

Impact Of Information Technology On The Third Millennium Managers

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Abstract

This paper examines how management style will or should change as the information technology (IT) becomes embedded within the corporate management structure. New challenges resulting from IT and skills required by responsible managers to face these challenges are presented. It is emphasized in the paper that today's manager including top executives must possess at least working knowledge of certain software tools to assist them with data and facts oriented decisions.

The decade beyond the beginning of the Third Millennium will witness significant reduction in layers of management due to the availability of easy to use software, hardware, and easy access Internet, Intranets, and Extranets. Firms with foresight into and commitment to optimally using IT will be in a position to reduce product and service costs and schedules. If firms and their key managers shy away from incorporating IT into their functions, especially those related to production and operation of whatever products or services they offer, they may not survive.

Key Words: Information Technology, Collaborative Systems, Internet, Intranet, Extranet, Software Tools.

Background

The beginning of the Third Millennium brings with it new issues and challenges to the corporate manager. Internet, Intranet, and Extranet (O'Brien, 1999) have given rise to new phenomenon of doing business electronically. Electronic Commerce (Schneider and Perry, 2000) as it is called has brought the world closer together than ever before. For example, a small 'hick up' in the Japanese stock market has its ripple effect felt immediately on the New York Stock Exchange or NASDAQ. These stock exchanges may open higher or lower the next morning in spite of no significant news in the US. Many of today's corporations have truly become multinational and multicultural in nature. Raw material may come from a country thousands of miles away while fabrication and subassembly process may take place in different country and the final assembly is done in the US. Today's manager whether he is responsible for a product or service in any type of organization has to be concerned with global situation beyond his country of permanent residence. He has to understand the cultural and ethical issues and management differences and adapt quickly to stay competitive.

Within a significant number of firms today, departments and divisions enjoy rigid hierarchy and control of functions whether they involved people, products, services, or

processes. Managers are in full control of their small area or section and they do not prefer outside influence in their decision-making authority. As a result, the approval cycle, say, for a change to product or service takes a long time. This situation becomes worse for the introduction cycle of a new product. In the past it worked quite well because US corporations did not really have much competition (Kolarik, 1995), but now emerging technologies are being employed rapidly by the corporate world. These technologies are designed to reduce cycle time and if an organization continues its old ways of rigid over-the-wall (Chase, Aquilano, and Jacobs, 1998) approach, for example, in the introduction of a new product or service, it will operate at diminished productivity and eventually may have a major failure.

Corporations need to break the rigid hierarchical barrier and work with every one involved (i.e., the customer, supplier, employees, government, etc.) at the same time to accomplish quick decisions. Internet and EC have enabled businesses in overcoming this hierarchical barrier. For example, if the machine operator producing a prototype of new product has a design-related question and he can not locate his immediate supervisor, he ought to be able to contact the design engineer immediately via email or some such electronic communication capability to resolve the problem quickly. If corporations do not promote and adopt a collaborative environment, they may not be successful in the not too distant future.

IT Implementation Challenges and Required Managerial Skills

Today's manager should be skilled not only in management and people issues but also he should possess core competencies in technical and technological issues. For example, while screening applications for a job in the information systems department, the recruiting staff in Human Resources must have enough knowledge to decipher technical terms in the applicant's resume. IT's impact is eclectic within a firm in the sense that all functional areas (e.g., marketing, accounting, finance, manufacturing, engineering and others) are affected and all levels of management feel the impact of IT. Specific challenges and corresponding managerial skills and knowledge are described as follows:

Technical Knowledge: In the corporate world today, most of the functions are computerized or are being computerized and networked. This means that the manager in charge of the function must have at least working knowledge of the system he is responsible for or is using. If he is not and if he is not willing to learn he may end up making a wrong decision simply because he does not fully understand the system. For example, if a junior but technical employee who reports to a manager who had shied away from learning computer systems, recommends a software for functional improvement, he may either readily accept the recommendation or may become overwhelmed and may shun the recommendation. All this, because he has no knowledge.

Possession of sufficient technical knowledge to assist with the right decision should be a requirement for a technical management position in today's IT environment. A manager including directors and VP's should be able to work with comfort, say, Microsoft Office (Microsoft Corporation's Office 2000) products.

General Management: People skills has always been a fundamental requirement of a manager. More than ever before, today's manager has to possess people skills as he deals with suppliers, employees, and customers at an international level. Nations have their own cultures, religions, and definitions and practice of ethics. He has to understand cultural, religious, and ethical aspects (McLeod, Jr., 1995) as he interacts with every one involved. For example, if he is manager of software product development in a US corporation and some software is being developed in India, he should create a collaborative environment by respecting their religious holidays. In the US, today's manager should be flexible enough to allow deserving employees to work from home. The Internet has made it convenient to get some business work done from home. He should develop trust between him and the employee.

Global Competition: IT has created a great challenge for today's manager in terms of competition at a global level. He must develop IT strategies suitable for his firm (Frenzel,1999) and provide leadership in attaining a competitive advantage for the firm. Besides cultural and ethical issues, he should develop clear objectives and goals that are implementable domestically and in subsidiaries across the globe. He should, for example, motivate all his employees to enhance productivity in their individual areas and what he can to facilitate their work.

Acquisition and Mergers: Many companies are facing and meeting the challenge of global competition by way of joining hands together with other companies in the same field whose products and services compliment their own. Acquisition and mergers have created a challenge by themselves to the management. Top executives have to be on a constant vigil to find out if some corporation is moving aggressively to acquire their company.

How should the management cope with this problem? This is complicated question, which has many answers, but foremost among these answers is the use of the most up to date and accurate information about all competitors and to stay highly productive to avoid any acquisition attempt. Or even if his company is a target, he can negotiate a profitable deal for his company.

Productivity: Productivity deals with how much output a firm can produce for a given amount of input (Stevenson's Book). For example, if a firm is producing 100 parts in 15 labor hours, the labor productivity is 6.67. Higher productivity means producing more units with smaller resources. A challenge today, is that the productivity will certainly improve if a conventional process is replaced by high tech machines, but the high tech implementation may be very expensive. Tradeoffs have to be performed to determine whether or not an IT implementation is economically feasible.

A related challenge is what technology option to select for a process. A scientific evaluation of all alternatives must be performed while selecting a technology solution.

Product/Service Quality: The customer of the new Millennium not novice. This once again is attributable to the Internet and IT. A customer can use the Internet to obtain information on the product he wants to buy or the service he needs from all competitors and select the one that best fits his needs. Also, his level of knowledge about the product/service quality goes beyond aesthetics and the price. He is interested in for example on a product, in reliability,

maintainability, durability, etc. For a service he is very much interested in delivery time, service warranty, etc. Today's manager has to assume that the customer has done all the research before buying a product or service.

The customer's knowledge transforms into the manager recognizing the importance of quality. He should embed quality in all steps of the life cycle of the product or service he is selling. He should be trained in fundamental quality control philosophy, techniques, and strategies (Kolarik, 1995).

Reengineering/Redesign: Legacy systems (O'Brien, 1999) coded originally in FORTRAN or COBOL present a challenge from the standpoint of burden on the mainframe. The manager must examine legacy systems and their hardware, software, and staff attention requirements to ensure their proper running and to ensure their efficiency and effectiveness. If they are burdensome to execute and to maintain he should be prepared to redesign them with a better system, such as PC based client server (McLeod, 1995) network system.

Besides legacy systems, processes that create products and services can also become outdated. New emerging technologies with shorter and shorter cycle time add to the challenge. For example, conventional eye surgery in the field of medicine is giving way to laser guided surgery. If an eye surgeon does not retrain himself with newer processes and techniques, he stands to lose a significant share of his customer base and referrals.

Process reengineering (Blanchard, 1998) is a valuable tool for the manager today to improve an inefficient process. It can be and needs to be applied to processes in any discipline or field - - inventory, accounting, finance, manufacturing, and engineering.

Product/service Backlog: Electronic Commerce and the Internet make it convenient for today's busy customer to browse and do their shopping at times suitable for them. Statistics indicate that buying on the Internet has surged and it will continue to rise in the future. If a firm decides to go with the EC route, it had to bear in mind that it can cause a backlog of orders. Overnight, customers can keep placing orders with no responses or no action from the firm because it is closed. The responsible manager needs to work out strategies and execute them to make sure that the backlog is kept at a minimum. For example, the manager can start the day earlier for order processing analysts, say 5:00 AM. And there can be other strategies as well. Supply of the product or service must be made available to respond to fast placed orders. The delivery system should also be in place for on time shipments. The inventory system should be reengineered to ensure that there exists a balance between the supply and the demand.

Today's manager must understand and apply Just in Time – JIT (Chase, Aquilano, and Jacobs, 1998) concepts more than ever before, to maintain the supply-demand balance.

Product and Service Cost/Revenue/Schedule: A major negative impact is that some times managers get carried away with IT so much that they want IT just for the sake of IT. That is, they ignore the economics and tradeoffs of acquiring IT solution and end up spending a great deal of money on and IT that might not have been fully tested. Typically, for example, PC chips change in their Mhz capacity every few months. If a manager is inclined to change his laboratory or

computer systems every time a new chip is introduced, he may end up spending all his time and energy on making changes and nothing actually related to product or service gets done. This approach has a detrimental effect on the cost, revenue, and delivery schedule.

Another aspect of cost, revenue, and schedule is that IT implementation of a product or service, or a process is supposed to or it should reduce its cost, cycle time, and increase revenue (comments by A. Greenspan at his nomination hearing on January 25, 2000). The responsible manager should examine all possible alternatives to ensure an optimal or near-optimal solution for his product or service.

Use of Suitable Computer Tools by Managers

In the past, managers shied away from the use of computers due to a number of different reasons. Even today, some managers do not want to use the computer, which has become a necessity and which can provide them many benefits. Among most prevalent reasons are - - the fear of making a mistake, computer phobia, perceived threat of being displaced by the computer, and perceived loss of control over decision making.

Specific skills and characteristics needed by today's manager to meet challenges of IT implementation, have been described in the previous section. Possession of previously mentioned technical competence automatically implies that a responsible manager should equip himself with suitable software tools. These tools can be used to perform a variety of day-to-day functions such as keeping track of the budget, maintaining the daily calendar, writing memos, sending email and to actually work on business problems for which his staff is responsible. For example, he can use Schedule Plus (Microsoft Corporation's Outlook, 2000) for his daily calendar, Microsoft Excel for summarizing and analyzing inventory data, if this is what his staff is responsible for. There are many benefits with the use of computers by the manager. For example, he can look and analyze the information created by some one else from his own managerial angle. He can detect problem areas and find better solutions. This way, he has control over the data that he manages.

On the other hand, if he stays away from the use of the computer, and depends totally on his secretary or staff for he may have difficulties if the secretary or a staff member is absent for one reason or another. Besides, he can maintain confidential data (e.g., salary information) on his own computer and work with it any time he desires to do so. In short, there are only benefits associated with the use of the computer by the manager.

Conclusion

Information Technology has impacted all levels of management in the all areas of business. Without a doubt, business problems and their solutions require IT implementation. The paper discusses specific challenges and corresponding skills and characteristics that are needed by today's manager.

1. A responsible manager must have sound computer skills besides traditional people and management skills to assist with decision accuracy.

2. More than ever, the manager today must adapt quickly to the cultural and ethical aspects of different nations he deals with as part of his multinational business.
3. Today's manager must know that the Electronic Commerce, Internet, Intranet, and Extranet are not only here to stay, but also they will become a business requirement in not too distant future. He should accept the computer and network features with open arms and use them.
4. Today's manager must be knowledgeable in technical skills to assist with decision accuracy.

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