

Managing Corporate Knowledge: A Comparative Analysis of Experiences in Consulting Firms

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Abstract

Knowledge management is fast becoming the terminology of many companies' efforts to gain competitive advantage from the efficient and effective management of their knowledge assets. Consultancies have been in the forefront of thinking about how to manage knowledge because their own success depends heavily on developing, selling, and applying ideas. This paper compares and contrasts, under a common framework, several consulting firms' efforts in implementing knowledge management programmes. Our framework analyses the specific actions undertaken by the firms based on the alignment of their people, processes and technology with the business strategy, context and goals. Conclusions are drawn based on the lessons learned and the results reached in each case.

1 Introduction

It is well accepted that the need to manage knowledge increases proportionately with the service intensity of companies. Service-oriented knowledge intensive companies share some common characteristics: their "products" are intangible, i.e. they do not consist of goods, but of complex non-standardised problem-solving services; their "production process" is non-standardised and highly-dependent on team-work; the majority of their employees are educated and creative people; their customers are treated individually and the "products" are rather adapted to them, than vice versa; see e.g. Sveiby (1992 and 1997).

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Such companies represent a significant component of growth. For example, 50% of the fastest growing companies in the US are knowledge-intensive organisations, in the sense that they sell the knowledge and the know-how of their employees rather than manufactured products or provide services, while the so-called business service sector contributes about 14% of the total European value added and 6% of the GNP, which makes it a larger sector than agriculture. Examples of such companies include, but are not limited to: advertising; management consulting; financial or legal advice; nursing care; software programming and systems design; etc.

Management consulting firms are considered typical examples of highly knowledge-intensive companies since: they depend heavily on the expertise of their people; focus on customer relations; employ network architectures, i.e. confederations of professionals engaged in value-added/creativity-added work; the nature of their assignments is team-based and mainly project-focused; and they put considerable emphasis on applied creativity for solving the problems of their clients.

Hence consulting companies should have been in the forefront of thinking about how to manage knowledge. However, at a time when a growing number of companies are seeking the advice and counsel of management consultants on how to deploy technology to enhance collaboration within increasingly dispersed organisations, identify legitimate best practices, distinguish between an over-abundance of information and data from knowledge they can actually use and fully leverage IT-based tools, a survey by *Consultants News* revealed that the majority of management consultancies are facing many knowledge management challenges themselves.

The survey (Reimus 1996) has found out that more than a few consulting firms remain largely unsure of just how to proceed with knowledge management efforts and are largely not convinced that the frenzied focus on technology by some competitors is more a function of their size and the scope of work with clients than on providing tangible value-added. Some indicative results of the survey are: some 60% of consultancy firms maintain no active "best practices" database; one out of three consultancies do not use groupware; less than 25% utilise the Internet to support a basic range of internal activities

like communicating within local or geographically dispersed teams, sending or receiving detailed communications, collaborating on presentations and proposals, or doing client work and analysis.

Concerning the capturing of best practices about 75% of the firms surveyed reported they followed a process for capturing best practices, sharing information from one project to another and documenting innovative new ways of solving client problems. Upon closer examination, however, the survey found that *the actual mechanisms and processes in place for managing acquisition, screening and selection of best practices at many consultancies were largely informal*. In addition, systematic efforts to measure the impact of these initiatives on business were absent at most firms.

On the other hand, a number of global management consulting firms have embarked on large-scale multi-year knowledge management projects that attempt to cover both technical and organisational aspects. Such efforts may provide the basis for drawing crucial inferences that could be extremely useful for similar knowledge management effort in any industrial setting.

The aim of this paper is to comparatively analyse and evaluate the Knowledge Management (KM) efforts of such consultancy firms. We adopt an approach similar to the one used by Ascari, Rockand Dutta (1995) for the comparative analysis of reengineering and organisational change experiences.

By studying their efforts under a common framework we aim to better understand the enabling and disabling factors of knowledge management projects. In the paper we :

- develop a consistent framework that considers in an integrated manner the context of the KM effort, the strategic goals that were set, the way the effort proceeded (in terms of business processes, supporting IT tools, cultural issues, etc);
- apply the framework in order to analyse and characterise the KM efforts of global consulting companies, in an effort to identify the major results attained and detect lessons learnt for similar efforts;
- draw conclusions by summarising the findings of the analysis and outlining the major similarities and differences of efforts in the companies, the problems they faced and the solutions given.

2 A Framework for the Comparative Analysis of KM Efforts

Our objective in using a framework in this research was primarily to facilitate the structuring and analysis of a set of knowledge management initiatives, and to enable us to draw useful comparisons and reach consistent conclusions.

A number of knowledge management frameworks have been developed in the literature. Among them the most notable include: the knowledge life-cycle, developed by

APQC (1997), which describes the phases of organisational knowledge from its creation to its application; the one proposed by Lank (1997) that identifies three significant areas - culture, business processes and technology - which need to be influenced to make a knowledge management initiative successful; and the knowledge spiral, developed by Nonaka (1991) and Nonaka and Takeuchi (1991, 1995) that describes the evolution of explicit and tacit knowledge in Japanese firms.

We have further analysed and adapted these approaches in order to develop a framework that best serves our objectives, namely to emphasise:

- 1) the business context at the start of the effort;
- 2) the specific infrastructure and processes that have been created to support the effort; and
- 3) the results obtained and lessons learned.

Thus the adopted framework (given graphically in Figure 1) classifies the characteristics of a knowledge management effort under the attributes of: *context*; *goals*; *strategy*; *culture*; *technological, organisational and process infrastructure*; and *results* obtained and *lessons learned*.

Within our classification, the technology used, the organisational structures and the business processes are mapped explicitly to the knowledge management processes.

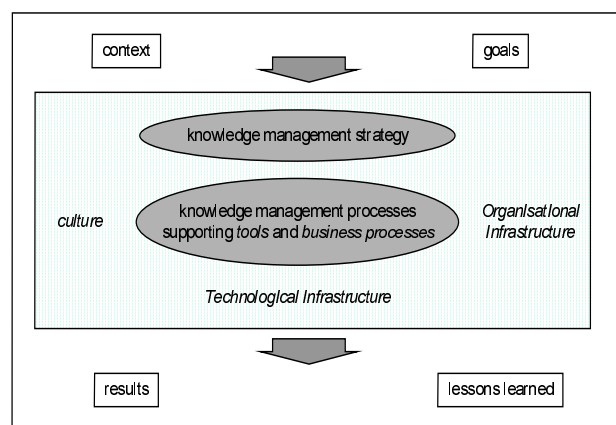


Figure 1: The Framework Adopted In The Study

The paragraphs below discuss the main elements of the framework.

Context. The context element of our framework outlines the most important drivers and constraints of each consultancy's knowledge management effort and highlights the main external and market forces (e.g. speed in providing services, globalisation) and internal, corporate infrastructure forces (e.g. decreased cost of distributive computing, downsizing and restructuring efforts, etc) that result to the initiation of the effort.

Goals. The goals stated are those of the KM effort and not the firm's high-level business goals. They are either associated to the firm's overall purposes and business

objectives or to more specific issues like the efficiency of engagement teams or the development of productive technology infrastructures.

Strategy. Knowledge management strategies set forth the criteria for choosing what knowledge a firm plans to pursue, and how it will go about capturing and sharing it. The focus is on: designating critical knowledge for the business; identifying resources of critical knowledge; deciding who needs to have what information and when they need to know it; and deciding who the firm will execute their chosen knowledge management strategy.

Culture. A knowledge-friendly culture is one of the most important conditions in successful knowledge management projects. It is the shared values, experiences and common goals that lead to a positive orientation to knowledge and remove inhibitors from employees allowing the movement of knowledge from individuals to the organisation.

Knowledge Management Processes. At the core of knowledge management lie four processes: generating, organising, developing and distribution.

- *Generating.* Generating knowledge involves the proactive identification of the desired content, often before it is in finished form, and the involvement of people to contribute ideas, either through on-line discussions or by submitting deliverables that have emerged from other work, such as client engagements.
- *Organising.* Once information has been collected, it must be organised so that it can be represented and retrieved electronically. Knowledge sharing systems or tools, including knowledge repositories, navigational devices, user interfaces, and taxonomies, must be designed to facilitate this process. Here, a critical task is continually refreshing the material, deleting and adding information to retain its currency. Avoiding obsolescence is a primary concern.
- *Developing.* Knowledge development activities involve the selection and further refinement of material to increase its value for users. In many cases, the line between organising and developing material is difficult to draw; often the two occur simultaneously. Both tasks are normally collaborative, and draw upon the expertise and experience of practitioners. At a minimum, subject matter experts review and edit the work done by others. Together they produce a package of distilled material that has been certified as being important, represents the best ideas of its kind, and reflects the perspective of the firm's top experts in the area.
- *Distributing.* Knowledge distribution refers to how people gain access to material. There are two primary objectives: making it easy for people to find what they are looking for, and encouraging the use and reuse of knowledge.

Organisational infrastructure. New units and roles are being created to establish, coordinate, and manage the

technology and tools, and to facilitate the capture, development, and distribution of knowledge. The work of these units is normally aimed at ensuring that common approaches are used and become institutionalised. At consulting firms for example communities of practice may be organised around industries, thematic areas, or functional expertise. New roles include the Chief Knowledge Officer that leads the knowledge management activities and develops strategic approaches to knowledge while the Knowledge Managers work as intermediaries and facilitators.

Technological infrastructure. Information Technology (IT) should aim at the development, identification and application of the appropriate technological approaches for managing IT-supported learning, and equip employees with all the knowledge required to successfully perform their engagements. IT is used as the mechanism that augments and interconnects resources so that information can be distributed, consonant with the organisation's requirements for team-based management, responsiveness to change, etc. The prevalent technologies today are Lotus Notes and the Internet, while there exist various specialised applications/utilities to supplement them.

3 Summary of the Comparative Analysis

Ten examples of knowledge management efforts in consultancies from the literature were selected as the sample for this study. Four had to be discarded due to the lack of adequate information in the respective literature references. The remaining six firms were studied according to the defined framework.

An appendix to the present paper (available by the authors) contains the analyses of the individual knowledge management efforts according to our framework.

While many aspects of the knowledge management efforts examined, such as technology or roles, have been described in the literature [see e.g. Davenport and Prusak (1998), Davenport et al (1996) and Davenport et al (1997)], we concentrate our summary on those issues that are of interest and conform to our framework.

3.1 Knowledge Generation

All healthy organisations generate and use knowledge. Knowledge generation is an even more significant process for consultancies. What concerns us in this study is the conscious and intentional generation of knowledge - the specific activities and initiatives firms undertake to promote and leverage knowledge creation. In general, this has been the least systematic of knowledge management activities examined. Often companies examined viewed knowledge generation as a "black box", essentially trying to hire smart people and then leaving them alone.

When we talk about knowledge generation, we mean the knowledge acquired by the firm as well as that developed within it. The most direct way that firms use to acquire

knowledge is to buy it - that is to buy an organisation or hire individuals that have it. One significant reason of the recent mergers and acquisitions of the big consulting firms was clearly the acquisition of knowledge. Consultancies that acquire other firms are buying people, that is the knowledge that exists in people's heads and within communities, perhaps some structured knowledge in document or computerised form, and the routines and processes that embody the purchased company's knowledge.

In addition to being purchased, outside knowledge is usually leased or rented. A common type of leasing is a firm's financial support of university or institutional research in exchange for the right to the initial commercial use of promising results. For example, IBM Consulting has developed and uses a Research Database, i.e. a repository for business research with information acquired primarily from external organisations such as the Economic Intelligence Unit and the Center for Information Systems Research at MIT.

A usual approach that we identified in our study for knowledge generation is the establishment of units or groups specifically for that purpose. Research and Development departments are the most common example. Their overall aim is to come up with new knowledge and new ways of doing things. Ernst & Young's Center for Business Innovation is a typical example of some kind of R&D department. The centre performs early-stage research and creates new knowledge around emerging issues in technology and management.

By far the most common process by which knowledge is generated in consultancies is through fusion between knowledge networks. In all firms examined, bringing people together, with either similar or even different perspectives, to work on a problem or project and come up with a joint answer was a usual practice. Networks of knowers, usually talk together in person, on the phone, and via e-mail and use groupware technologies to share expertise and solve problems together. Arthur Andersen is building communities of practice, seen as the primary source of new knowledge, by establishing common aspirations, goals and business objectives.

Usually such networks are being administered by knowledge editors or facilitators. For example, KPMG uses integration manager's to motivate, co-ordinate and manage projects where multiple communities of practice are involved.

3.2 Knowledge Organisation and Development

The aim of the knowledge organisation process is to put enterprise knowledge into such a form that makes it accessible to those who need it. Finding the type of knowledge as well as the sources of knowledge is obviously essential. We found that a common practice is for knowledge codification projects to have more specific aims than just making knowledge generally available.

IBM Consulting has adopted a customer-centric approach and has set as a specific objective in its knowledge management programme to capture customer information and utilise it in context in areas such as distribution and marketing.

Mapping corporate knowledge sources is an important part of the knowledge organisation process. Once knowledge is found, someone must evaluate it to assess its usefulness and importance to the organisation, and to determine its type. Knowledge in consultancies ranges from the complex, accumulated expertise that resides in professionals, and is partly or largely inexpressible, to much more structured and explicit knowledge like a clear-stated methodology.

- **Organising tacit knowledge**

Tacit knowledge cannot be effectively codified, at least in print. Therefore we have not found any attempts to codify tacit knowledge in print format. The codification process for the richest tacit knowledge in consultancies is limited to locating someone with the knowledge, pointing the seeker to it, and encouraging them to interact while providing the necessary technological aids to enable a rich communication.

Arthur Andersen provides the AA Online system for linking communities of interest across the globe. Through AA Online, consultants can access members of the community for advice, ideas and material. KPMG's Knowledge On Line includes a database-driven expert skills directory. The assembling of virtual teams to work on a project also addresses the same issue: it is based on the understanding that providing access to people with tacit knowledge is more efficient than trying to capture and codify that knowledge electronically or on paper.

Knowledge maps are widely used in order to provide pointers to sources of knowledge. Knowledge maps typically point to people as well as to documents and databases and usually utilise some sort of list or picture that shows where to find important knowledge. For example, Arthur Andersen's knowledge map allows for a top down navigation based on competency area. Knowledge maps are also used as tools to evaluate the corporate knowledge repository, revealing strengths to be exploited and gaps that need to be filled.

Mentoring or apprenticeship is often seen as way to transfer tacit knowledge from one person to another. Multimedia computing and the hypertext capabilities of intranets provide the capability of effectively capturing at least some meaningful fraction of an expert's knowledge, making tacit knowledge explicit.

- **Organising explicit knowledge**

Explicit knowledge of management consulting firms is generally embedded in the firm's products or services since consultants use their expertise to develop a

process or product that contains at least some of what they know.

In the cases we examined we found that structured knowledge is stored in file servers (with a codification mechanism) or in relational databases. In theory, embedded knowledge is independent of those who developed it and therefore it can be of value for the organisation regardless of the employee who initially produced it. In practice, however, even highly structured knowledge, such as a methodology, involves a high degree of creativity, experience, and imagination of the consultant who developed it, that it can not be stored entirely in a database; essential expertise in the head of the consultant needs to be linked to it.

An identified challenge for the cases we examined is the very loose coupling of the processes that produced the highly structured, explicit knowledge with the owners of the tacit knowledge. In most cases, the management of tacit and explicit knowledge was not addressed in a holistic manner.

3.3 Knowledge Distribution

Management consulting firms recognise that spontaneous, unstructured knowledge transfer is vital to a firm's success. Although the term "knowledge management" implies formalised transfer, one of its essential elements is developing specific strategies to encourage such spontaneous exchanges.

Transferring knowledge through personal conversations is being threatened by the increasing mobility of the consultants. Field consultants who work daily on the site are less likely to pass on knowledge and insight on clients and problems handled to their colleagues. Information technology, and in particular intranets and Lotus Notes-based applications are seen as substitutes to personal communication. It is clear, however, that IT tools lack the idea generation capability and serendipity of personal, face-to-face conversations.

Tacit and ambiguous knowledge is especially hard to transfer from the resource that creates it to other parts of the organisation. Some consultancies are addressing this challenge by putting knowledge into circulation and transferring people in and out of the dedicated resource. Knowledge managers for example, can spend a period of time in one domain helping to generate new knowledge before they are replaced by newcomers. However there exists a challenge for most firms to shift their attention from such concepts as improved access and electronic communications, to more soft, human aspects that are the real catalysts of tacit knowledge transfer.

3.4 Technological Infrastructure

Although most management consulting firms only see technology as an enabling factor for knowledge management, it is the availability of certain new

technologies such as groupware and the World Wide Web that has catalysed their knowledge management efforts. Groupware technologies are seen as a way to get more consultants to share information, experience and knowledge with each other. Lotus Notes is the most frequently used groupware application that help consultants to:

- deliver quality solutions to clients more quickly;
- efficiently create on-line repositories of information, knowledge and resources that can be easily accessed and updated; and
- share and exchange ideas, insights and experiences even if they are geographically dispersed.

Firms such as Ernst & Young, Andersen Consulting, Price Waterhouse, and Coopers & Lybrand all have very large repositories of knowledge from serving clients, several of which exceed a thousand different databases. Notes is particularly appealing in professional services because work in that industry often involves travel to the client site, and the replication feature in Notes allows a remote employee to quickly download all new items added to databases of interest and then to peruse them off-line.

Notes-based knowledge management implementations are often accompanied by other tools, particularly where the management of external knowledge is concerned. GrapeVINE, used for example at Andersen Consulting, is a somewhat more structured technology for bringing external knowledge allowing searches through external databases on the basis of a "knowledge chart" - a hierarchical map of the organisation's knowledge terms and relationships. This chart allows a more strategic perspective on what knowledge really matters to the organisation. GrapeVINE also allows designated knowledge editors to comment on and prioritise information.

Internet is used in consultancies either as a substitution for Lotus Notes applications or as a supplement. In general those firms that had started their knowledge management efforts using Lotus Notes are now building on the convergence of Notes with Internet technology, while others are using exclusively intranets. Booz-Allen & Hamilton for example uses the Internet for "research and external communications"; while Ernst & Young has a "private Web site for knowledge-sharing for all consultants".

Specialised search & retrieval software complements in some cases intranet or Notes-based knowledge repositories. Price Waterhouse for example has deployed Fulcrum's Knowledge Network for their German offices to query on document repositories across the enterprise.

Search & retrieval technologies are also maturing and offer out-of-the-box functionality for quick deployment but do not permit true knowledge extraction, mainly because knowledge in textual databases is indexed on the basis of keywords and their proximity on the text - which are relatively shallow aspects of knowledge.

3.5 Organisational Infrastructure

Turning information into knowledge involves many strategic and tactical tasks to be performed by humans, and it is unrealistic to assume that a company can simply throw knowledge management activities on top of existing positions. Management consulting firms were among the first to realise this fact and have established structures and roles to support knowledge management. Chief Knowledge Managers (CKOs) have been appointed to lead the knowledge management change. CKO responsibilities include building a knowledge culture, designing, implementing and overseeing the knowledge codification and transfer schemes and measuring the value of intangible assets. At Ernst & Young, for example, the CKO has set up a substantial organisational infrastructure that includes "knowledge networks" for each key practice area.

The day-to-day work of knowledge management in professional service firms requires people who will extract knowledge from those who have it, output it in structured form, and maintain or refine it over time. Andersen for example has "knowledge integrators", who are sufficiently expert in a particular domain to determine what knowledge is most valuable and they synthesise it. The firm also has "knowledge administrators", whose work focuses on capturing, storing, and maintaining the knowledge that others produce. Additional roles include technical staff that can install and maintain such knowledge-oriented software packages as Lotus Notes.

However since knowledge management is everyone's role, active consultants are in all cases expected to contribute to the firm's knowledge capital and to use it in client work. At McKinsey for example, line consultants write books and articles as frequently as specialists in industries or functions. Research and practice development projects are typically staffed by active consultants, who thereafter go back to client service. At Ernst & Young the employees who compile and maintain knowledge repositories in particular industry or practice areas are former active consultants who have extensively worked in those areas.

4 Overview of Lessons Learned

Clearly one of the most important conditions that were identified throughout the knowledge management efforts examined in this study as leading to the success of the project was the creation of a knowledge friendly culture. Even if, in many cases, this issue was tackled through organisational structure and business process related interventions, it was evident that these interventions were targeting the cultural aspect of the organisation.

While one would expect that all consulting firms should normally have a positive orientation toward knowledge in their culture, we found that this is frequently not the case. In our view, a knowledge sharing culture is usually an integral part of people's attitudes and cannot easily be

altered in the work environment; in other words a crucial element for a company to establish a positive knowledge culture is the type of people that a firm attracts and hires. What firms can do is to work on removing cultural knowledge inhibitors. People need to understand that sharing their knowledge will not jeopardise their unique value as employees. Establishing knowledge sharing incentives that reward the individuals that actively share their knowledge is an enabling factor. The fit between the organisation's culture and its knowledge management initiatives is also important. Managers need to carefully select the direction or type of knowledge management project according to the established culture in the corporate community.

Like almost every type of major change program, knowledge management projects benefit from senior management support. Senior management can assist the knowledge management effort by clarifying what type of knowledge is most important to the company and focusing the effort in the core business priorities; removing barriers and providing funding for the infrastructure; and making sure that the organisation's commitment to the knowledge management effort is widely communicated throughout the firm.

Clarity of purpose and vision is a critical factor with any type of organisational change project, but it is also a particularly important element of successful knowledge management projects. Senior management must also assure that the knowledge management project is linked to economic benefit or industry success.

Another inference that resulted from our comparative analysis is that issues of information technology infrastructure are less critical as intranets emerge as a standard medium for collaboration and distribution while advanced searching, indexing and collaboration functionalities (e.g. threaded discussion lists) become an out-of-the-box functionality.

Finally, building an organisational infrastructure for knowledge management is a highly demanding task that involves establishing a set of clearly defined roles and structures. Management consulting firms have rigorously addressed it in all cases we examined. However It should be noted that excessive focus on structures and roles, at least at the initial stages of the project, can be overwhelming and may lead to a "knowledge management bureaucracy" that could inhibit the progress of the project.

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