"Communication Technologies and its Implication for Business Process Reengineering: A Case for Indian Companies"

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ABSTRACT

One of the most fundamental management shifts in the twenty first century hasbeen the change in emphasis from task management to focus on continual reorganization of organizational processes so as to ensure maximum value to organizational customer. In a sense, this means that organizations start over reevaluation ways in which they create products or services that deliver value to the customers. What has further fueled this shift is the mind-blowing development in the area of communication technology and by increased spending of organizations on having a robust communication infrastructure. We are currently witnessing technologies that provide new channels for communication that fundamentally affect how work is done, how decisions are made, and how organizations are designed. All this change is collectively called Business Process Reengineering or simply reengineering. Reengineering means tossing aside old, established ways of conducting business and starting over, re-creating a company that incorporates the use of new ideas and current technologies. Hammer and Champy (2001) formally defined reengineering as "............ the fundamental thinking and radical design of business processes to achieve dramatic improvement in critical, contemporary measures of performance, such as cost, quality, service and speed.

The major components of any reeengineering exercise are namely Enterprise Resource Planning (ERP), Supply Chain Management (SCM) and Customer Relationship Management (CRM). ERP is a business management system that integreates all facts of the business including planning, manufacturiing, sales, and marketing. As the ERP methodology has become more popular, software applications have emerged to help business managers implement ERP in business activities such as inventory control, order tracking, customer servce, finance and human resources. Supply chain management is the combination of art and science that goes into improving the way your company finds the raw components it needs to make a product or service, manufactures that product or service and deliver it to customers whereas CRM is a process to build profitable relationship with customers, thereby fostering repeat business.

Through this paper, an attempt shall be made to understand the communication channels and strategies used by organizations trying to implement any of these reengineering processes. Each of the concepts mentioned above are basically off shoots of developments in communication technologies forcing companies to realign their resources, give a rethink to their strategies and giving new dimensions to the Supplier-Manufacturer-Customer Chain. More and mre organizations are looking at building infrastructures to support two-way communication with key players in the Value Chain. The results of the paper clearly highlight the fact that not only organizations have been able to improve their productivity, but also at the same time, it has helped them fight for a space in the global economy.

INTRODUCTION

In today's dynamic and trubulent business environment, there is a strong need for the organization to become globally competitive. The survival guide to competitiveness is to be closer to the customer and deliver value added products and services in the shortest possible time. This, in turn demands integration of business processes of an enterprise. There has to be much scope for communication between the customers and manufacturers. This means that, in order to produce goods tailored to customer requirements and provide fater deliveries, the improved delivery performance, decreased lead times within the enterprise and improved efficiency and effectiveness, manufacturers need to have efficient planning and control systems that enable very good synchronisation and planning in all the processes of the organisation. Enterprise, Resource Planning is such a strategic tool, which equips the enterprise with the necessary capabilities to integrate and synchronise the isolated functions into streamlined business processes in order to gain a competitive edge in the turbulent business environment.

Organizations throughout the world are going through rapid and major changes. Such changes often affect the patterns of interaction and co-operation within and outside an organization, and this in turn is bound to affect requirements for computer support. Organizations must be increasingly flexible if they are to remain competitive in today's environment. Business Process Re-engineering has been put forward as a way to improve adaptability. The development of electronic technologies for storing and transferring information in the past two generations has been exponential. Things are now being done in electronic communications, which once would have been thought impossible. These developments have changed not only the speed and way in which we now communicate. Communications Technology will be one of the key factors driving progress in the 21st century- it will transform the way we live, learn and work in business, research, and social interaction. It will provide us with new tools for communicating througout the world. It will also help us understand how we affect the internal environment of organization and how best to protect it.

One of the most visible examples of applications of Communication technologies can be seen in manufacturing. Manufacturing, as a business activity used to be a much simpler process than the covoluted melange of hardware and software choices that confront manufacturers today. Once upon a time craftsmen built things for local customers, with quality and price being the primary concerns of the buyers. As more produts became available, convenience was added to the mix. Now a days, speed of information flow has made manufacturing a global, not a regional or local business. Coupled with advertising, the ability to move information at the speed of light has opened up all corners of the globe to makers of all products. Blame it on information. The computer in the words of one prophet has made mistake making easier and faster. Now what could we expect? It has also allowed small companies to become giants in their industries by giving them the greatest equalizer since the Colt pistol arrived in the Old West. Where only the upper reaches of the Fortune 500 could afford computing power in the 1950s and 1960s, starving students have equal power on their in the 1990s. Mid-sized companies have access to the same quality of information as General Motors. The question is no longer relevant, where can I get the information I need? The question now, is what do I do with all the information I have?

ENTERPRISE RESOURCE PLANNING

In modern manufacturing operations, information stems at the top and the bottom simultaneously. Data originates at the machines, the process and the workers. It is collected by sensors, controls and operators. It indicates what is being made, how and where, when it will be done, and why it won't be on time. The information sharing is not confined within the walls of a single entity.

its data flows go out to suppliers and vendors, customers and prospects. Information is presented on Internet sites and transferred to toerh computers on a network at the speed of light or around the world via cable and radio beams bounced off satelliters. Nothing equals the computer for making the world a much smaller place. What you find out can be shared with another person or even millions of people at the same time 'you learn it yourself. Design and product development can be a collaborative process without barriers of space and time. Groupware, data management and communications combine to allow everyone to sit in the same office, regarless of where they are physically located.

Enterprise Resource Planning (ERP) are management information systems that integrate and automate many of the business practices associated with the operations or production aspects of a company. These typically include manufacturing, logistics, distribution, inventory, shipping, invoicing and accounting. Enterprise Resource Planning or ERP software can aid in the control of many business activities, like sales, delivery billing, production, Inventory management, and Human Resource Management. In all facts of complex business processes lies the basic function of Communicating and communicating well. The essence of all the technology applications, be it ERP or for that matter CRM is more and more communication and finding out technologies and ways to make this communication timely and effective.

The essence of ERP is the fundamental premise that the whole being greater than the sum of its parts. The traditional application systems, which the organisation generally employ, treat each transaction separately. They are built around the strong boundaries of specific functions that a specific application is meant to cater. For an ERP, it stops treating these transactions separately as stand-alone activities and considers them to be the part of the inter-linked processes that make up the business. Almost all the typical application systems are nothing but the data manipulation tools. They store

data, process them and present them in the appropriate form whenever requested by the user. In this process, the only problem is that there is no link between the application systems being used by diffferent departments. An ERP system also does the same thing, but in a different manner. There are hundreds of such data tables, which store data generated as a result of diverse transaction, but they are not confined to any departmental or functional boundaries, rather integrated to be used by multiple users, for multiple purposes and at multiple places.

Enabling technologies

It is not possible to think of an ERP system without sophisticated information technology infrastructure. It is said that, ERP is the finest expression of the inseparability of business and information technology. The incremental improvement in the information technology and the drastic reduction in prices of computers have made it possible even for the small organisation to think about ERP systems. The earlier ERP systems were built only to work with huge mainframe computers. The new era of PC, advent of client server technology and scalable Relational Data Base Management Systems (RDBMS) all have contributed for the ease of deployment of ERP systems. Most of the ERP systems exploit the power of Three Tier Client Server Architecture. In a client server environment, the server stores the data, maintaining its integrity and consistency and processes the requests of the user from the client desktops. The load of data processing and application logic is divided between the server and the client. The three tier architecture adds a middle stratum, embodying all application logic and the business rules that are not part of application, enforcing appropriate validation checks. It is assumed that the companes implementing ERP solutions have multiple locations of operation and control. Hence, the online data transfer has to be done across locations. To facilitate these transactions, the other important enabling technologies for ERP systems are Workflow, Workgroup, GroupWare, Electronic Data

Interchange (EDI), Internet, Intranet, Data warehousing etc.

Enterprise Resource Planning: The Indian Experience

The Indian Industry has reacted very swiftly and positively to the coming of ERP concept and most of the companies, immaterial of their line of business have gone in for some level of adoption of ERP technologies. The only road block has been the cost factor and relatively poor level of awareness as to what exactly could be the benefits from this concept.Nevertheless, many companies have gone ahead and implemented ERP and have already shown huge gains both in terms of increased productivity at shop floor and better margins resulting in improved bottom lines finally. Tata Motors, Maruti, GRASIM, L&T, Colgate, etc are a few names to mention about Indian companies who have successfully implemented ERP. Here is some critical information about Colgate which will give some insight into the effects of ERP.

Colgate is a global consumer products company that implemented SAP R/3 Enterprise Resource Planning System to access more timely and accurate data get the most out of working capital and reduce manufacturing cost. The implementation of SAP across Colgate Supply chain contributed to increase profitablity. Global efficiencies in purchasing combined with product and packaging standardization produced large savings.

- Before ERP, it used to take Colgate anywhere from one to five days to acquire an order, and another one to two days to process the order. Distribution planning and picking used to take up to four days. But today order acquisition & processing combined takes four hours, not up to seven days. But today, it takes 14 hours. In total, the order to delivery time today has been reduced to half of that the traditional processes.

- Before ERP, on time deliveries used to occur only 91.5% of the time and cases ordered were delivered correctly 97.5% of the time.

But today, it takes 97.5% and 99.0% respectively.

AfterERP, inventories have dropped by one-third and receivables outstanding have dropped from 31.4 to 22.4 days. Working capital as a percentage of sales has plummeted to 6.3% from 11.3%. Total delivery cost has been reduced by nearly 10 percent.

Strengths and Problems Areas

The benefits from enterprise resource planning are claimed to include:

- lower inventory carrying, ordering, production, accounting and record keeping, transportation costs

- lower investment in land, plant and equipment

- reduced assembly-line down-times, fulfillment times and number of stock outs

- more flexible production processes

- more efficient lot sizes and scheduling

- increase process transparency for the customer

- allow greater product customization, and thereby better match the exact needs of the customer

- the customer satisfaction improvements (mentioned above) could increase sales volume, increase sales revenue (due to a higher effective price, i.e. - no discounts) increase market share, and increase profitability

Disadvantages

The benefits from enterprise resource planning are claimed to include:

- the systems can be very expensive to install and maintain

- some systems can be difficult to use

- the system is no better than the weakest link in the chain-a problem in one department or at one of the partners will affect all the other participants

SUPPLY CHAIN MANAGEMENT

At the very outset, let us be very clear that Supply Chain Management (SCM) is only a logical extension of ERP and therefore it cannot be segregated from ERP and looked separately. Both go together; more precisely SCM is a sub set of a larger domain called ERP. Supply chain management is the efficient management of the end-to-end process, whic starts with the design of the product or services and ends with the time when it has been sold, consumed and finally, discarded by the consumer. This complete process includes product design, procurement, planning and forecasting, production, fulfillment, after-sales support, and end-of-life disposal. A supply chain is the set of entities involved in the design of new product and services, procuring raw materials, transforming theminto semi finished and finished product, and delivering them to the end customer. In other words a supply chain may be defined as an integrated process wherein a number of various business entities (i.e., suppliers, manufacturers, distributors, and retailers) work together in an effort to:

- Acquire reaw material

- Convert these raw material into specified final products

- Deliver these final products to retailers.

The chain is traditional characterized by a forward flow of materials and a backward flow of information. For years, researchers and practitioners have primarily investigated the various processes of the supply chain individually. Recently, however, there has been increasing attention placed on the performance, design, and analysis of the supply chain as a whole. From a practical standpoint, the supply chain concept arose from a number of changes in the manufacturing environment, including the rising costs of manufacturing, the shrinking resources of manufacturing bases, shortened product life cycles, the leveling of the playing field within manufacturing and the globalization of market economies. The current interest has sought to extend the traditional supply chain to include, reverse logistics to include product recovery for the purpose of recycling, re-manufacturing, and re-use.

A supply chain is therefore comprised of two basic integrated processes:

- The Production Planning and Inventory Control Process, and

- The Distribution and Logistics Process

These Processes, illustrated below in Figure 1, provide the basic framework for the conversion and movement of raw materials into final products.
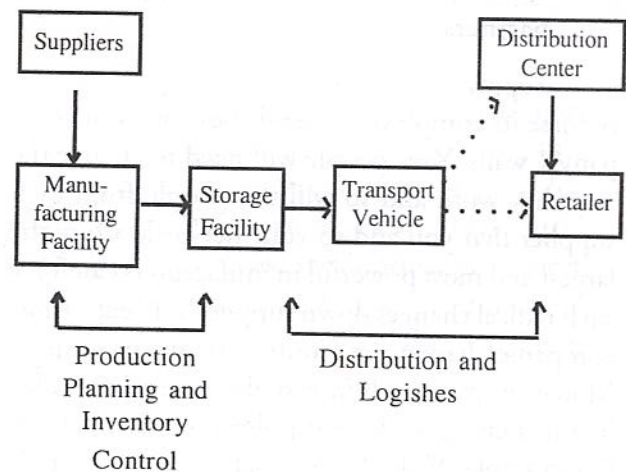

Figure1. The Supply Chain Process

The Production Planning and Inventory Control Process Encompasses the manufacturing and storage sub-processes, and their interface (s). More specifically, production planning describes the design and management of the entire manufacturing process (including raw material scheduling and acquisition, manufacturing process design scheduling and material handling design and control). Inventory control describes the design and management of the storage policies and procedures for raw materials, work-in-process inventories, and usually, final products.

The Distribution and Logistics Process Determines how products are retrieved and transported from the warehouse to retailers. These products may be transported to retailers directly, or

may first be moved to distribution facilities, which, in turn, transport products to retailers. This process includes the management of inventory retrieval transpotation, and final product delivery. These processes interact with one another to produce an integrated supply chain. The design and management of these processes determine the extent to which the supply chain works as a unit to meet required performance objectives. Figure1. The Supply Chain Proces

Roadblocks to installing supply chain management

- ### Gaining trust from your suppliers and partners

Supply chain automation is uniquely difficult becuase its complexity extends beyond your company's walls. Your people will need to change the way they work and so will the people from each supplier that you add to your network. Only the largest and most powerful manufacturers can force such radical changes down supplier's throats. Most companies have to sell outsiders on the system. Moreover, your goals in installing the system may be threatening to those suppliers, to say the least. For example, Wal-Mart's collaboration with P & G meant that P&G would assume more responsibility for inventory management, something retailers have traditionally done on their own. Wal-Mart had the clout of demand this from P&G, but it also gave P&G something in return-better information about Wal-Mart's product demand, which helped P&G manufacture its products more efficiently. To get your supply chain partners to agree to collaborate with you, you have to be willing to compromise and help them achieve their own goals.

- ### Internal resistance to change

If seeling supply chain systems outside is difficult, is in't easier inside. Operations people are accustomed to deal with phone calls, faxes and hunches scrawled on paper, and will most likely want to keep it that way. If you can't convince people that using the software will be worth their time, they will easily find ways to work around it.

You cannot disconnect the telephones and fax machines just because you have supply chain software in place.

- ### Many mistakes at first

There is a diabolical twist to the quest for supply chain software acceptance among your employees. New supply chain systems process data as they are programmed to do, but the technology cannot absorb a company's history and processes in the first few months after an implementation. Forecasters and planners need to understand that the first bits of information they get from a system might need some tweaking. If they are not warned about the system's initial naivete, they will think it is useless. In one case, just before a large automotive industry supplier installed a new supply chain forecasting application to predict demand for a product, an automaker put in order for an unusually large number of units. The system responded by predicting huge demand for the product based largely on one unusual order. Blindly following the system's numbers could have led to inaccurate orders for materials being sent to suppliers within the chain. The company caught the problem but only after a demand forecaster threw out the system's numbers and used his own.

That created another problem: Forecasters stopped trusting the system and worked strictly with their own data. The supplier had to fine-tune the system itself, and then work on reestablishing employees' confidence. Once employees understood that they would be merging their expertise with the system's increasing accuracy, they began to accept and use the new technology.

SCM gaining acceptance in India

Supply Chain Management is gradually making inroads into corporate India, but it will be quite a while before industries here are ready to go whole hog and embrace SCM completely. The auto giant Mahindra & Mahindra has been able to reduce is inventory by 20-50 days in this year, FMCG major Hindustan Lever has reduced its inventory from about 45 days to less than 5 year, while in

LG's case the reduction has been around 30 days. All these successes have one common denominator: the adoption of supply chain management (SCM) solution and judicious optimization of the entire supply and distribution chain as a result. The benefits have not only been in terms of inventory reduction: Mahindra made saving of about 30 percent, HLL has realized savings to the tune of 35 percent while LG saved about Rs 4.7 crore. HLL credits the improve supply chain performance for increasing 2003 annual profit margins by 20.9%. Similarly costs for raw material were reduced by 5% on-hand inventory levels were cut by 33% and customer service levels were increased by 10%

No wonder, then that such success stories have had a positive effect on India Inc. with almost 90 percent of India corporate now believing efficiency in SCM as vital for their business. Expectedly, the Indian market for SCM solutions had touched Rs 107 crore in 2001. According tp IDC India, this market is expected to grow by 26 percent to reach 597 crore by 2004. The importance of supply chain management in India can be gauged from the fact that logistics cost is in the range of 10-12 percent of our GDP. As per the recent CMIE database, over Rs 1,00,000 crore of total capital is tied up in inventories in the industrial sector. This is close to 22 percent of aggregate industry sales. This may be attributed to many reasons, like increasing complexity and uncertainly of supply networks, globalization of businesses, profifereation of product variety and shortening of product lifecycles.

CUSTOMER RELATIONSHIP MANAGEMENT (CRM)

Customer satisfaction is the primary focus of most organizations these days. The rapid growth in technology has also increased the expectation of customers in terms of the quality and service of products. In past, the only point-of-contact for companies with their customers were sales personnel. Today, however, there are a variety of channels available. These include sales people, service personnel, marketing departments call centres, e-mail, cell phones, fax, and Internet. While each of

these units can function independently the challenge faced by most companies today is how to integrate these various modes of communication so that information is availiable across diefferent channels in a company. For example, a customer who makes use of the Internet to place an order online would also expect the call center staff to know his order details in case he calls the call center for order verification. This is where CRM (Customer Relationship Management) System steps in. It helps companies in setting up a frontline information system for sharing information about the customers across all interface units. CRM provides a more interactive and personalized way of communicating with customers.

CRM concentrates on the relention of customers by collecting data from every interaction every customer has with the company using this data for speicific marketing, services, support for sales purpose while designing a customer-centric apprach. The idea is to use the information to meet customer needs better, build loyalty, and increase effciency through call centers and other marketing activities. CRM package should cut costs and encourage communication.

It consists of:

- Helping an enterprise enable its marketing departments to identify and target their best customers, manage marketing compaigns with clear goals and objectives, and generate quality leads for the sales team.

- Assisting the organization to improve telesales and sales management by optimizing information shared by multiple employees, and streamlining existing processes (for example, taking orders using mobile devices)

- Allowing the formation to individualized relationshop with customers, with the aim of improving customer satisfaction and maximizing profits; identifying the most profitable customers and providing them the highest level of service.

- Providing employees with the information and process necessary to know their customers, understand their needs, and effectively build relationships between the company, its customer base, and distribution partners.

CRM, conceptually, is an enterprise-wide initiative that belongs in all an organization. Customer-Driven business management should be embraced by all function at all levels. The full implications of customer relationship management could mean a dramatic shift in emphasis by the supplier from organization by function to an organization aligned to specific customers or groups of customers, which, in turn, means changes in the structure of the business, the responsibilities and the relative status of the individual in the business and may be even the product itself. Customer Relationship management is a philosphy of doing business in a highly competitive market with a strategic orientation that focuses on keeping and improving relationship with the existing key customers to develop life time customers and enhance lifetime value of the customers. CRM in a nutshell can be described as a discipline as well as a set of discrete software and technologies which focuses on automating and improving the business processes associated with managing customer relationship in the area of sales, marketing, customer service and support. CRM enables co-ordination of multiple business channels of cummunication with the customer such as, face-to-face, the telephony, the web etc. This helps organizations accomodate their customers preferred choices of interactions.

CRM benefits

World experience has shown CRM implementation increases number of customers, increases customer retention rate by retaining most profitable customers, increases customer loyalty and helps in developing lifetime relationship with customers.

- **Strategic benefits**

Customer relationship management does not enable a quick win. It is a long-term approach that has to be adopted at a strategic levle. Customer relationship management enables a company to reduce the cost of customer acquisition, Increase customer retension, Improve cross selling of other products and services and give established players the ability to react like a new entrant. Companies are fast realizing that the competencies required to deliver these benefits are to deliver on its service promise, integrate products and service channels effectively, customize products, services and prices, create opportunities for cross selling and delivery mechanisms for the onward promotion of their products and services, reduce time to market by allowing quick and effective introduction of new products and services.

- **Functional benefits of CRM**

Strategy formulation in today's highly competitive environment is the most important and difficult decision for any firm to make. The maximum strategic benefits of CRM Initiatives come to strategic decisio markers, IT, delivery sections, after sales etc.

- **CRM experience in India**

There have bee various success stories in the Indian business world when it comes to using some level of CRM integration in their business process reengineering grand plans. Comapanies across the industries have got into major initiatives to woo their customers, retain them and eventually cross sell and foster a long-term relationship. Titan Watches, one of the largest watchmakers in India is a perfect example of how companies have gone overboard to try and lure customers and retain them.

It followed some simple steps. The results reveal the difference. Unique features that helped organizations shine are:

- Building a special relationship with high life time value

- Recognizing and rewarding his/her loyalty

- To provide superior value to customer on a sustained basis

- Cement a relationship

- Increase trust

- Build enduring brand values

- Identify the customers likes and dislikes-his psyche (database)

- Keep up the continuous learning process about the customer (dialogue)

- Have some way of directly communicating with them (direct media)

Studies show that if customer retention is increased by five per cent, profits go up by 25-30 percent. An allied finding in research studies is that new customer cost about 20-40 per cent more than that compared to traditional retail outlets but repeat consumers spend twice as much in the second and third year than what they spend in the first six months (in certain categories). Perhaps, that's why e-stores expand their product categories even at the cost of focus. infrastructure to deal with 16 million stock keeping units). Repeat consumers are also known to spread the word of mose through referrals. CRM, in this context, has to show great care in segmenting customers and offerings, which are customized to these micro-niches. Micro-niches could emerge as a result of diversity in preferences across categories. Yet again, the lifetime value of customers selected for relationshops becomes critical, apart from the technological infrastructure required for tracking the preferences of these customers after winning their thorough interactive ways.

CRM might be a very useful marketing tol if marketers are able to integrate conceptual thinking and sophisticated technology. Apart from loyalty and satisfaction linkages, communication is a vital aspect of any CRM programme. Communication with regard to sophisticated offerings concerning the product category, the efforts of the company/ brand to keep itself updated in terms of the benefits offered, satisfied customers of a CRM programme and specific benefits of a CRM programme may help a marketer keep in touch with a prospective target segment of consumers who may like to be a part of a CRM programme.

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