50 staff/6 partners) was in an 'awkward' stage since it had reached a size too big to be managed hands-on by partners. More attention would have to be given to introducing advanced management and professional systems and becoming more strategic in outlook.

E-mail was used extensively within the firm for the notification of issues that had arisen and the sharing of experiences. However, the extent of personal e-mail use was becoming a concern. The computerised client database, part of 'CA' practice management software, provided the capability of entering notes in free form. It was felt that this feature was not used as extensively as it should. While e-forms and workflow systems had obvious theoretical advantages, it was felt that their use was time consuming and not suitable in an office where time pressures existed. The belief was held that work could be carried out quicker using existing manual procedures. A formal knowledge repository existed in the form of the externally supplied 'Smart Tax' software.

The practice was hierarchically structured and experienced stability among senior but rapid turnover among junior staff. It was suspected that the major cause for the latter was that little information and knowledge flowed from seniors to the juniors. This may have been due to a number of reasons; the main one appeared to be the pressures that senior staff were under to achieve tight deadlines. As a result of insufficient knowledge being handed down, juniors tended to become dissatisfied and left the firm for better opportunities elsewhere.

The firm believed that technology could be useful for the delivery of their services to clients in two areas, namely IT consultancy/support and taxation. While IT services were not yet delivered electronically, taxation services had compiled a comprehensive e-mail list to regularly inform clients of tax changes and how these may affect their businesses. It was believed that this service substantially increased clients' knowledge and improved the firm's professional image.

### *D. Case 4*

The firm (40 staff/5 partners) recognised that 'intellectual capital' existed in the form of paper files containing approaches that had been developed over time on how to conduct client assignments. These had been packaged and standardised but not yet coded into electronic form.

E-mail was used extensively within the firm and was seen as a vital communications tool. Threaded discussions were occurring through e-mail even though much of it was of a personal nature. The knowledge obtained from e-mails was perceived to be of value at the individual level but not at the firm level. Technology-based knowledge repositories only existed if supplied by outside sources such as those provided in the taxation area. The firm intended to move towards developing an internal knowledge repository by implementing an Intranet.

The firm was regarded small enough to have good personal contacts among its 40 staff. The firm organised discussion groups that met on a regular basis. Each group had its own structure and approach to sharing information and knowledge. The organisation structure was perceived to be a networked and flexible one.

Client self-sufficiency was regarded important but only to a point. By providing clients with direct access to knowledge, the delivery of services could become more efficient and some of the lower levels of advice could be eliminated. Services of a more complex nature should be retained since it was felt that clients would be prepared to pay fees, even at high levels, for receiving expert advice. The firm had accumulated knowledge in the transport and light manufacturing industries and 'brokered' its knowledge in these industries by being represented on boards of companies and industry associations.

### *E. Case 5*

This firm was a small (18 staff/2 partners) and operated in a light industrial suburb. It had recognised the need for KM and, as a first step, was introducing regular staff meetings and training sessions. The immediate objective was to identify staff who had appropriate and relevant knowledge, to make this available to others, and to provide staff with greater career structure.

The current computer system allowed only the firm e-mail address to be used. This would change when the planned Local Area Network (LAN) was introduced and each staff member had his/her own e-mail address. E-mail was seen as the key technology since it would improve communications between professionals and with clients. It would be used to send attachments between the firm and clients; for example, draft accounts could be forwarded to the client for comment and returned by e-mail.

The current practice management software provided a knowledge repository through its client database. This allowed the insertion of notes on clients' records and useful

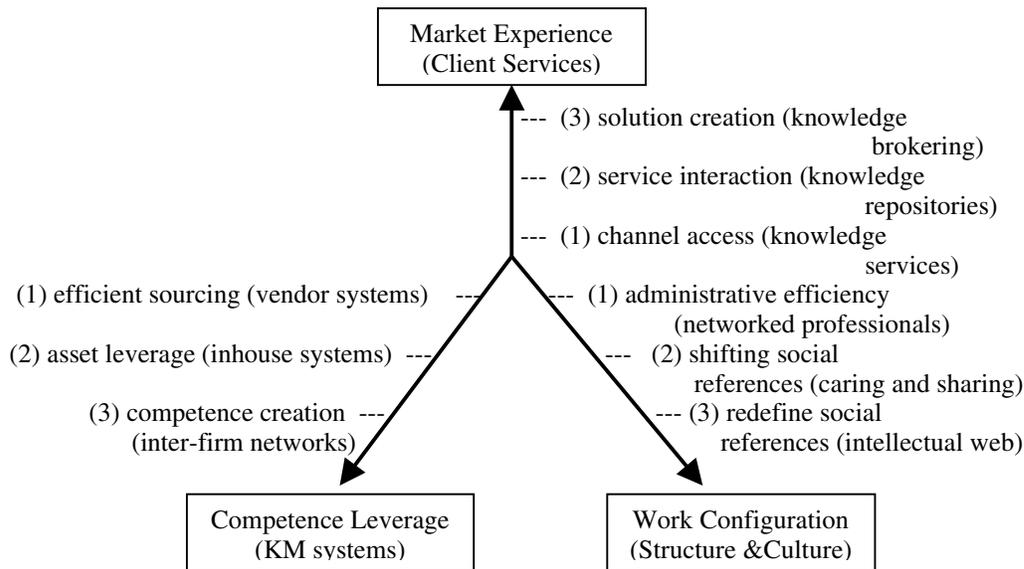
information to be extracted. For example, it provided information on profits made on assignments. The firm intended to move to a more advanced form of practice management software that will provide them with decision support (e.g. for completing income tax assessments), e-forms and workflow systems.

The firm's structure was regarded as flexible and recognised three levels: partners, seniors and juniors. Being a smaller practice ensured that there existed much informal contact. However, there was little formal information and knowledge sharing taking place. The firm was motivated to better manage internal knowledge because it was experiencing a high degree of staff turnover at the lower levels.

The viewpoint was expressed that there were areas of professional knowledge about which clients don't need to know much and expected the firm to be knowledgeable. The types of knowledge clients would benefit from should be practical, business-related (e.g. how to obtain cheap finance) rather than theory (e.g. how to comply with accounting standards). Knowledge made directly available to clients through the use of technology should have applied and practical value to clients. There would be limited number of opportunities to act as a knowledge broker because of the smallness of the practice.

#### IV. LEVERAGING PROFESSIONAL INTELLECT

Our research showed that the management of professional intellect was still evolving within the accounting firms that had been studied. In order to provide a framework for the evolutionary stages that we identified, we applied the model of a virtual organisation [6], referenced in [7] as it had previously been applied to the study of Coopers and Lybrand (now PriceWaterhouseCoopers), one of the large international accounting practices [7]. The virtual organisation model has three dimensions, namely market experience, competence leverage and work configuration. Within each of the dimensions three evolutionary stages of virtual organising are represented as an extension of Business Process Reengineering (BPR), a recreation of the organisation, and a recreation of value. We modified the model by renaming the dimensions and stages to more precisely reflect the structure and evolution that we had observed in the cases studied. The original model and our adaptations (shown in brackets) are presented in Figure 2 and outlined below. The arrows indicate the evolution of the firm through the 3 stages of the virtual organisation.



(1) Extension of BPR (2) Recreation of the organisation (3) Recreation of value

Figure 2: The Structure and Evolution of the Knowledge-Based Accounting Practice

##### A. Stage 1: Extension of BPR

To improve administrative efficiencies, accounting practices relied on a range of ICT. Extensive e-mail and groupware technologies facilitated dissemination of knowledge between firm members, calendaring and

scheduling software provided efficient group activity and task management capabilities, and E-forms and workflow systems were available in form-based solutions to provide guidelines on the conduct of assignments. The beginning of KM systems were observed in the form of vendor supplied practice

management software used to store experiences gained in the conduct of client assignments.

Unlike data and information, which are readily stored in organisational information processing systems, knowledge is largely stored in peoples' minds and undergoes constant changes. The challenge for the firms studied was to convert this tacit knowledge into explicit knowledge by putting it into structured form in organisational repositories which can be accessed and utilised by other members in the firm. The availability of suitable knowledge repositories avoids employees 're-inventing the wheel' when confronted with situations similar to those that have been experienced and resolved in the past.

Channels for the delivery of knowledge services to clients was provided by e-mail systems. Since most clients could be contacted by e-mail it was possible to supply them with knowledge and to interact with them electronically. The former category included notices and advice on legislative changes, particularly in the taxation area, while for the latter, firms were able to send documents, such as a set of draft financial accounts, to the client for perusal and approval, and receive them back in the form of e-mail attachments.

### *B. Stage 2: Recreation of the organisation*

Even though software vendors encouraged accounting firms to make suggestions for the improvement of their products, firms indicated that they desired to move towards internally developed KM systems. For example, threaded discussions were seen as desirable but required the creation of intranet bulletin boards on which staff could follow discussions on topics such as the progress of an audit or respond to queries arising from changes in taxation law. The firms were also eager to capture and structure the content of e-mail discussions for storage in custom developed knowledge repositories.

From an organisational culture perspective, effective KM required a change in attitude from individualism to 'caring and sharing'. In western culture, knowledge is regarded as a competitive advantage and giving this up is not always readily accepted and some form of resistance can emerge. However, there are grounds for optimism in this respect as indicated by [5]. "My research indicates that the interactive experience enabled by the Net is creating a new youth culture which values independence, innovation, knowledge sharing and collaboration – all very different values from those of their TV generation parents, who grew up in the age of mass communications, mass production, mass marketing, and hierarchical organizations." (p. ix)

There were opportunities for accounting practices to provide a greater degree of technology-enabled client knowledge services. To enhance service interaction, clients could be offered access to knowledge repositories within the firm. "The key issue in technologies for support KM is whether or not to structure the knowledge before the time of use or to provide structure in real time through search and interpretation." [8, p. 201] The study indicated that firms

preferred the first approach since this would ensure that knowledge was structured to fit into the context in which the client would be using it.

### *C. Stage 3: Recreation of Value*

The move towards a knowledge-based organisation requires further redefinition of social references. Changes in work configurations are required in which 'intellectual webs' replace partner- and client-oriented teams. A web hierarchy is designed "to accomplish a particular project and disband when the project is completed. They are appropriate when knowledge is dispersed among many specialists, who must provide a coordinated solution to a complex customer problem." [2, p. 79].

A further opportunity to provide solutions-oriented client services to clients existed in the form of knowledge brokering [8]. Professional accounting practices have access to, and extensive experience in, a wide range of industries and clients, and have developed the ability to link past knowledge of solutions to new problems. Knowledge brokering provides an opportunity to utilise these strengths and create further value in the delivery of client services.

Accounting firms should consider forming inter-firm networks because they have become a modern mode of organising economic activity and provide a locus of learning and innovation. They are particularly valuable when there are high levels of uncertainty brought about by rapid changes within the firm and the environment. When uncertainty is high, organisations interact more, not less, with external parties to access knowledge and resources [9]. They are an effective means to increasing inhouse skills or getting the job done without acquiring such skills.

## **V. DISCUSSION OF FINDINGS AND ISSUES**

The study applied [6] framework to measure the progress of small and medium sized professional accounting firms towards a knowledge-based, virtual organisation. The majority of firms interviewed recognised the importance of networking their professional staff, provided a limited amount of knowledge services to their clients and relied on vendor supplied software for their KM systems. Their evolutionary progress can therefore be placed into the first stage, namely the extension of BPR. Case study 2 had made some progress towards more sophisticated inhouse KM systems (the second stage of the 'KM systems' dimension) and had reached a mature stage in the way it used an intellectual web to change the culture of the firm (third stage in the 'structure and culture' dimension). However, this firm seemed to be exceptional and the question arose whether or not the majority of firms would be able to evolve towards the creative, virtual firm. Some of the key issues confronting professional accounting services firms that need to be resolved to ensure their future competitiveness are identified and discussed below.

#### A. How can returns on professional intellect be maximised?

Small and medium accounting firms compete against large, global firms who are resource rich and use an international network-trading name, sometimes in conjunction with a local trading name. The large firms, often referred to as the 'Big Five', operate as highly developed 'managed professional businesses' in which project control, customer service and quality management play important roles [10]. Global firms have developed an 'one-stop-shop' approach to offering their services. For example, the Andersen Worldwide Group is comprised of Arthur Andersen (accounting and commercial advice), Andersen Consulting (IT and management consulting), and Andersen Legal (legal services).

By contrast, small and medium sized firms are large in numbers and offer specialisation, expertise and local knowledge that may not be offered by larger firms. For smaller firms to compete and prosper, they have to create niche markets and extend their market reach beyond the existing locality. They will only achieve this through innovation, i.e. they have to move from 'reliability' to 'creativity' on the intellectual scale (see Figure 1). Internet and intranet technologies offer them enabling mechanism to add knowledge value to their services and to disseminate their services across the globe. The existing constraint of having a limited physical presence may not be an obstacle to marketing niche services, including knowledge services, around the world in future.

#### B. Will KM become a professional discipline in its own?

At present, accounting firms provide high quality solutions to problems experienced by clients in the professional accounting domain. These solutions tend to be of a generic, 'technical' nature, such as those dealing with complex accounting and taxation matters. In future, rather than simply providing technical solutions to clients, firms will have to focus more on the delivery of knowledge services. "This involves the commodisation and codification of the existing knowledge of the firm into a 'bundle' or 'deliverable' system designed to add value and provide a client, rather than a solution, oriented service." [11, p. 34]

Client oriented services have potential advantages and disadvantages for the client and the service provider. Among the advantages are: the client is provided with advice and expertise of direct benefit to his/her organisation and can choose between a number of firms to select the best advice available while the service provider is able to increase the scope of services offered. Disadvantages include a relationship between client and provider that is less stable than before because of the greater choice in services and providers available and the increasing incidents of clients suing for damages arising from poor or incorrect advice given to them.

#### C. Can accounting firms make the required changes?

It can be argued that changes towards client oriented knowledge services are already under way. Professional firms are becoming multi-disciplinary; for example Arthur

Andersen has three distinct practices- accounting, consulting and legal. Increasing competitiveness in the professional services sector is forcing firms to be more than reliable service providers and become creative ones. Furthermore, the enabling influences of technological advances and information networks have provided advantages of virtualness where physical constraints, such as locality and skill shortages, are significantly reduced or eliminated.

It is, however, predicted that the competition for human capital, needed to develop a culture of innovation, will increase. "One of the main success factors in the professional services sector is the ability to attract talent." [11, p. 33] This will affect individual firms and the profession as a whole. They will have to make their firms and the accounting services profession attractive to young, innovative graduates.

## 6. CONCLUSION

It appears from this study that professional accounting services firms ignore the move to KM at their peril. Their clients will increasingly insist that they be provided with knowledge, i.e. information to which has been added experience, direction, relevant meaning, etc. to help them improve their decision-making. Accounting firms have to realise that with KM, the business scope is changing from an internal, administrative-orientation to one that places emphasis on external, entrepreneurial activities. The challenge for the future is to be reliable yet creative professionals.

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