

# Mountain Plains Journal of Business and Technology

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Volume 1 | Issue 1

Article 2

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Date Published: 2000

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### Recommended Citation

Hamlin, A., & Powell, G. (2000). How Multinational Companies Gain a Competitive Advantage Through the Effective Use of Knowledge Management. *Mountain Plains Journal of Business and Technology*, 1(1). Retrieved from <https://openspaces.unk.edu/mpjbt/vol1/iss1/2>

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# **HOW MULTINATIONAL COMPANIES GAIN A COMPETITIVE ADVANTAGE THROUGH THE EFFECTIVE USE OF KNOWLEDGE MANAGEMENT**

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## **ABSTRACT**

During the past two decades, domestic American business has undergone massive changes in the way commerce is both planned and conducted. Intense competition; the advent of high technology and its commercial applications; the reduction of global trade barriers; the effects of changing worker demographics; concern for environmental and employee welfare; and the resulting downsizing, reengineering and other efforts at cost-containment have all combined to make the acquisition and dissemination of knowledge within corporations paramount as firms struggle to find their way in a setting of ever-increasing uncertainty (1).

The management of corporate knowledge, including intellectual capital, R&D efforts, and management and worker expertise has become so crucial that many firms now employ full-time Knowledge Management (KM) specialists to better facilitate the development and sharing of knowledge across departmental and divisional barriers. What began in the late 1980s as an intense effort to help firms become more cost-efficient domestically has become a major force for productivity-enhancement in the global operations of multinational (MNCs). In fact, this one factor alone contributes in a significant way to understanding why the domestic American economy has experienced the longest peacetime expansion in our nation's history, and why American MNCs have not succumbed to the recent economic problems which befell our trading partners in Europe and Asia. Simply put, America's global firms are better-prepared to deal with the volatile business environment than are our competitors. This is largely due to a sea-change in attitude and philosophy with respect to the acquisition, distribution and storage of knowledge and expertise, commonly called knowledge management.

This paper will explore the relationship between KM and competitive advantage; analyze how certain successful domestic and foreign MNCs have used KM techniques to their advantage; and address the future implications of KM in an international setting.

## I. KNOWLEDGE MANAGEMENT AND COMPETITIVE ADVANTAGE

**Knowledge Management** is rapidly becoming a sub-discipline within the general field of management. It is distinct from Information Systems, in that such systems focus more on the acquisition and storage of data, and necessarily stress technology and hardware. This creates what Yogesh Malhotra calls an "Information Value Chain." (2). KM includes the concepts of IS, but focuses more on the effective USE of data. Thus a "Knowledge Value Chain" results which treats human systems as key components that engage in "continuous assessment of information, with technology as secondary." In a rapid fire business environment with extreme uncertainty and volatility, it is humans who are resilient and adaptive, not information systems. This is especially true in international business which, in addition to the standard business risks accompanying competition and free markets, must also deal with currency exchange rate risk, political instability, and a host of other factors. In this arena, it is the use of knowledge by humans that will define which companies thrive in the future.

In the international setting, multinational companies that succeed will do so because they have left behind the "traditional model" of business. In this paradigm, businesses and their environments are perceived as somewhat predictable and largely in control of their own destinies. Here, traditions become inbred and the "best practices" were those that stood the revered "test of time." In contrast, the "new model" of business is characterized by high levels of uncertainty and an INABILITY to accurately predict the long-term future. The best practices are not necessarily those that have worked well in the past. All aspects of business come under the microscope and are examined, and there are no sacred cows (3).

Knowledge Management, then, is the effective acquisition, storage and USE of data, knowledge and experience within a firm or industry. It involves the use of hardware and software, R&D, data banks and managerial expertise to more successfully and efficiently reach organizational objectives. Many large American firms, such as Arthur Anderson, Hughes Aircraft, Chevron, Dow Chemical and Texas Instruments have full-time KM staff (4). The study of this discipline is still evolving. American business, in an effort to cut costs and gain efficiencies, has recently experimented with such concepts as downsizing, re-engineering, information systems management, team-building, and now knowledge management, and has emerged stronger than ever because these efforts have contributed to gaining a competitive advantage over our rivals abroad.

**Competitive advantage** exists when a firm has an edge over its competition in terms of a) defending itself against competitive pressures and b) securing new customers. This can be done by offering either a good product or service at a lower price, or a

better product or service at a somewhat higher price. Firms can accomplish these objectives more easily if they adopt certain KM principles. For example, firms can protect themselves better against competition if information flows to the top of the organization more rapidly; ideas are shared without fear of retaliation; and knowledge is not perceived to be proprietary. Securing new customers can be enhanced by having better knowledge about customer preferences and complaints, more effective data banks, better R&D, and enhanced sharing of information between marketing and related departments. KM also gives rise to enhanced competitive advantage by reducing mistakes; omitting redundant procedures; speeding-up problem solving; increasing worker independence; enhancing customer relations; and improving the quality of decisions made at all levels of the organization.

## II. THE EFFECT OF KM AND TECHNOLOGY ON THE ECONOMY

The macro result of this evolution in the conduct of American business has been far better performance, higher levels of worker productivity, and a stronger economy. Both the performance of domestic American business, and American MNCs, has been nothing short of exceptional considering the turmoil many of our trading partners have experienced in the past 24 months. Normally, periods of such high levels of GDP growth result in inflationary tendencies, but there continues to be little evidence of imminent price level increases at this time. This environment of high output, low unemployment and especially low savings rates has alarmed the Federal Reserve, which has been watching for years for the anticipated inflationary numbers to appear. So far, this has not happened. Why the change? How can such prosperity occur in a period of virtually no inflation? The answer is that **worker productivity has risen enough to offset the higher cost of labor and materials**. What has caused this increase in worker productivity? Technology and Knowledge Management.

The role of technology and KM in enabling the domestic American economy to perform so well is finally being recognized by the Federal Reserve. Over the past three decades, the Fed has become much more diligent in micromanaging the economy, even to the point of preempting inflation BEFORE it appears by raising the discount or Fed Funds rates, or by selling Treasury securities on the open market through the FOMC. Under normal circumstances, when unemployment is low and the factories are producing at near capacity levels, inflation follows. However, in our current economic environment, the Fed has expected an inflationary spike but it has not happened. Alan Greenspan was concerned about inflationary tendencies and an overvalued stock market in 1996, when he warned of "irrational exuberance" as the Dow Jones Industrial Average reached 6000 (5). Four years later the DJIA is at about 10700 and, as of December 2000, we still have little evidence of significant inflation. Chairman Greenspan and the Fed have begun to credit the use of technology (and

indirectly, KM) for the continued "Cinderella" economy. These factors have increased American productivity enough to offset rising labor and material costs for American businesses, and have resulted in a very low inflationary environment. In the May 7, 1999 Washington Post, an article entitled "Greenspan Credits Technology" by John Berry states that "Greenspan said yesterday that an unexpected leap in technology is primarily responsible for the nation's "phenomenal" economic performance and the current extraordinary combination of strong growth, low unemployment, low inflation, high corporate profits and soaring stock prices." He believes "the U.S. economy can continue to grow...more rapidly than in the past without causing inflation to increase." The article also states that "Greenspan built his case around technology...**information-processing**...and this has helped businesses operate more efficiently, allowing them to control their costs and increase profits without increasing prices.... In general, the effect has been to increase gains in productivity...and these gains will continue to accelerate..." Lastly, "the unexpected jump in productivity is the MAJOR REASON that for the past three years so many forecasters, including those at the Fed, have underestimated economic growth while overestimating inflation." (6).

### III. EXAMPLES OF EFFECTIVE KM IN MULTINATIONAL BUSINESS

The above segment has shown how knowledge management techniques, including the use of technology, have improved American domestic productivity. Can these same results occur in overseas markets where a host of other factors, such as political and cultural differences, can affect how knowledge is collected, analyzed, stored and put to use? While the time horizon for analysis of this question is still quite limited, the apparent initial answer to that questions is yes. Many of the largest and most successfully run MNCs have become dependent upon, and give credit for their profits to, various functions of knowledge management (7).

Let us examine why firms engage in multinational business in the first place. Usually they have one or more of the following five goals: lowering costs; securing key suppliers; penetrating new markets; reducing the government and/or agency regulatory burden; and increasing their scanning and learning capability. Gaining these advantages has motivated most large companies in the world to become MNCs. In fact, about 450 companies with annual revenues in excess of \$1 billion account for over 80 percent of the total investment made by all companies outside their home countries (8). The last factor mentioned, "global scanning," has become very important during the past decade for MNCs seeking to stay ahead of the learning curve in their industries. For example, a company drawn offshore to secure supplies of raw materials is more likely to become aware of alternative lowcost production sources elsewhere also; a company tempted abroad by market opportunities is often exposed to new technologies or market needs that stimulates innovative product

development (9). Effective KM implementation can aid in accomplishing all of the five factors listed.

There are many multinational firms which employ various knowledge management practices, but no two are identical, and no two have had similar results. Much of the end product realized by effective KM usage is dependent upon such factors as corporate structure, management style, lines of communication and entrenched corporate culture- all of which by necessity differ between corporate entities. Further, while American firms dominated MNC status a generation ago, today many of the largest worldwide firms are from other nations, which introduces a host of other cultural and political factors which can affect both how KM is implemented and the subsequent results:

**Table 1.**

The Top Multinational Businesses in 1999 - (ranked by foreign assets)

<u>Rank</u>	<u>Name</u>	<u>Host Country</u>	<u>Industry</u>
1.	General Electric	U.S.	Electronics
2.	Shell, Royal Dutch	Netherlands/U.K.	Petroleum
3.	Ford Motor Co.	U.S.	Automotive
4.	Exxon	U.S.	Oil, gas, coal
5.	General Motors	U.S.	Automotive
6.	IBM	U.S.	Computers
7.	Toyota	Japan	Automotive
8.	Volkswagon Group	Germany	Automotive
9.	Mitsubishi	Japan	Diversified
10.	Mobil	U.S.	Petroleum

source: Adapted from pages 37 & 38 in United Nations, World Investment Report, 1999

Another element to consider is the fact that the traditional corporate structure is being replaced by a much more fluid and decentralized model, enabling big companies to get even bigger. These changes, including decentralizing, outsourcing, and joint ventures and alliances, are allowing large MNCs to capture efficiencies as they grow, but can also be dangerous if communication lines are not established and information shared. With respect to joint ventures and alliances with competitors, the flow of knowledge is especially critical. Managing the flow involves BOTH the full exploitation of the learning potential created by the venture, as well as PREVENTING

OUTFLOW of any information they do not wish to share with their partners (10). This can be a very delicate balancing act.

We will now examine several successful firms which have experienced unparalleled growth and financial success in the international arena, while at the same time using KM techniques to enable their employees to continue to increase their productivity and performance, and keep their competitive advantage over their rivals. Each case is different, but the importance of the effective management of knowledge and information is the common denominator among them.

### **1. INTERNATIONAL SERVICE SYSTEM A/S (DENMARK)**

ISS was created in 1901 by a Danish lawyer to provide security services for office buildings in Copenhagen. Eventually it also provided commercial cleaning, and the firm profited nicely as corporations began to consider such functions "non-basic" and outsourced them to ISS. By 1992 the firm had 115,000 people in 17 countries spread over three continents. The biggest cost (and problem) for the company was labor turnover. Cleaners are among the lowest paid workers, and it was common to have turnover rates of between 60-100 percent. In the early 1980s, ISS was operating in three continents and had ventured into a dozen specialized cleaning and related businesses. Thus, ISS began a strategic planning process which focused on team-building and participative management, and implemented a Total Quality Management platform. A key element to this effort was an attempt to increase the effective transfer of knowledge throughout the company. They adopted several ideas to attempt to transfer best practices between operations and geographies, including dividing up the Top Management Conference (which exceeded 100 people) into smaller subgroups by divisions, which encouraged more participation and information-sharing. Further, instead of having the meetings annually, they now gather several times a year to share best practices. Also, committees have been established, which meet two to four times each year, to share information and make decisions on common problems in areas such as quality, strategy, human resources, finance and marketing. ISS has found that there is no need for a formal mechanism for sharing ideas and practices below the top management level, and that communication works best on an "informal" basis.

The result of these changes in style and process has been dramatic. Sales rose 22.8% in the first year (1990-1991) and have continued to rise above the former rate throughout the decade. Net consolidated profit rose 30.0% over the next two years. Paul Andreassen, the CEO who had the vision to install these programs, considered his Vision 2000 and TQM strategies to be critical to ISS's future. "Training people, bringing them together, creates new ideas for new services...improves our business, customer satisfaction and value-added service...When someone has a problem in San

Francisco, they can call someone in Amsterdam, and say "Hey John, can't you send me some..." (11).

## 2. GENERAL ELECTRIC

General Electric is a multi-divisional multinational company which has lead out in "pushing the envelope" in an effort to maximize profits and market penetration. It was GE which, in the 1970s, formed an alliance with Toshiba, Hitachi, ASEA and Siemens to develop an improved nuclear boiling-water reactor, sharing upstream R&D but keeping downstream construction and local customer relations to themselves (12). These types of multinational alliances were rare then, but GE has never been afraid to experiment in an effort to improve.

Jack Welch, the famous head of GE, came aboard in 1981, and quickly gave his now-famous command to his 13 Division Heads to become number 1 or number 2 in the world in their respective areas, or face divestiture. By 1986, this goal was attained, and the number of total employees was reduced by 30%, to 298,000. These productivity increases were just the beginning, and were heavily reliant on restructuring and downsizing. Welch believed further gains were possible only if changes were made in the way employees thought, linked ideas together, and learned. He began two simultaneous programs, Work Out and Best Management Practices, to accomplish these goals (13).

Work Out is an internal learning program at GE which is a means for embedding new ideas in the organization. It brings together thousands of employees from manufacturing, engineering, customer service, and even union leaders on a regular basis to redefine work relationships, take processes apart, and attack the "snakes of bureaucracy." This was designed to build trust and teamwork; to encourage employees to think for themselves; and to increase their confidence in the system. Welch realized that ideas from below can be frustrated by middle managers, and the Work Out program forced these managers to accept or reject these ideas on the spot, and justify their decisions to those employees who recommended them and to those who would be affected by their implementation. Quickly, the Work Out program went from a centralized training effort at corporate headquarters to a decentralized program held in each of the 13 divisions with executive and operating committees of their own. The result- each division has autonomous training and input giving management ideas about process improvement, quality, productivity and customer and employee satisfaction (14).

At GE, according to Welch, organizational learning means a receptiveness to all ideas and insights as well as the ability to transmit the resulting energy to other employees. This learning is expected to achieve the firm's goals of speed, simplicity, self-confidence, a boundryless organization, participation, and continuous improvement.



Welch recognized, however, that having only INTERNAL efforts to accomplish this would be insufficient. It assumes that all of the best information and ideas are internal to GE. Thus, Welch supplemented Work Out with an externally-based program called Best Management Practices.

The Best Management Practices was designed to overcome the entrenched idea at GE that "it isn't worth our time if it wasn't invented here." Welch did not just want to grow faster than the global economy- he wanted the RATE of growth at his own company to increase each year. This cannot be done by simply looking within one's own company. The goal was to learn from other successful companies what they had done to excel, and adopt those practices into GE if possible. The first step was to define WHAT productivity was. The second step was to figure out HOW to achieve it.

Since the word "productivity" often meant wholesale firings and lower operating budgets, the word was replaced with the label "best management practices." It was defined to mean "maximizing customer value through the entire value chain...including product development, working with suppliers, cycle time reduction, improving critical processes, building more capable workforces, etc."

The second step involved the creation of a cost center for Best Practices, and an open budget. The goals included:

- 1) Repeatedly achieving 5% annual productivity growth
- 2) Learning from other companies that are more productive and profitable than GE
- 3) Conducting internal multi-business reviews, and visits to external companies, to identify "best practices" and to embed these in GE.

Welch announced the creation of a nine-person "Best Management Practices Steering Committee" and various Best Practices Teams which formulated internal and external case studies of the best practices available for use by GE trainers and management.

Their goals were to:

- 1) uncover areas that required improvement
- 2) find and visit learning partners
- 3) develop Best Practices with the acquired learning partners
- 4) Communicate the learning
- 5) Embed the learning

In order to obtain permission from rival companies to participate in this effort, Jack Welch himself usually made the initial contact, or one of the two vice-chairmen with a personal relationship. Then Michael Frazier, the head of the Steering Committee,

would visit the company to sell the idea of a cooperative venture (15). He offered them three major benefits:

- 1) GE's analysis of the partner's business, including observations and learnings,
- 2) overall results, in a confidential format, synthesizing the approaches to continuous improvement from the best companies in the world, and
- 3) reciprocal visits by the partner to any of GE's 13 divisions.

Frazier also explained in what areas, and how, GE would be optimizing its learning. For example, with a partner chosen for its excellence in human resource management, GE would concentrate its learning on hiring, training and retraining methods, creating a flexible workforce, and successful motivation and reward practices (Amponsen, 3). Among the companies that agreed to participate were:

American Express  
Honda  
Digital Equipment  
Toshiba  
Ford  
Wal-Mart  
Hewlett-Packard  
Xerox

Once the information was gathered, it was synthesized to create a "best of the best"- the five best practices which would serve as a benchmark against which every partner company could measure itself. This was presented to all of GE's partners, who then were free to request clarifications and feedback. This not only resulted in knowledge sharing, but build relationships and trust between companies where little or none had existed before.

#### Results of Best Practices Survey

In summary, the information gleaned from GE's competitors could be categorized into five areas:

##### 1) Process over Programs:

- focus on quality and customer satisfaction
- develop process awareness
- build a shared understanding
- improve process capabilities (define customer's real needs, and the processes to accomplish them)
- use processes as a competitive advantage

## 2) Improve and Integrate Suppliers:

- improve internally
- build understanding together with the supplier
- improve together
- truly integrate

## 3) Increase Product Development Capability:

- redesigning existing products to meet changing customer needs
- develop new products to reach new customers

## 4) Emphasize Systems Speed:

- reduce cycle time to speed up order-to-delivery process
- focus more on "make to order" type of operation, instead of "build to forecast"

## 5) People Made Players Not Spectators:

- see production as a function of "human motivation"
- give every employee a role
- stress common purpose and values throughout the company
- empower employees through skill upgrading, appropriate measurements and rewards, and effective communication

To successfully implement the Best Practices, Welch knew that it had to be communicated effectively, then embedded. He began by having 120 employees from all 13 GE businesses go to corporate headquarters for a week-long workshop. This was done each month, so that 1200 managers were trained the first year. One technique used to overcome the resistance to such training was the use of stock options. Welch realized that the new training would result in a more participative and team-oriented approach, yet individual managers were rewarded based on their bottom line performance. Thus it was necessary to change the bonus system to a more group-oriented focus. Welch authorized the awarding of stock options to thousands more employees, and the criteria for the awards was changed to include team values and performance. With this motivation, the division managers then returned and created committees to train their respective divisions, and to date over 90 percent of GE employees have been trained in Work Out and Best Practices.

It has been over 10 years since Welch implemented some of these changes, and the results have been remarkable. For the ten-year period 1986-1996, the median Fortune

500 company average annual return was 14.1%, while GE returned 20.0%. The market value of GE rose from \$13.5 billion on 3/12/82 to \$169.4 billion on 3/14/97.

### 3. BRITISH PETROLEUM

BP has evolved from an unfocused mediocre performer one decade ago to a lean and vibrant enterprise. Today, BP is the most profitable major oil company in the world; it has paid down its debt from 1992's \$16 billion to \$7 billion in 1997; it has positioned itself favorably in such important oil and gas regions as the Gulf of Mexico, South America, western Africa, the Middle East and the Atlantic Ocean; and BP's finding and development costs are among the lowest in the industry. Output is growing at 5% per year; the size of the BP labor force has dwindled from 129,000 ten years ago to 53,000 today; and the company management paradigm has shifted markedly. How has this transformation occurred, especially given the bureaucratic nature of the oil industry and stagnant worldwide oil prices? Two words explain it- John Browne.

Browne is a visionary man. He speaks of "the shrinking half-life of ideas," "virtual team networks," and "breakthrough thinking." He has flattened the BP organization, created entrepreneurial business units, established webs of alliances- all resulting in surging profits (16). He focuses on processes that foster learning, and tie people's jobs to creating value. He believes that "...knowledge, ideas and innovative solutions are being diffused throughout the world at a speed that would have been unimaginable even 10 years ago...We see it as a tremendous opportunity" (17). He states that "anyone in the organization who is not directly accountable for making a profit should be involved in creating and distributing knowledge that can be used to make a profit. The wonderful thing about knowledge is that it is inexpensive to replicate it if you can capture it...every time we do something again, we should do it better than the last time...No matter where the knowledge comes from, the key to reaping a big return is to leverage that knowledge by replicating it throughout the company so that each unit is not learning in isolation and reinventing the wheel all over again...This builds "knowledge capital", which must flow across the organization. Since hierarchies hamper the free exchange of knowledge, decentralizing is essential..."

To implement these ideas, Browne has created a "virtual team network" at British Petroleum. His desire is to build a flat, decentralized global corporation that excels at learning and has leaders who are deeply engaged in helping to shape the strategy and drive the performance of the businesses (18). At BP, there is NOBODY between the general managers of the business units and the group of nine operating executives who oversee the entire operation with Browne. Browne wants the people in the business units, those closest to the customers and BP's assets, to run their businesses. To do that, knowledge must be shared across geographic boundaries. The aim of the

virtual team network is to "allow people to work cooperatively and share knowledge quickly and easily regardless of time, distance and organizational boundaries." (19).

The network is a rapidly growing system of sophisticated personal computers equipped so that users can work together as if they were in the same room and can easily tap the company's rich database of information. The PCs boast videoconferencing capability, electronic blackboards, scanners, faxes, and groupware. In addition, the company's 35,000 PCs are connected to an intranet containing thousands of home pages and 40,000 pages of company information and databanks.

#### IV. CONCLUSION

Every business day, news of large multinational businesses merging, restructuring and forming strategic alliances greets us. The reduction in regional and global trade barriers by trade agreements such as NAFTA, the Maastricht Treaty and the EEA Agreement, GAAT, and other international trade agreements has resulted in an unparalleled opportunity for MNCs to grow and prosper in the international arena. In today's new economy - characterized by fast-paced change and high levels of uncertainty - enhancing information flows will be a necessity for those organizations to survive and prosper.

Those organizations which seek a competitive advantage by gaining efficiencies, penetrating new markets and scanning the globe for opportunities will, in the opinion of the authors, be unable to do so as rapidly and effectively as their rivals unless they also make use of the techniques of knowledge management. While many MNCs, such as ISS, General Electric, and British Petroleum, have developed and implemented a variety of approaches to knowledge management, most MNCs are in the infancy stages of developing a comprehensive approach to managing organizational knowledge. Without KM initiatives, organizations with even well-developed strategies will underperform those organizations that use knowledge management techniques to advance their strategic position.

In addition, a significant amount of research and development must go into the tools and processes that will enable organizations to implement knowledge management programs successfully. Firms must discover new ways of storing and sharing corporate knowledge across departmental and divisional boundaries. Further, the use of information technology, and the applying of human processes such as enhanced organizational communication practices and organizational design improvements, are increasingly necessary in the global environment. It seems clear that the acquiring, storing and sharing of information will become a major determinant of multinational success in the coming century.

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