



INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE AND MANAGEMENT

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EVOLVING BUSINESS ENVIRONMENT: A CASE STUDY OF OMANI ECONOMY**DR. MATHEW PHILIP**

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ABSTRACT

In the competitive global market of today, the magnitude of successful change has been assumed as the measure of sustained success. Changes are occurring in every field of knowledge. Keeping pace with that, the domain of applied business and economics has reached to a newer height. The present paper portrays the change phenomena in the six major areas viz., i) economic scenario, ii) organizational behaviour and human resource management, iii) operations management, iv) management information system, v) financial management, and vi) accounting practices. It analyzes the need for the changes, and the external environment that accentuates the change process. Such a reflection needs special attention and consideration for the transformation of Oman's oil based economy.

KEYWORDS

Evolving Business Environment, Oil Economy, Non Oil Economy

INTRODUCTION

Today's successful corporate houses deal with a wide variety of products and services. They learn and evolve their own technology in the midst of rapid technological advances all around. They introduce newness in their products and services to expand their horizon at the far corner of the globe with the help of super-computer and massive data bases. They continue to innovate organizational changes for sustained success in the midst of acute competition. Researchers and practitioners in the field of applied business and economics continue to be engaged in search of still better methods of analyzing the available information, taking decisions, monitoring actions, servicing the customers and continue to achieve excellence in the areas of concern of all stakeholders. In such a scenario we see Oman which was heavily reliant on oil revenues has devoted considerable resources to diversify its economy. With proven gas reserves of 30 trillion cubic feet, expanding natural gas production has become the chief focus of Oman's strategy of its new transformation. Sohar, once thriving on agriculture base has become the nerve centre of industrial renaissance with the coming up of a number of heavy industries like fertilizers, methanol, steel, aluminium, and the greatest landmark, the port of Sohar with an outlay of \$220 billion, one of the Gulf Region's most ambitious mega projects. Perhaps, it is the right time for the corporate managers, and government administrators in Oman to have a critical look at the changing scenario of the management process in different functional and strategic areas around the globe, and weigh the efficacy of those changes relevant to their own organizations here in Oman.

CHANGES IN THE ECONOMIC SCENARIO

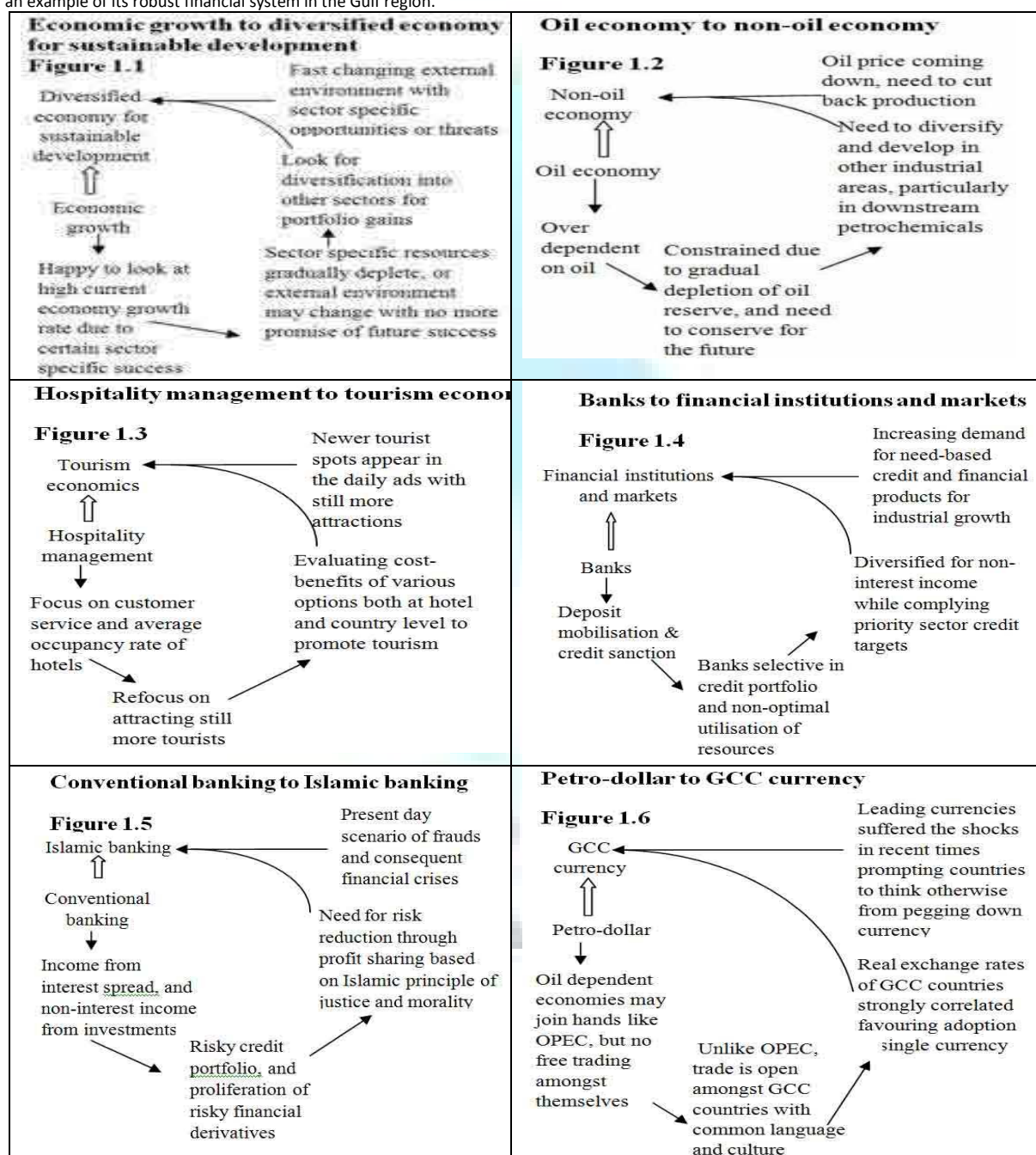
Earlier any country used to be quite complacent to look at its growth rate in its GDP. All Omanis, for example, would be proud to see 16.5% growth in GDP of Oman on an average for the last four years. But as the resources specific to certain sectors gradually deplete or external environment might change, the country needs to diversify into other promising sectors for sustained economic growth and development (Figure 1.1).

In case of Oman, oil reserve is being gradually depleted, and extraction of oil from the existing oil wells is becoming costlier, Oman need to diversify into non-oil sector to maintain the steady growth rate of its economy (Figure 1.2). In fact, Oman has been diversifying during the last few years, and non-petroleum output has contributed 56% of its total GDP in 2007. The need for non-oil sector has become all the more important, particularly when the oil price is coming down, and consequently, Oman may have to think to cut back oil production to conserve for the future as a strategic move.

In the non-oil sector, for Oman, for example, besides the number heavy industries it could possibly utilize its extra ordinary scenic beauty of the Gulf of Oman to develop many more tourist attractions, and move from narrow view of hospitality management towards a full-scale tourism economy (Figure 1.3) perhaps like Bali in Indonesia or Fiji Islands in the Pacific region.

To facilitate economic growth and the development process of any country, the role of the country's banking sector is indeed crucial for providing the need based finance and various financial services. In the earlier days, commercial banks used to focus on maximization of net interest income within the constraints of fulfilling various target obligations as prescribed by the country's central bank, but today, commercial banks have realized that they need to expand their traditional deposit-credit scenario and come out with necessary financial products and services to meet the diverse needs of today's customers, and work together with capital market, industrial development banks, exchange houses, and other financial institutions in the country (Figure 1.4). In fact, we see the proportion of non-interest income of seventeen commercial banks in Oman (seven locally incorporated and ten being branches of foreign banks), for example, has been steadily increasing from 26.1% in 2003 to 38.6% in 2007, reflecting the extent of diversification of services made in tune with customers' needs (CBOR, 2007).

To continue with the banking sector, when there is a huge proliferation of risky financial derivatives in the financial market, when a number of corporate frauds are coming to light around the globe, perhaps banks should avoid committing themselves what they do not own, and try to reduce risk through profit sharing based on Islamic Principle of justice and morality. Perhaps, there is a need to examine for a gradual switch over from conventional to Islamic banking (Figure 1.5). We know since those days in 1963 when the First Islamic Bank was established in Egypt, lot of significant developments have taken place in Islamic banking area, particularly in the 1980s. Iran has introduced 100% Islamic banking system in 1983, Malaysia passed a comprehensive legislation on Islamic finance in the same year, Islamic Financial Services Board (IFSB) was established in Malaysia in 2002, and IFSB introduced standards on Basel II compliance for Islamic Institutions in 2005. By the end of 2007, total Islamic assets aggregate to USD 300 billion, growing at the rate of 10-15% over the last ten years. In such a scenario, Oman financial services sector may perhaps need to examine, and suitably decide whether to promote more of Islamic banking along with conventional banking to set an example of its robust financial system in the Gulf region.



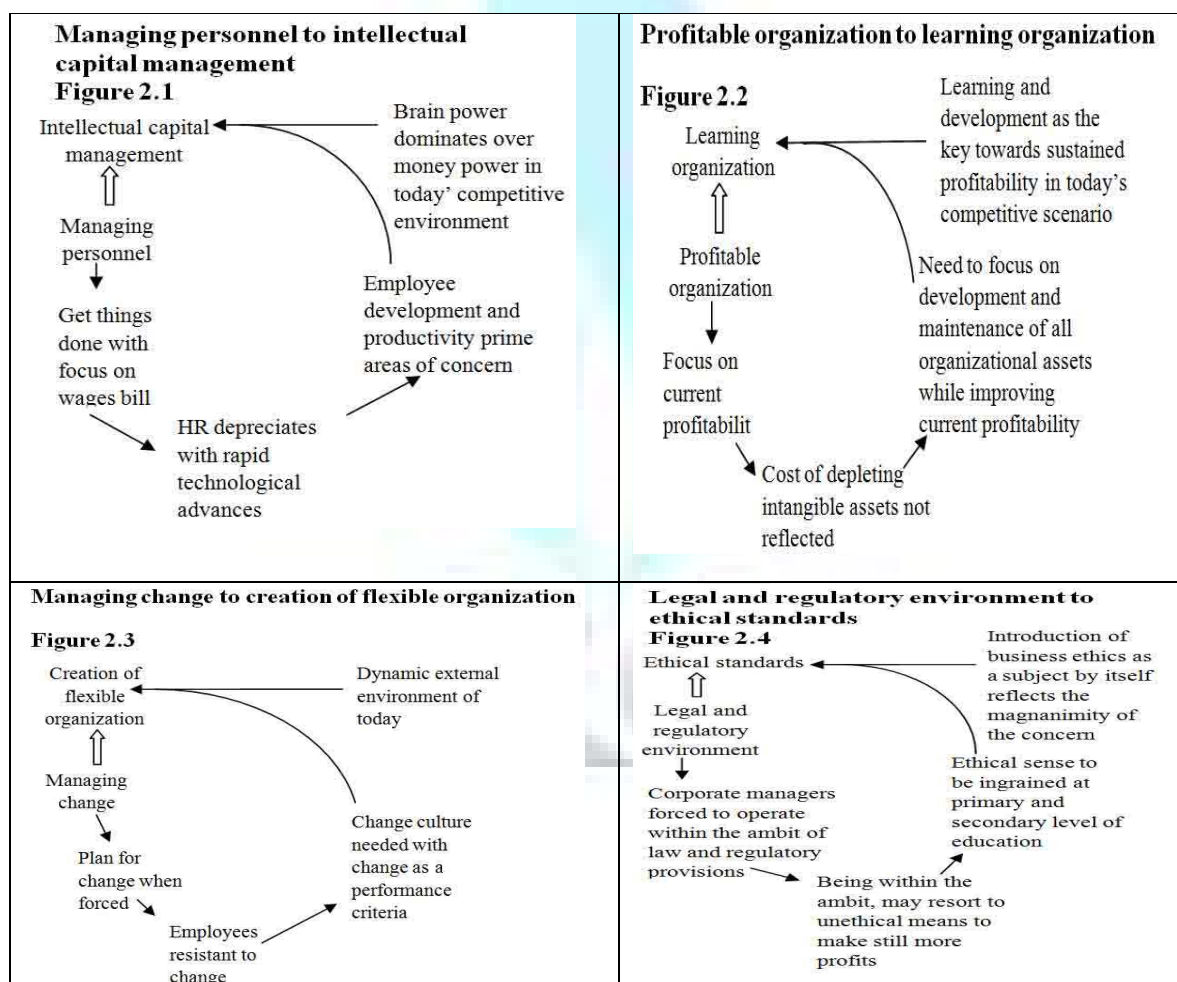
Another important question arises in the minds of economic policy makers, particularly when lot of free trade exists between neighbouring countries, can we introduce a common currency of exchange amongst them to facilitate all the trading partners. Currency of some countries are pegged down with certain stable currency, for example like the USD for Omani Rial (1 USD = 0.3845 Omani Rial). But now-a-days the so

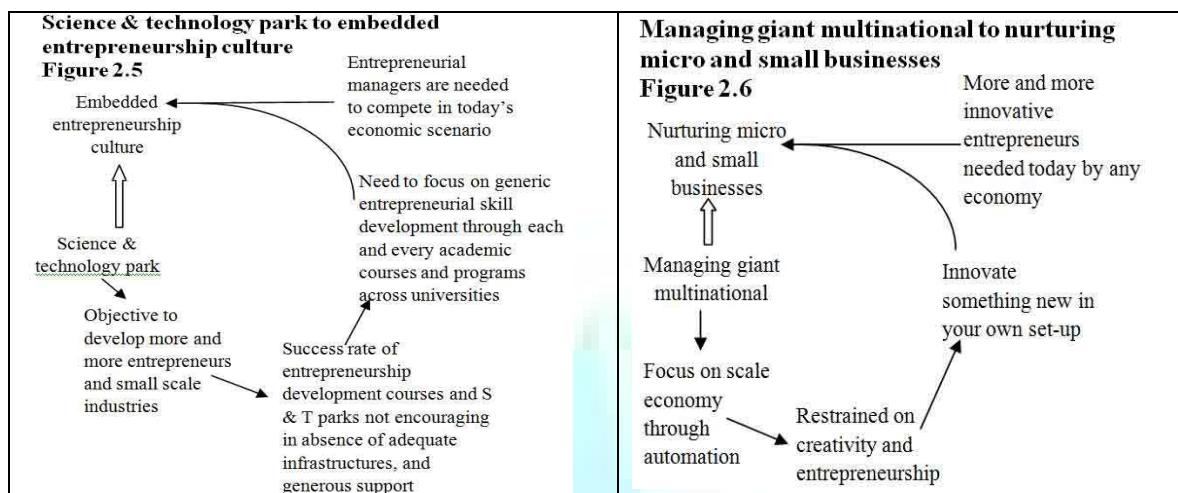
called stable currencies are also not free from sudden shocks that affect the country's trade position, so also the balance of payment. Like the introduction of Euro in the European belt, we can possibly think of introducing one single currency amongst GCC countries (Figure 1.6). Here, we need to analyze the real exchange rates of GCC countries, and how these are correlated with each other to take a final decision. But in absence of any analysis, we all know, besides the openness in trade, they all have the same language, and the same culture, and introduction of one common currency would go in a long way to make the GCC countries all together as a common economic system.

CHANGES IN THE ORGANIZATIONAL BEHAVIOUR AND HUMAN RESOURCE MANAGEMENT SCENARIO

The chairman of each and every organization declares invariably in their every annual general meeting that employees are their most important assets. But till today corporate managers view their organizational HR as expense. We all know today's training is not useless tomorrow, and employee development is needed to match with the rapid technological advances. But still certain profit hungry managers always try to compromise on training and development budget to improve their short-term profitability while eroding the organizational HR over time. Instead of HR as expense view, we need to manage them as assets (Figure 2.1) and make them appreciating over time (OECD, 1996). Then only the full potentials of the organizational HR will be harnessed, and they will be motivated to take effective decisions and actions, and consequently to ensure the best possible utilization of all other organizational assets.

With profitability as the overriding goal of any business, employee development apart, certain managers in a bid to maximize current gains delay the required maintenance of machines; bargain too hard with suppliers and customers depleting all the organizational asset bases in disguise. The financial accounts may not reflect the extent of their current depreciation, but sooner or later, it will come to light and will have long-term consequences on profitability. For sustained profitability, we need to focus on learning and development of the organization, not alone employee development and improving cost effectiveness measured by the traditional learning curve (Wright, 1935), but we need to unlearn our old practices, and learn to work together with our suppliers, customers, and above all with our own employees to come out with still new products, and processes, and operating system and procedure making the organization as a great learning centre (Dealtry, 2002), perhaps with an ideal to look at IBM of 1980s with five Nobel prizes and six national medals of science (Figure 2.2).





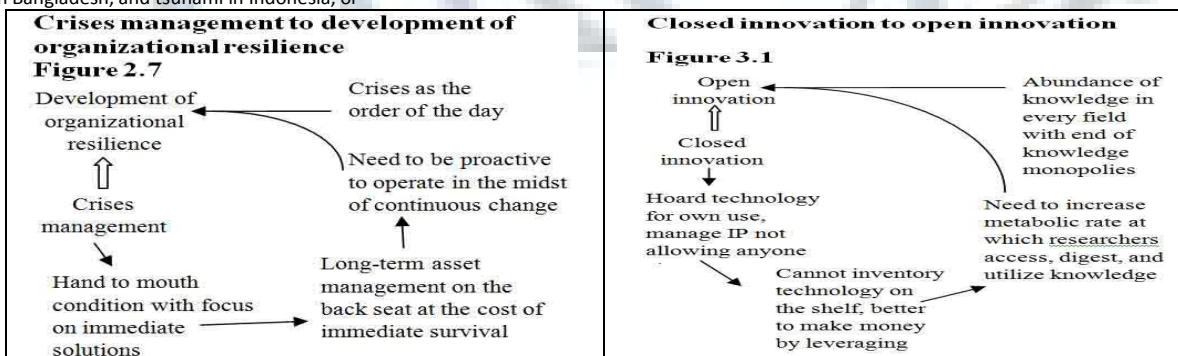
But to facilitate the learning process, we need to think anew, experiment and try out alternative methods of doing the work. For that we should be ready to accept the change, but the law of inertia makes all of us usually resistant to change. Changing overnight is indeed difficult, be it Arabic to English in the classroom or oil to non-oil for an economy, but what is important is to anticipate the likely changes in the external environment (so also even internal environment today) and slowly and steadily change ourselves to be in tune with the dynamic environment. The increase in sales may be important, but sales in new products or markets may be still more important. The change culture needs to be embedded throughout the whole organization (Wilkinson et al. 1996) making it flexible to deal with the present day uncertainties of the business environment (Figure 2.3).

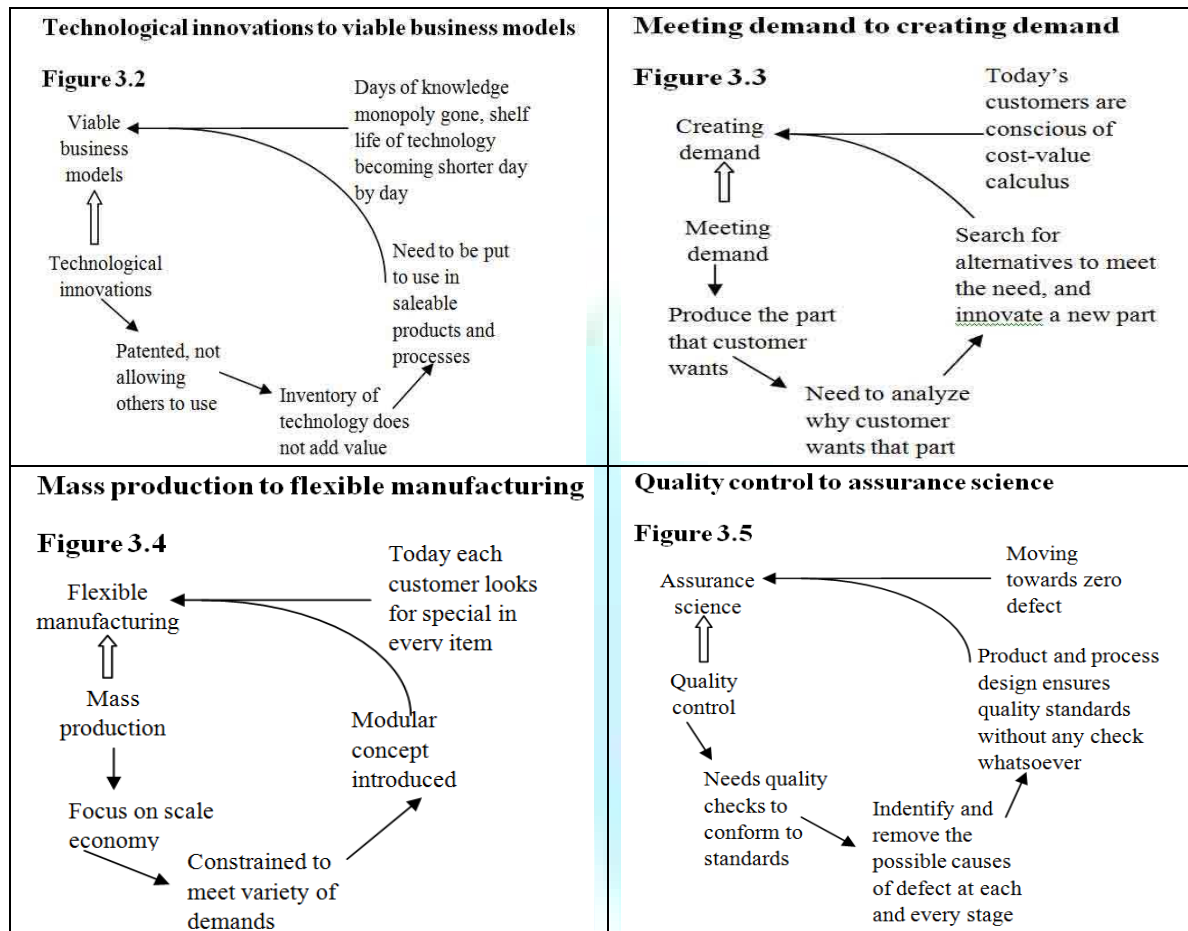
Apart from employee flexibility and development, now-a-days, we need to reemphasize on ethical standards. With present day available knowledge base, the legal and regulatory framework in spite of their strict provisions may not be strong enough to refrain the managers to make still more profits by hook or by crook. Corporate frauds are not few in many a developing and developed countries even with strict framework of corporate governance. Now, the only recourse is to harp on ethical sense of each individual and its development from the childhood to achieve still higher average level ethical standards (Figure 2.4) to save the stakeholders from colossal losses on account of likely corporate frauds.

Another important area of concern in the pursuits of organizational development is the general apathetic behaviour of our present day corporate managers and government administrators. Some organizations go for share option plan for their senior executives to reduce the agency problem and motivate them to take a bit more care of shareholders' interests. Hardly they perceive the organization as their own, and manage the organization as owner-managers. What is lacking today in present day organizations is the entrepreneurship culture. Executives need to gain confidence in their own strengths, and shake off their weaknesses to become creative. They need to trust their own judgement rather than obey. But the root of all these virtues can be embedded amongst individuals at the schools and colleges focussing on learning outcome of generic entrepreneurial skill development. Some universities have gone in for science and technology entrepreneurs park to develop more and more entrepreneurs. But the number of emerging entrepreneurs is not the last word, what is important is to develop more and more entrepreneurial managers for the country's economy (Figure 2.5).

In the earlier days, corporate executives used to be proud to associate their names with the giant multinationals. But today the days of knowledge monopolies are over, venture capital firms are available to help nurture the ideas of technocrats into great possibilities. Now many executives start feeling suffocated in the giant multinationals, realize the restraint on their creativity, and go in for start-up companies to innovate something new in their own small scale set-up. If we look at developing economy like India today, for example, small scale sector accounts for 49% of overall country's exports, over 40% of manufactured output, and provide employment to around 28.3 million people (RBIAR, 2008). In such a scenario, when any developing economy needs more and more innovative entrepreneurs, perhaps the local government need to give priority to micro and small businesses (Figure 2.6) to enable them to play a dominant role in the growth and development process.

But what happens to business organizations when there is a sudden change, and turmoil in the whole country due to natural disaster like floods in Bangladesh, and tsunami in Indonesia, or





man-made coup in a small multi-racial country like Fiji or Solomon Islands, when the elected government is taken over at gunpoint, all policies of the local government are changed, mass exodus of skilled manpower takes place from the country, confidence of employees, creditors, bankers and investors is all tarnished with the country's economy shattered. To survive in such a sudden jerk situation which can never be anticipated and planned, to successfully manage the crises, organizations need to develop an innate strength of organizational resilience over time to face such contingencies (Figure 2.7). The traditional tools and techniques of change management are important but they need to be practiced over the years to develop the necessary strain energy of organization to withstand the shock like the modulus of resilience to withstand the impact loading of structures. Flexibility of an organization refers to its ability to change, while resilience signifies that the organization has been experiencing the change over the years. It is the continuity of change and the change culture inculcated into the organization to add on to its capacity an inner strength to make it resilient (Gittell et al. 2004). When crises have almost become the order of the day at some part of the globe, what is needed is the organizational resilience to fight for survival in the midst of such hurricanes (Kendra and Wachtendorf, 2003).

CHANGES IN THE OPERATIONS MANAGEMENT SCENARIO

As we turn our attention to technological innovations at the heart of operations management, we see the abundance of knowledge in every field with virtual end of knowledge monopolies. Organizations cannot continue to rely entirely on its own research and development but need to make use of others' technologies in its business. IBM, for example, could increase its sales of \$2.86 billion with earnings of \$364 million in 1963 to a staggering sales of \$11 billion with earnings of \$1.58 billion in 1973, but then in 1980s, gradually, their knowledge monopoly was over, and in 1992, the once giant IBM recorded the largest annual loss in the US corporate history of \$4.96 billion. Then, they realize that they need to open up, and cannot keep the technology in the shelf. They entered into contract with Apple Computer in 1993 allowing them to use IBM's 2-1/2 inches drive in addition to using the same drive in their own laptop ThinkPad. By 1997, we could see more than half of IBM's 2-1/2 inches drive was going into the laptop of its competitors (Chesbrough, 2003), IBM could not keep the technology within, but started opening up, a transition from closed to open innovation (Figure 3.1).

Technology by itself has no value per se; economic value of technology remains latent until commercialized. The technology, for example, that was rejected by all well known giants like IBM, ADL, Kodak, and GE but business model of leasing out of 914 high speed costly copier transformed \$30 million Haloid Corporation into global Xerox with \$25 billion revenue. Again, the same success with high speed copiers resulted in a strong cognitive bias within Xerox and discouraged them to develop low speed copiers needed for small businesses and individuals that Japanese Canon and Ricoh focussed on for their great success. Canon and Ricoh made their success story by making the most failing parts into a replacement cartridge with high gross margin. What is relevant to add value to technology is the effectiveness of the business model

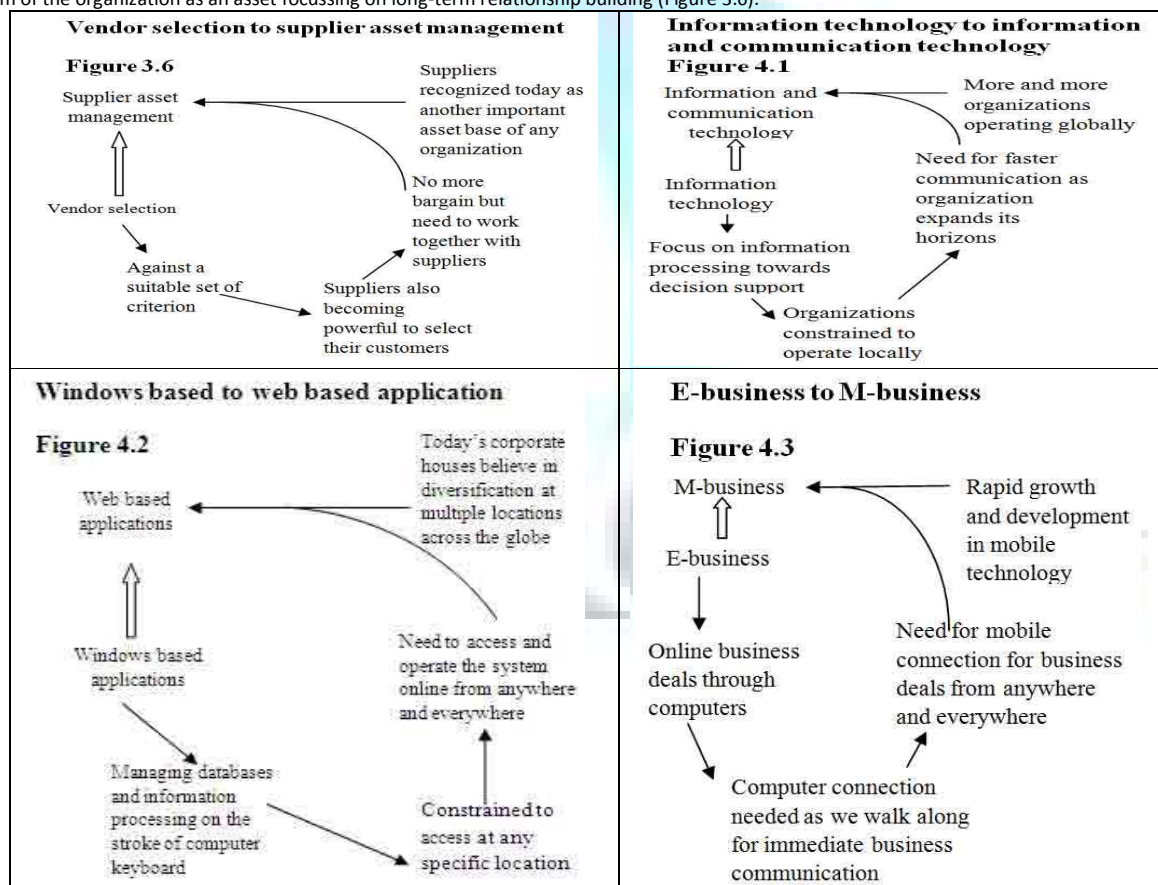
adopted (Figure 3.2). A mediocre technology with a great business model may be more valuable than a great technology with a mediocre business model.

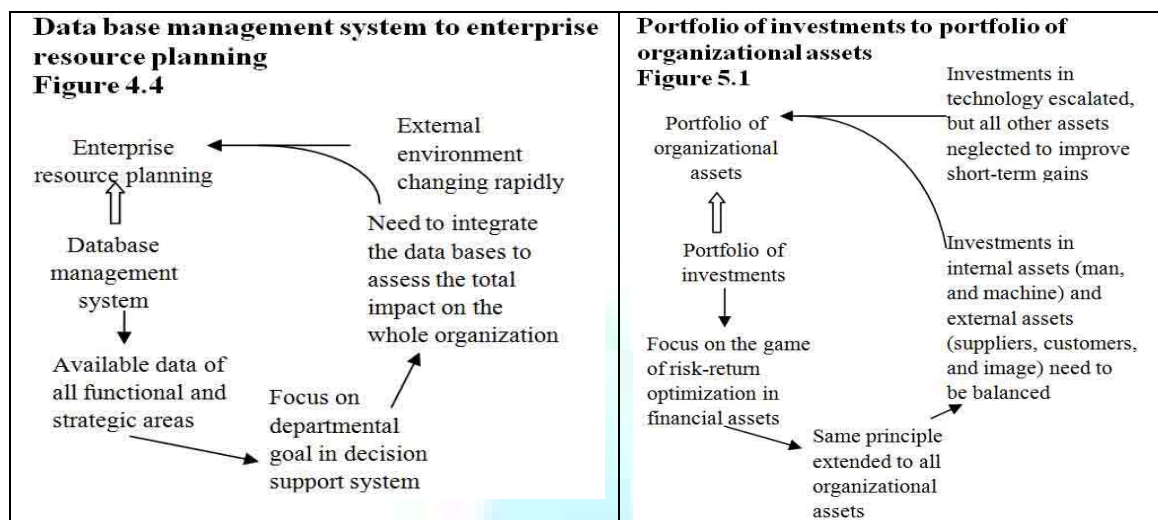
The value of any product or service depends on how it meets the needs of the customers. Today's customers are conscious of cost-value calculus. If the use value of any new item is demonstrated, no customers would hesitate to switch over to the new. We might import technology or any item for that matter, but we should be in a position to break it up, and reengineer it still better, making it ready for export. Today we might import certain medicine, for example, but tomorrow, we never know, we might see our certain country-grown plant leaf or vegetable replacing the imported medicine in the whole country. We need to search for still better alternatives for existing products and services, and thus create demand (Figure 3.3).

The value of any product or service is not static, technological advances are quite rapid, tastes of individuals continue to change, and new products and services are emerging in the markets day in and day out. In such a scenario, hardly the organizations can think of taking the advantage of scale economy of mass production. Today variety being the essence, everybody wants something special in their choice of products and services. The basic design of the car, for example, has remained the same for Toyota, but depending on the choice of various attributes for different target groups, different models continue to emerge in the different market segments. The whole design is structured as the building blocks of different modules, and the different modules are assembled together to evolve a new model with a new look. What is important is the modular concept to make it flexible (Figure 3.4). The same is the phenomenon for services, say for the offer of university courses. Earlier hardly any flexibility was available, but today, universities are busy in breaking down their offer of courses into different modules, so that it can meet the specific needs of corporate executives or adult learners.

To ensure the value of any product or service to customers, earlier focus has been on quality control, inspection of work-in-progress at each and every stage and the final point inspection using statistical sampling and control chart techniques. But today in the midst of very high technological developments, customers are no more satisfied with three sigma limits of confidence, six sigma limits and zero defect are in their mind set towards quality targets. In such a scenario, we need to focus on total quality management process from the design table to reaching the products in the hands of the customers. The product and process have to be so designed, planned and executed so that any deviation from the set parameters would set the system on to readjust and put back onto the track immediately. Customers won't have to go for inspection or acceptance sampling; they would be assured of requisite quality standards without any check whatsoever (Figure 3.5).

To meet the ever-increasing variety of customers' needs with assured quality, one important area of concern is the availability of required quality inputs in time. For that today we cannot bargain and go for vendor selection as per our criteria. The suppliers are also equally powerful to select their customers with their own terms and conditions. We need to work together with suppliers to meet our input requirements to enable us to move towards the just-in-time system. The days of bargaining is over, today, suppliers need to be managed as another external arm of the organization as an asset focussing on long-term relationship building (Figure 3.6).



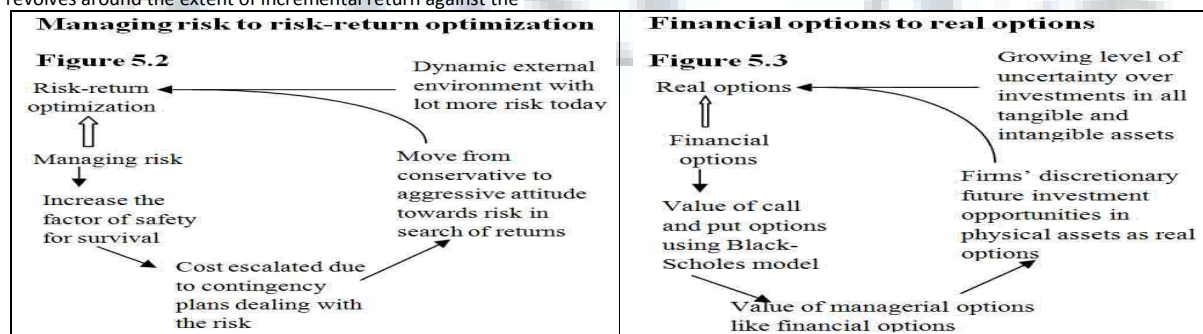


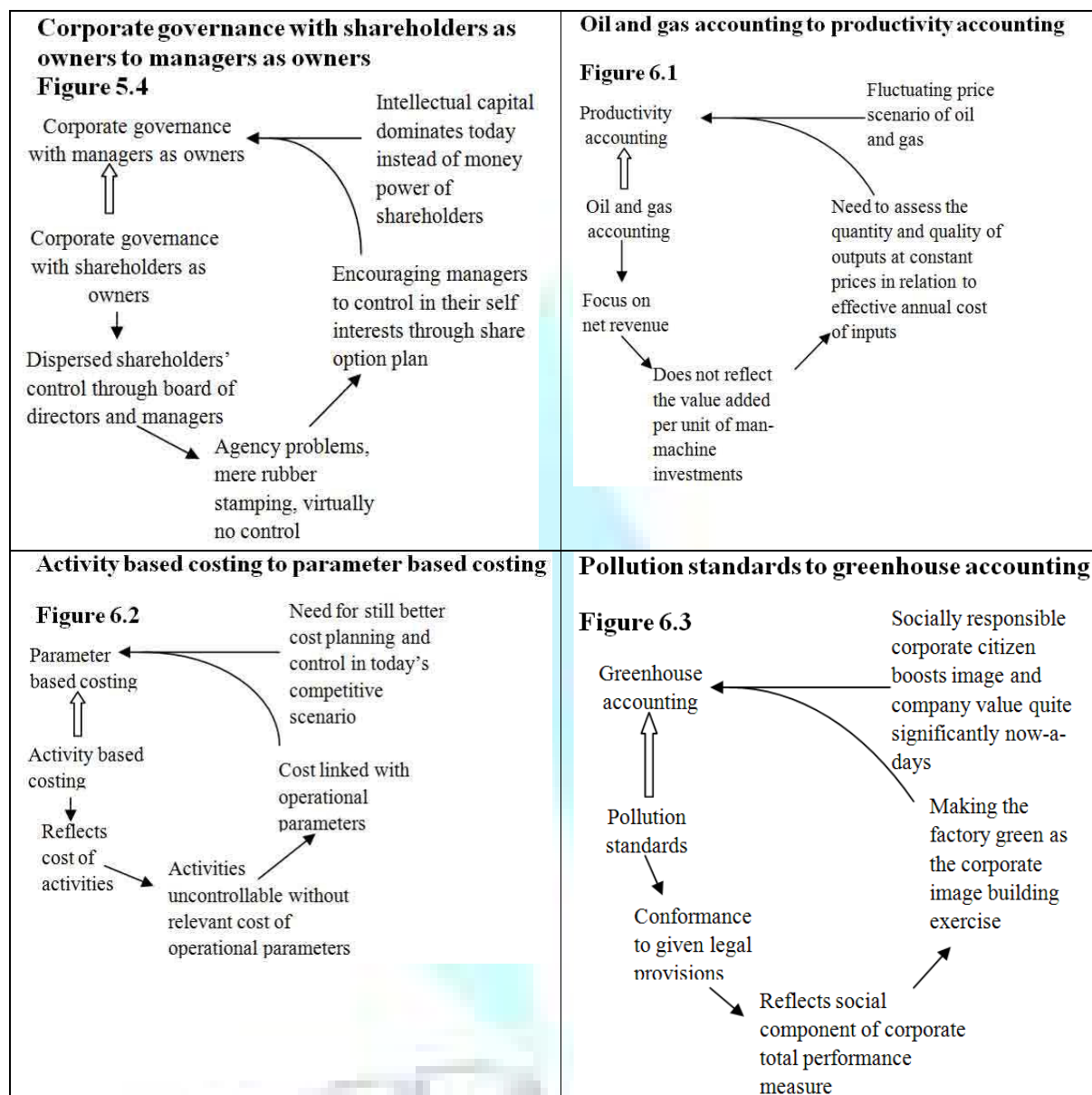
CHANGES IN MANAGEMENT INFORMATION SYSTEM SCENARIO

Today it is the survival for the fittest, and for that managers need to take right decisions and timely decisions. The days of rough estimates and rules of thumb are no more viable. Today with huge computing power at each and every one's table, data can be processed instantly and fed into the decision support system to display the possible options before any manager for his/her review and decision. We are not only having internal data bases, but even many organizations are going in for market intelligence and relevant economic parameters in their data base to enable them to forecast and foresee the future external environment more reliably. Along with developments in information technology, there has been a massive development in communication technology, opening the floodgates of globalisation of business domain. Today, the world is too small to communicate from one corner to another corner of the globe with huge opportunities for any business to expand (Figure 4.1). As organizations expand at different locations around the different corners of the globe, the days of data handling and decision making at specific locations using windows based system have become the history, the web based system has emerged (Figure 4.2), allowing the managers to access and operate the system from anywhere and everywhere. With rapid developments in both the hardware and the software, the days of the vouchers, journals and ledgers have practically disappeared now; most of the transactions are taking place today electronically on pressing the computer keys. But innovation knows no bounds, for E-business we need a computer and today everybody is busy on the move with a mobile. That forced the rapid growth and development in mobile technology, and business houses in different countries are weighing the pros and cons of yet another switch over from E-business to M-business (Figure 4.3). But be it communicated through E or M, what is basic is the management of organizational data base, and its proper use. We are not interested simply in the data base management system. We need to ensure proper integration so that it can be directly used for assessing the development and utilization of all organizational asset bases as a whole towards corporate objectives. Then only, we could confirm its effectiveness towards enterprise resource planning (Figure 4.4).

CHANGES IN FINANCIAL MANAGEMENT SCENARIO

As we turn our attention to managing funds, immediately we think of portfolio of investments, not to put all eggs in the same basket. The choice of investment portfolio of excess funds in the outside financial market is not that important, what is more relevant is to extend the portfolio principle to decide on the matching and compatible investments in organizational assets like the man and the machine, viz., internal asset bases, and the suppliers, the customers, and the public image, viz., external asset bases (Figure 5.1). Mostly we see huge investments have been made by certain organizations in favour of the latest technology, but hardly any investments in the organizational HR, thereby depleting virtually the quality of HR. Likewise, hardly organizations pay attention towards the development of suppliers, customers, and developing the corporate image (Kolay, 1993). We need to manage those as assets, and any imbalance in investments leads to suboptimal risk-return scenarios. We can reduce the risk increasing the factor of safety with obvious adverse consequences in the return. The main question revolves around the extent of incremental return against the





additional risk, and take position to what extent the organization is prepared to take the risk to go for still more return on the conservative to aggressive attitude scale (Figure 5.2).

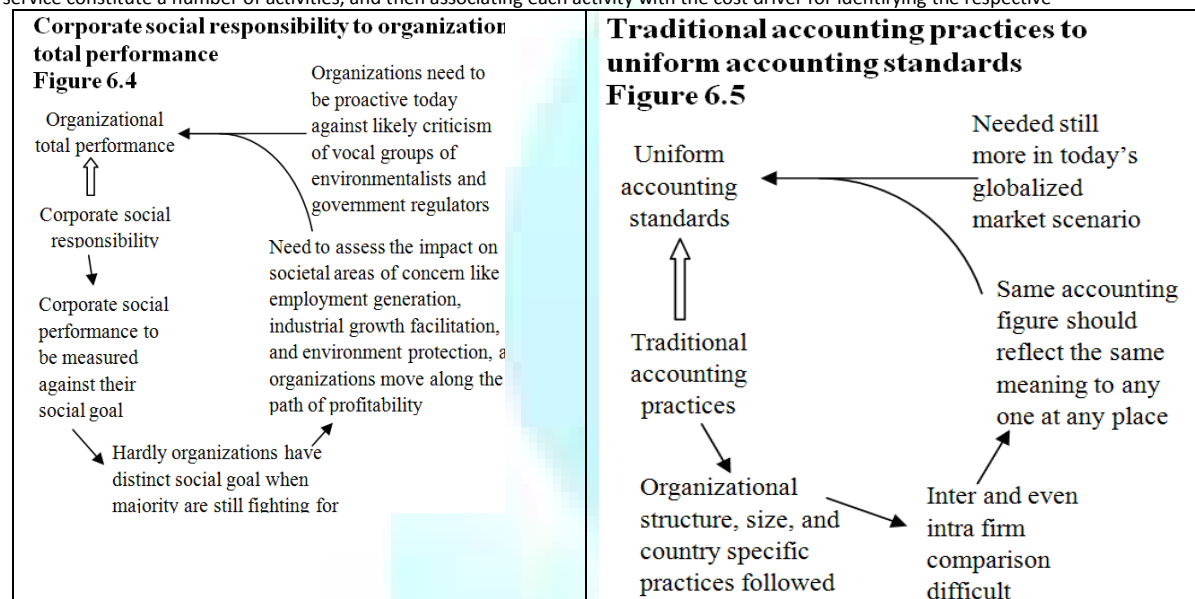
Apart from the design of suitable portfolio of investments and the associated risk-return optimization, there has been a landmark development in the investment appraisal method itself (Black and Scholes, 1973). Any strategy or investment today may open up various options in the future, the question arises how to put value tag to those options while making the appraisal of such investment proposal. Black and Scholes got the Nobel Prize for giving us the method of valuing put-call options in finance. The same concept is extended today to assess the firms' discretionary future investment opportunities in physical and human assets (Trigeorgis, 1996) as real options (Figure 5.3). The job of strategic management is to create more and more options, and we need to assess the present value of such future options to assess the effectiveness of the strategies adopted.

Another important question arises who should govern the corporate house, and who should own the same? Is it the shareholders who provide the equity base or the managers who provide the intellectual capital and take all decisions and actions? The shareholders are the legal owners, but they are generally dispersed, and we all know that the control mechanism through the board of directors and managers are not effective. Managers and board members are likely to act in their own interests rather than that of shareholders. Certain attempts like giving share option to senior managers have been made to reduce such agency problems. But such agency problems would continue to remain till agent-manager exists as different from owner-manager. On the other hand managers are the real controllers for all functional and strategic areas of management. If they walk out, the technology itself cannot run, in fact, the intellectual capital (Petty and Guthrie, 2000) dominates today over the money power, that is why today's researchers (Rajan and Zingales, 2000) believe let the managers be the owners who provide the prime mover, the intellectual capital, and let them be entrusted with corporate governance responsibility (Figure 5.4).

CHANGES IN ACCOUNTING PRACTICES SCENARIO

In the context of Oman, as the economy is still heavily reliant on oil, and now moving towards gas, let us first look at oil and gas accounting. Naturally, the focus is on net of revenue generation for the country. But should we stop it there, or move towards productivity accounting of the same oil and gas production (Figure 6.1). We need to examine not only the quantity, but also the quality of various outputs at initial extraction point, and subsequent downstream stages of manufacture, and relate with the various quantity and quality of inputs used, both in terms of technology, as well as the HR (including current cost as well as investments). Both outputs and inputs need to be at constant prices so that we know the actual level of productivity achievements, differentiating the favourable or adverse impact of fluctuating price level of oil and gas.

Once we know the level of productivity achievements, we may need to explore the ways and means to improve such a level. The first and foremost area that attracts our attention is cost planning and control at all operational areas, be it oil and gas or any other manufacturing items or service areas. From the traditional method of overhead absorption costing we moved to activity based costing wherein any manufacturing or service constitute a number of activities, and then associating each activity with the cost driver for identifying the respective



relevant cost. But today, the level of competition is still more acute, and we need to be still more vigilant on our cost figures for day to day cost control, and those need to be still more precise. For that we need to move from activity based costing to parameter based costing (Figure 6.2), wherein we identify certain key parameters of the activity that are likely to govern the major portion of the cost. Today we cannot wait for the monthly or weekly cost figure of activities to control cost. We need to link up cost with process control parameters, and monitor those parameters on the control panel online to regulate the activity, and consequently its relevant cost.

While converting inputs to outputs and adding value, organizations do add industrial wastes and rejects, polluting the environment. Most of the countries do have pollution control boards to set the upper limit of discharge of different pollutants (air, water, and solid pollutants) to the environment. But legal provisions apart, today we see the corporate houses not only meet the set targets, but they try to go in a long way to make the factory green. In fact, many organizations are engaged today to boost their image as a socially responsible corporate citizen in the market place (Kolay, 1995), an image building exercise in the arena of greenhouse accounting (Figure 6.3). Besides the concern for environment protection for the society at large, there are no doubt other societal areas of concern like employment generation, facilitation of industrial growth, conservation of natural resources etc. Many organizations today may be struggling to survive, and may not likely to have distinct social goal, other than profit goal, but as they move along the path of profitability, we need to assess the extent of impact they create, favourable or adverse to the different areas of concern of society. Such an impact may be viewed along with corporate profitability performance to reflect the total performance of any organization (Figure 6.4).

Lastly, accounting practices in different countries are different, and are generally guided as per the provisions of Companies Act of the respective countries. Even within the country, accounting treatment, valuation of inventory and assets, provision for contingent liabilities etc. vary quite significantly from organization to organization depending on the organizational size, sector, constitutional structure, location, etc. All these differences in accounting norms, provisions, and practices make inter and even intra firm comparison difficult. With globalisation of businesses, it has become all the more important to go in for uniform accounting standards (Figure 6.5). When Oman is now going in for diversification into non-oil sector, perhaps, it is the right time to evaluate the pros and cons of different international accounting standards, and either chose a particular international accounting standard or evolve its own uniform accounting standards. That will go in a long way to assess the effectiveness of various decisions and actions of our managers in the pursuits of sustained success of each and every organization in the economy.

CONCLUSIONS

The management process has been evolving quite rapidly to match with the ever-increasing complexity of modern business. Assimilation and transformation are occurring for continuous improvement in the effectiveness of managerial decisions and actions. The road of transformation is clearly visible looking back at the traditional systems and procedures in all functional and strategic areas of management during the last decade. Looking forward, to improve further the cost-value calculus, still newer horizon of dynamic changes can emerge in the management

process. We need to perceive and weigh those changes, and reengineer ourselves with still newer tools and techniques of scientific management.

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TAX INCENTIVES: TOOL FOR ATTRACTING FOREIGN DIRECT INVESTMENT IN NIGERIAN ECONOMY**FAKILE ADENIRAN SAMUEL**

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ABSTRACT

Globalization is knitting separate national economies into a single world economy. That is occurring as a result of rising trade and investment flows, greater labour mobility, and rapid transfers of technology. As economic integration increases, individuals and businesses gain greater freedom to take advantage of foreign economic opportunities. That, in turn, increases the sensitivity of investment and location decisions to taxation. Countries feel pressure to reduce tax rates to avoid driving away their tax bases. International "tax competition" is increasing as capital and labour mobility rises. Most countries in West Africa have pursued tax reforms to ensure that their economies remain attractive for investment. Having limited economic options the countries in the region have made tax competition a central part of their development strategy to attract and retain the companies in their countries. This paper reviews the debate about the effectiveness of tax incentives, examining two most-contested questions: Can tax incentives attract foreign investment? And what are the costs of using them?

KEYWORDS

Tax Incentives, Foreign Direct Investment, Development

INTRODUCTION

An agreed framework definition of foreign direct investment (FDI) exists in the literature. That is, FDI is an investment made to acquire a lasting management interest (normally 10% of voting stock) in a business enterprise operating in a country other than that of the investor defined according to residency (World Bank, 1996). Such investments may take the form of either "greenfield" investment (also called "mortar and brick" investment) or merger and acquisition (M&A), which entails the acquisition of existing interest rather than new investment. In corporate governance, ownership of at least 10% of the ordinary shares or voting stock is the criterion for the existence of a direct investment relationship. Ownership of less than 10% is recorded as portfolio investment. FDI comprises not only merger and acquisition and new investment, but also reinvested earnings, loans and similar capital transfer between parent companies and their affiliates. Countries could be both host to FDI projects in their own country and a participant in investment projects in other countries. A country's inward FDI position is made up of the hosted FDI projects, while outward FDI comprises those investment projects owned abroad. One of the most salient features of today's globalization drive is conscious encouragement of cross-border investments, especially by transnational corporations and firms (TNCs). Many countries and continents (especially developing) now see attracting FDI as an important element in their strategy for economic development. This is most probably because FDI is seen as an amalgamation of capital, technology, marketing and management.

THE CONCEPT OF FOREIGN DIRECT INVESTMENT

Renewed research interest in FDI stems from the change of perspectives among policy makers from "hostility" to "conscious encouragement", especially among developing countries. FDI had been seen as "parasitic" and retarding the development of domestic industries for export promotion until recently. However, Bende- Nabende, Ford and Slater (2002) submit that the wide externalities in respect of technology transfers, the development of human capital and the opening up of the economy to international forces, among other factors, have served to change the former image. Caves (1996) observes that the rationale for increased efforts to attract more FDI stems from the belief that FDI has several positive effects. Among these are productivity gains, technology transfers, the introduction of new processes, managerial skills and technical know-how in the domestic market, employee training, international production networks, and access to markets. Borensztein et al. (1998) see FDI as an important vehicle for the transfer of technology, contributing to growth in larger measure than domestic investment.

Findlay (1978) postulates that FDI increases the rate of technical progress in the host country through a “contagion” effect from the more advanced technology, management and practices used by foreign firms. On the basis of these assertions governments have often provided special incentives to foreign firms to set up companies in their countries. Carkovic and Levine (2002) note that the economic rationale for offering special incentives to attract FDI frequently derives from the belief that foreign investment produces externalities in the form of technology transfers and spillovers.

Curiously, the empirical evidence of these benefits both at the firm level and at the national level remains ambiguous. De Gregorio (2003), while contributing to the debate on the importance of FDI, notes that it may allow a country to bring in technologies and knowledge that are not readily available to domestic investors, and in this way increases productivity growth throughout the economy. FDI may also bring in expertise that the country does not possess, and foreign investors may have access to global markets.

Blomstrom et al. (1994) report that FDI exerts a positive effect on economic growth, but that there seems to be a threshold level of income above which FDI has positive effect on economic growth and below which it does not. The explanation was that only those countries that have reached a certain income level can absorb new technologies and benefit from technology diffusion, and thus reap the extra advantages that FDI can offer. Previous works suggest human capital as one of the reasons for the differential response to FDI at different levels of income. This is because it takes a well-educated population to understand and spread the benefits of new innovations to the whole economy. Borensztein et al. (1998) also found that the interaction of FDI and human capital had important effect on economic growth, and suggest that the differences in the technological absorptive ability may explain the variation in growth effects of FDI across countries. They suggest further that countries may need a minimum threshold stock of human capital in order to experience positive effects of FDI.

Balasubramanyan et al. (1996) report positive interaction between human capital and FDI. They had earlier found significant results supporting the assumption that FDI is more important for economic growth in export-promoting than import-substituting countries. This implies that the impact of FDI varies across countries and that trade policy can affect the role of FDI in economic growth. On its part, UNCTAD (1999) submits that FDI has either a positive or negative impact on output depending on the variables that are entered alongside it in the test equation. These variables include the initial per capita Gross Domestic Product (GDP), education attainment, domestic investment ratio, political instability, terms of trade, black market exchange rate premiums, and the state of financial development. Examining other variables that could explain the interaction between FDI and growth, Olofsdotter (1998) submits that the beneficiary effects of FDI are stronger in those countries with a higher level of institutional capability. He therefore emphasized the importance of bureaucratic efficiency in enabling FDI effects. The neoclassical economists argue that FDI influences economic growth by increasing the amount of capital per person. However, because of diminishing returns to capital, it does not influence long-run economic growth. Bengos and Sanchez-Robles (2003) assert that even though FDI is positively correlated with economic growth, host countries require minimum human capital, economic stability and liberalized markets in order to benefit from long-term FDI inflows.

FDI could be beneficial in the short term but not in the long term. Durham (2004), for example, failed to establish a positive relationship between FDI and growth, but instead suggests that the effects of FDI are contingent on the “absorptive capability” of host countries. Other than the capital augmenting element, some economists see FDI as having a direct impact on trade in goods and services (Markussen and Vernables, 1998). Trade theory expects FDI inflows to result in improved competitiveness of host countries' exports (Blomstrom and Kokko, 1998). The pace of technological change in the economy as a whole will depend on the innovative and social capabilities of the host country, together with the absorptive capacity of other enterprises in the country (Carkovic and Levine, 2002).

TAX INCENTIVES

Tax incentives are part of the tax system of developing countries and usually established by governments in order to grant foreign investors more attractive conditions to invest in their country. To achieve the gains of tax incentives for national development, developing countries must structure tax policies in a way so as to attract foreign investment, without creating a negative impact in the domestic economy and do not fall into a harmful tax competition against other countries.

WHAT FIRMS RESPOND?

The effectiveness of tax incentives is likely to vary depending on a firm's activity and its motivations for investing abroad. Growing evidence shows, for example, that tax incentives are a crucial factor for mobile firms and firms operating in multiple markets—such as banks, insurance companies, and Internet-related businesses—because these firms can better exploit different tax regimes across countries. Such strategies may explain the success of tax havens in attracting subsidiaries of global companies—and the spending by multinationals on economists and accountants to justify their transfer prices, designed to suit their tax needs. Similarly, tax rates generally have a greater effect on the investment decisions of export-oriented companies than on those seeking the domestic market or location-specific advantages, because such firms not only are more mobile but also operate in competitive markets with very slim margins.

The Nigerian Government has put in place a number of investment incentives for the stimulation of private sector investment from within and outside the country. While some of these incentives cover all sectors, other are limited to some specific sectors. The nature and application of these incentives have been considerably simplified. The incentives include: tax holidays, initial capital allowance, and free duty on equipment. (See Table 1 below)

TABLE 1: TAX INCENTIVES IN NIGERIA

| Incentives | Oil and Gas | Agriculture | Solid Minerals | Energy | Telecommunication | Transport |
|---------------------------|-------------|-------------|----------------|-----------|-------------------|-----------|
| Tax Holiday | 5-7 Years | 5-7 Years | 5-7 Years | 5-7 Years | 5-7 Years | 5-7 Years |
| Initial Capital Allowance | 15% | 100% | 20% | | 30% | 30% |
| Income Tax | 30% | 30% | 20-30% | 30% | 30% | 30% |
| Duty (Equipment) | Free | Free | Free | Free | Free | Free |
| VAT (Equipment) | Free | Free | Free | Free | Free | Free |

| | | | | | | |
|--|------|------|------|------|------|------|
| Repayment of Foreign Loan (Tax Exempt) | | | | | | |
| 5-7 Years | 70% | 70% | 70% | 70% | 70% | 70% |
| 7 Years and above | 100% | 100% | 100% | 100% | 100% | 100% |

SOURCE: NIPC (2009)

FACTS ABOUT FDI IN NIGERIA

Indeed, Sub-Saharan Africa (SSA) have not benefited much from the Foreign Direct Investment (FDI) boom for many reasons, ranging from negative image of the region, to poor infrastructure, corruption and foreign exchange shortages, an unfriendly macroeconomic policy environment, among others (Asiedu, 2005).

Nigeria is one of the few countries that have consistently benefited from the FDI inflow to Africa as reflected in Table 2. Nigeria's share of FDI inflow to Africa averaged around 20%, from 21.43% in 2000 to a low level of 13.02% in 2005, up to 24.45% in 2006. UNCTAD (2009) showed Nigeria as the continent's top FDI recipient.

TABLE 2: NIGERIA: NET FOREIGN DIRECT INVESTMENT INFLOW (US\$ MILLION)

| Year | World | Africa | % of World | Nigeria | % of Africa |
|----------------------------|---------|--------|------------|---------|-------------|
| 1990-2000 (Annual Average) | 492674 | 6890 | 1.39 | 1477 | 21.43 |
| 2005 | 973329 | 38222 | 3.92 | 4978 | 13.02 |
| 2006 | 1461074 | 57058 | 3.90 | 13956 | 24.45 |
| 2007 | 1978838 | 69170 | 3.49 | 12454 | 18.00 |
| 2008 | 1697353 | 87647 | 5.16 | 20279 | 23.13 |

SOURCE: UNCTAD (2009) FOREIGN DIRECT INVESTMENT DATABASE

Nigeria's vast oil and gas resources have proven a magnet for foreign investors, especially in times of rising oil prices. Though its accumulated stock of FDI is lower than Chile, Nigeria has experienced higher FDI inflows during the past five years, driven by a rising global demand for hydrocarbons. Given the prominence of the oil industry in Nigeria, the main source countries for FDI inflows are those that are host countries of the major oil Multinational Companies (MNC). The leading source country for FDI is the US through oil majors Chevron Texaco and ExxonMobil. The Netherlands through Shell, France through Total and Italy through ENI are the other leading investors in Nigeria. South Africa is the fifth largest source country. Apart from oil, other important destinations for foreign investors in Nigeria are the telecommunications, food and beverages and rubber product industries.

TABLE 3: INWARD FOREIGN DIRECT INVESTMENT IN G-15 COUNTRIES

| | FDI Inward Stocks (2008) | | FDI Inflows (\$Billions) | | | | | | |
|-----------|--------------------------|-------------|--------------------------|-------|-------|-------|-------|-------------------|--|
| | (\$Billions) | As % of GDP | 2004 | 2005 | 2006 | 2007 | 2008 | Total (2004-2008) | |
| Algeria | 14.46 | 9.1 | .88 | 1.08 | 1.79 | 1.66 | 2.64 | 8.05 | |
| Argentina | 76.09 | 23 | 4.12 | 5.26 | 5.53 | 6.47 | 8.85 | 30.23 | |
| Brazil | 287.70 | 18.3 | 18.14 | 15.06 | 18.82 | 34.58 | 45.05 | 131.65 | |
| Chile | 100.99 | 59.6 | 7.17 | 6.98 | 7.29 | 12.57 | 16.78 | 50.79 | |
| Egypt | 60.00 | 37 | 2.15 | 5.37 | 10.04 | 11.57 | 9.49 | 38.62 | |
| India | 123.29 | 9.9 | 5.77 | 7.60 | 20.33 | 25.12 | 41.55 | 100.37 | |
| Indonesia | 67.04 | 13.1 | 1.89 | 8.33 | 4.91 | 6.92 | 7.91 | 29.96 | |
| Iran | 20.81 | 6 | 2.86 | 3.13 | 1.62 | 1.65 | 1.49 | 10.75 | |
| Jamaica | 9.46 | 65.7 | .60 | .68 | .88 | .86 | .78 | 3.80 | |
| Kenya | 1.99 | 6.6 | .04 | .02 | .05 | .72 | .09 | .92 | |
| Malaysia | 73.26 | 33 | 4.62 | 4.06 | 6.06 | 8.40 | 8.05 | 31.19 | |
| Mexico | 294.68 | 27.1 | 23.65 | 21.92 | 19.31 | 27.27 | 21.95 | 114.10 | |
| Nigeria | 83.07 | 29.5 | 2.12 | 4.97 | 13.95 | 12.45 | 20.27 | 53.76 | |
| Senegal | 1.54 | 11.6 | .07 | .04 | .22 | .29 | .70 | 1.32 | |
| Sri Lanka | 4.28 | 4.28 | .23 | .27 | .48 | .60 | .75 | 2.33 | |
| Venezuela | 41.38 | 13 | 1.48 | 2.58 | -.59 | .64 | 1.71 | 5.82 | |
| Zimbabwe | 1.54 | 70.4 | .01 | .10 | .04 | .06 | .05 | .26 | |

SOURCE: WIR tables (UNCTAD, 2009)

INWARD FOREIGN DIRECT INVESTMENT IN GROUP OF FIFTEEN (G-15) COUNTRIES

Table 3 above shows the inward stock of FDI in G-15 countries as it stood in 2008. It shows that 13 out of 17 member countries have accumulated foreign investment of more than \$10 billion. The top 10 G-15 countries in terms of FDI stock were (1) Mexico (2) Brazil (3) India (4) Chile, (5) Nigeria (6) Argentina (7) Malaysia (8) Indonesia (9) Egypt and (10) Venezuela. Table 3 also shows FDI inflows for five years from 2004-

2008. In terms of recent inflows, the top 10 G-15 recipients of foreign investments are (1) Brazil (2) Mexico (3) India (4) Nigeria (5) Chile (6) Egypt (7) Malaysia (8) Argentina (9) Indonesia (10) Iran.

A comparison of the stock and flow figures reveals a few interesting facts. Foreign investment in recent times has risen rapidly in Brazil and India (two of the so-called BRIC economies) and also in Nigeria and Egypt (driven probably by a combination of high oil and gas demand as well as economic reforms). By contrast, Mexico, Malaysia and Indonesia, have seen foreign investment flows fluctuating from year to year. The rate of growth of FDI in Chile and Argentina too has been relatively lower.

Prior to the early 1970s, foreign investment played a major role in the Nigerian economy. Until 1972, for example, much of the non-agricultural sector was controlled by large foreign owned trading companies that had a monopoly on the distribution of imported goods. Between 1963 and 1972 an average of 65% of total capital was in foreign hands (Jerome and Ogunkola, 2004).

The Nigeria Enterprise Promotion Decree (NEPD) was promulgated in 1972 to limit foreign equity participation in manufacturing and commercial sectors to a maximum of 60%. In 1977 a second indigenization decree was promulgated to further limit foreign equity participation in Nigeria business to 40%. Hence, between 1972 and 1995 official policy toward FDI was restrictive. The regulatory environment discouraged foreign participation resulting in an average flow of only 0.79% of GDP from 1973 to 1988 (Ayanwale, 2007). The adoption of the structural adjustment programme in 1986 initiated the process of termination of the hostile policies towards FDI. A new industrial policy was introduced in 1989 with the debt to equity conversion scheme as a component of portfolio investment. The Industrial Development Coordinating Committee (IDCC) was established in 1988 as a one-step agency for facilitating and attracting foreign investment flow.

This was followed in 1995 by the repeal of the Nigeria Enterprises Promotion Decree and its replacement with the Nigerian Investment Promotion Commission (NIPC) Decree 16 of 1995. The NIPC absorbed and replaced the IDCC and provided for a foreign investor to set up a business in Nigeria with 100% ownership. Upon provision of relevant documents, NIPC will approve the application within 14 days (as opposed to four weeks under IDCC) or advise the applicant otherwise. Furthermore, in consonance with the NIPC decree, the Foreign Exchange (Monitoring and Miscellaneous Provision) Decree 17 of 1995 was promulgated to enable foreigners to invest in enterprise in Nigeria or in money-market instruments with foreign capital that is legally brought into the country. The decree permits free regulation of dividends accruing from such investment or of capital in event of sale or liquidation. An export processing zone (EPZ) scheme adopted in 1999 allows interested persons to set up industries and businesses within demarcated zones, particularly with the objective of exporting the goods and services manufactured or produced within the zone.

SECTORAL ANALYSIS OF FOREIGN DIRECT INVESTMENT INFLOW IN NIGERIA

Agriculture, transport, building and construction remained the least attractive hosts of FDI in Nigeria if the report from the privatization programme is anything to go by (CBN, 2004). However, the transport and communication sector seem to have succeeded in attracting the interest of foreign investors, especially the telecommunication sector. Nigeria is currently described as the fastest growing mobile phone market in the world. Since 2001, when the mobile telecommunication operators were licensed, the rate of subscription has gone up and does not show any sign of abating; in fact, MTN (Nigeria) – the leading mobile phone operator – has acquired another line having oversubscribed the original line. The three major operators – MTN, Zain, and Globacom – are currently engaged in neck and neck competition that has forced the rates down and in the process fostered consumer satisfaction. But the effect of this development is yet to be translated to the rest of the economy. FDI in Nigeria has traditionally been concentrated in the extractive industries, but data reveal a diminishing attention to the mining and quarrying sector, from about 51% in 1970–1974 to 30.7% in 2000/01 (Ayanwale, 2007). The current sustained upward trend in the FDI inflow is due largely to the privatization and commercialization exercise of the government whereby public enterprises are put up for sale to the investing public. This exercise has attracted considerable inflows since 1999. For example, the deregulation of the telecommunication sector by granting licenses and tax holidays for global system for mobile communications (GSM) operators in 1999 caused the FDI in the telecommunications sector to increase from a mere US\$50 million at the end of 1999 to about US\$12.5 billion by the end of 2008 ((NCC 2009). The NIPC attributed over 75% of this increase to mobile telephone network investors.

ADVANTAGES OF TAX INCENTIVES

If properly designed and implemented, tax incentives may be a useful tool in attracting investments that would not have been made without the provision of tax benefits. As discussed below, new investment may bring substantial benefits, some of which are not easily quantifiable. A narrowly targeted tax incentive program may be successful in attracting specific projects or specific types of investors. That governments often choose tax incentives over other types of government action is not surprising. It is much easier to provide tax benefits than to correct deficiencies in the legal system or to dramatically improve the communications system in the country. Also, tax incentives do not require an actual expenditure of funds by the government. One alternative to using tax incentives is to provide for grants or cash subsidies to investors. Although tax incentives and cash grants may be similar economically, for political and other reasons, it is easier to provide tax benefits than to actually provide funds to investors.

DIFFERENT TYPES OF BENEFITS

Tax incentives may yield different type of benefits. The benefits from tax incentives for foreign investment follow the traditional list of benefits resulting from foreign direct investment; these include increased capital transfers, transfers of know-how and technology, increased employment, and assistance in improving conditions in less-developed areas. Foreign direct investment may generate substantial spillover effects. For example, the choice to locate a large manufacturing facility will not only result in increased investment and employment in that facility, but also at firms that supply and distribute the products from that facility. Economic growth will increase the spending power of the country's residents - that, in turn, will increase demand for new goods and services. Increased investment may also increase government tax revenue either directly from taxes paid by the investor (for example, after the expiration of the tax holiday period) or indirectly through increased tax revenues received from employees, suppliers, and consumers.

One can provide a general description of the general type of benefits of additional investment resulting from tax incentives. It is difficult, however, to estimate the benefits resulting from tax incentives with any degree of certainty. Sometimes the benefits are hard to quantify. Other times the benefit accrues to persons other than the firm receiving the tax benefits.

DISADVANTAGES OF TAX INCENTIVES

DIFFERENT TYPES OF COSTS

In considering the costs of tax incentive regime, it may be useful to examine four different types of costs: (i) revenue costs; (ii) resource allocation costs; (iii) enforcement and compliance costs; and (iv) the costs associated with the corruption and lack of transparency.

REVENUE COSTS

The tax revenue losses from tax incentives come from two primary sources: first, foregone revenue from projects that would have been undertaken even if the investor did not receive any tax incentives; and, second, lost revenue from investors and activities that improperly claim incentives or shift income from related taxable firms to those firms qualifying for favorable tax treatment (Alex and Zolt, 2005).

Policy makers may wish to target tax incentives to achieve the greatest possible benefits for the lowest costs. The goal would be to offer tax incentives only to those investors who at the margin would invest elsewhere but for the tax incentives. Offering tax incentives to those investors' whose decisions to invest are not affected by the proposed tax benefit results in just a transfer to the investor from the host government without any gain. It is very difficult to determine on a project-by-project basis which projects were undertaken solely due to tax incentives. Similarly, it is hard to estimate for an economy as a whole what the levels of investment would be with or without a tax incentive regime.

For those projects that really would not have been undertaken without tax incentives, there is no real loss of tax revenue from those firms. Indeed, to the extent that the firms become regular taxpayers or to the extent that these operations generate other tax revenue (such as increased profits from suppliers or increased wage taxes from employees) there are revenue gains from those projects. An additional revenue cost of tax incentives results from erosion of the revenue base due to taxpayers abusing the tax incentive regimes to avoid paying taxes on non-qualifying activities or income. This can take many forms. Revenue losses can result where taxpayers disguise their operations to qualify for tax benefits. For example, if tax incentives are only available to foreign investors, local firms or individuals can use foreign corporations through which to route their local investments. Similarly, if tax benefits are available to only new firms, then taxpayers can reincorporate or set up many new related corporations to be treated as a new taxpayer under the tax incentive regime.

Other leakages occur where taxpayers use tax incentives to reduce the tax liability from non-qualified activities. For example, assume that a firm qualifies for a tax holiday because it is engaged in a type of activity that the government believes merits tax incentives. It may be difficult to monitor the firm's operation to ensure the firm does not engage in additional non-qualifying activities. Even where the activities are separated, it is very difficult to monitor related party transactions to make sure that income is not shifted from a taxable firm to a related firm that qualifies for a tax holiday (Alex and Zolt, 2005).

RESOURCE ALLOCATION COST

If tax incentives are successful, they will cause additional investment in sectors, regions or countries that would not otherwise have occurred. Sometimes this additional investment will correct for market failures. Other times, however, the tax incentives will cause allocation of resources that may result in too much investment in certain activities or too little investment in other non-tax favoured areas. It is difficult to determine the effects of tax provisions in developed countries where markets are relatively developed. It is more difficult to determine the consequences of tax provisions in developing countries where markets do not approach the competitive models. As such, where markets are imperfect, it is not clear whether providing tax incentives to correct market imperfections will make markets more competitive.

ENFORCEMENT AND COMPLIANCE COSTS

As with any tax provision, there are resource costs incurred by the government in enforcing the tax rules and by taxpayers in complying. The cost of enforcement relates to the initial grant of the incentive as well as the costs incurred in monitoring compliance with the qualification requirements and enforcing any recapture provisions on the termination or failure to continue to qualify.

The greater the complexity of the tax incentive regime, the higher the enforcement costs (as well as compliance costs) may be. Similarly, tax incentive schemes that have many beneficiaries are harder to enforce than narrowly targeted regimes. It is also difficult to get revenue authorities enthusiastic about spending resources to monitor tax incentive schemes. Revenue authorities seek to use their limited administrative resources to improve tax collection. The revenue authorities may prefer auditing fully taxable firms rather than those operating under a tax holiday arrangement. Tax incentives also impose administrative costs on taxpayers. The administrative costs will vary by type of incentive as well as the qualification process, monitoring and reporting requirements (Alex and Zolt, 2005).

OTHER COSTS

Since tax policy appears to have some effect on the location decisions of multinational firms, especially within regional markets, the concern is that countries may end up in a bidding war, favouring multinational firms at the expense of the state and the welfare of its citizens. Beyond the risk of a bidding war, tax incentives are likely to reduce fiscal revenue and create frequent opportunities for illicit behavior by companies and tax administrators. These issues have become crucial in developing countries, which face more severe budgetary constraints and corruption than do industrial countries. Tax incentives also have many other, less obvious costs. They can distort the allocation of resources by attracting investors looking exclusively for short term profits, especially in countries where the basic fundamentals (such as political and macroeconomic stability) are not yet in place.

CONCLUSION AND RECOMMENDATIONS

Tax incentives can play a useful role in encouraging both domestic and foreign investment. How useful, and at what cost, depends on how well the tax incentive programmes are designed, implemented, and monitored. Despite the fact that tax incentives are sometimes very attractive to investors, there are other factors that need to be addressed before implementing tax incentive provisions. Developing countries must first provide a safe investment climate; political and social stability; transparent, stable and predictable conditions; reduction of corruption; and a reliable legal structure and framework in order to provide guarantees to foreign investors along with other economic and tax benefits.

Harmful tax competition and many other negative consequences such as lower tax rates, the proliferation of tax havens, the erosion of the tax base and the distortion of the tax system in developing countries arise from the implementation of tax incentives and other benefits granted to attract more foreign investment. No easy answers exist to the questions of whether to use tax incentives and what form these tax incentives should take. There are, however, some clear guidelines that may improve the chances of success of tax incentive programs. First, the objectives of the tax incentive program should be clearly set forth. Second, the type of tax incentive program should be crafted to best fit the objective. Third, the government should estimate the anticipated costs and benefits of the incentive program in a manner similar to other types of tax expenditure analysis. Fourth, the incentive program should be designed to minimize the opportunities for corruption in the granting of incentive and for taxpayer abuse in exploiting the tax benefit. Fifth, the tax incentive regime should have a definite "sunset" provision to allow for a determination of the merits of the program. Finally, the government should be required at a specific time to assess the success and failure of each incentive program

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CHANGING PHASE OF ETHIOPIAN TAXATION

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ABSTRACT

This article aims in examining the gradual changes in the field of taxation in Ethiopia. It explains the tax policy of the government and how the taxation affects the different sections of the society. The study for this article has led to examine the effect on the revenue of the government after the implementation. It makes a comparison of earlier system of taxation and the modern system. The main objective of the study is to make awareness in the international level and especially to the business community of Ethiopia. The knowledge of taxation is yet to reach and improve among the lower level of business community. To achieve the aim of study, history of taxation as far as reachable is complied. To understand the modification and the changes in tax policy, illustration also exhibited. Even though the government is trying its level best to create the awareness among the business people especially the small business groups, it has not found a hundred percent fruitfulness yet. The government should conduct more awareness program in the implementation of the tax policy, especially in the book keeping system. The government of Ethiopia has taken a series of reform measures with the objective of improving the tax system, to strengthen the tax administration and to make the balance of trade positive. It is also trying to attract internal and external investment. All these activities are aimed to generate adequate revenue to apply for the developmental activities, keeping in mind the eradication of poverty. It is recognized throughout the developing world that the partnership between government and the private sector are the key elements that will lead to the reduction of poverty. The new vision of the government of Ethiopia is to bring the rapid and sustainable development which is essential for supporting the millennium goal of reducing poverty by half of 2015. The government's economical and social development objectives require sustainable and dependable domestic revenue.

KEYWORDS

History of Ethiopian Taxation, Progress of Taxation, Tax policy of Ethiopian government.

INTRODUCTION

Taxes are important sources of public revenue. The existence of collective consumption of goods and services necessitates putting some of our income in the hands of government. It is a compulsory contribution to the government by an economic unit without expectation of direct and equivalent return from the government for the contribution made. It is compulsory payment levied by the state and refusal will lead to legal punishment. There is no direct and *quid pro quo* between the state and the people. The tax payer cannot claim reciprocal benefit against the tax paid. A tax is a payment for meeting the expenses in common interest of all citizens, and it is to be paid regularly and periodically which is a personal obligation imposed on a tax payer. In order to get the continuity of taxation in Ethiopia, it is to examine the history of taxation as far as reachable.

HISTORY OF TAXATION IN ETHIOPIA

Even though there is no reliable documentary evidence for the introduction of taxation in Ethiopia from the history, it is assumed that taxation was a source of government revenue in earlier Axum Kingdom in Ethiopia around 500AD. In earlier days people used to contribute from their cattle and agricultural products to the governors of the state. This kind of traditional tax system continued for a long time until it is replaced by the modern tax system in the mid of 20th century. Evidences show that even in 19th century taxes were paid in kind and in money. Taxes in kind include salt, honey, cow and cow products horses etc. Under Emperors Tewodros II (1855-1868), Yohannes IV (1872-1889) and Menelek II (1889-1913) the empire began to emerge from its isolation. During the period of Tewodros II itself the system of taxation in the form of direct and indirect was existing. Direct tax included land tax, Provincial administration taxes, taxes for appointees and appointments, taxes on livestock, taxes on honey etc. During this period peasants were asked to pay tax even more than two times a year. Indirect tax during this period included toll taxes, Caravan taxes, Frieda (taxes on slaughtering of cattle). Emperor Meilike II towards the end of 19th century established a fixed system of agricultural taxes. Following this with the growth of trade in the early 20th century reforms were there in the agricultural and other taxation. More recent reforms were the fruit of Ethiopia's emergence as a modern state. They involve all the mechanism of modern tax collection, tax schedules and the development of trained and regularly paid civil service

The traditional tax system continued during the relatively modern administration of Emperor Haile Sellassie I (1942 – 1974). During that period Income tax, Land use tax, Education tax, Health tax, Road tax, Transaction tax, Turnover tax etc were existing.

- Income tax - On personal, business, rental, and agricultural income.
- Land use tax - Based on the fertility of land.
- Education tax - Levied on the land used for promoting education.
- Health tax - Levied on the land used for health activities.
- Road Tax - On the nature and load capacity of vehicles.
- Transaction tax - On the import and export on the goods manufactured locally.
- Turnover tax - Imposed on the every sale at all stages of production and Distribution irrespective of their origin.

Ethiopia was under Derg rule (Military rule) from the year 1975 to 1991. During the Derg period taxes were similar to those imposed during the period of Haile Sellassie, but legislated some proclamations relating to different components of taxes. In order to raise more revenue during the period to support the war efforts, there was an increase in the tax rates and also coverage.

During Derg period some of the taxes like land tax, rental income tax, health and education tax were cancelled and other taxes were restructured and continued until the transitional government of Ethiopia (1991- 1995) amended a new taxation structure. Regional governments were formed in Ethiopia on the basis of the proclamation number 7/1992 and major changes took place in the tax policy. Tax brackets and tax rates were modified. New tax basis such as tax on mining activities and capital gains were also introduced.

CHANGES OF TAXES FROM EARLIER PERIOD TO TRANSITIONAL GOVERNMENT PERIOD

| Earlier period taxes | | Transitional government Period taxes |
|---|------------------|--|
| 1. Personal income tax Proclamation 1976 (Rate 10% to 85%) | Amended | Employment /Personal income tax, Proclamation 30/1992 and 107/1994, under this monthly income up to birr 120 is exempted and rate reduced 10% 40% range. It is further amended by Proclamation 286/2002 |
| 2. Business Profit tax Proclamation No.18/1990 | Replaced | Proclamation 107 of 1994, according to which tax rates were lowered from 10% to 40% range. Tax rate of incorporated bodies reduced to 45%. It is further amended by proclamation 286/2002. |
| 3. Mining activities tax: Earlier it was not in existence | Newly introduced | Proclamation 53/ 1993, 45% of tax for large scale mining and 35% to small scale mining . It is further amended by proclamation 23/1996 |
| 4. Capital gain tax ; earlier it was not taxed | Newly introduced | Proclamation 53/1993. Tax on shares , bonds and urban houses. Tax is 15% on gain realized on securities and 30% of gain on urban houses. |
| 5. Rental Income tax: It was cancelled during the derg period | Re-introduced | It is imposed on the income derived from rent of home building material and goods and is exempted first 1200 birr of annual income and imposed tax rate ranging from 10% to 45% on each additional taxable income .It is further amended by proclamation 286/2002. |
| 6. Sales tax | Introduced | Proclamation 68/1993. It is 5% on selected list of agricultural and essential goods and 12% for others . on January 1, 2003 VAT is introduced. |
| 7. Excise tax : imposed On imported alcohol as per 1943 rules and motor fuel tax after five years | Amended | As per proclamation 122/1993 and amended again by proclamation 307/2002 |
| 8. Import duties : During derg rule custom duty on luxury goods were imposed as per regulation 42/1976 and it is raised from 100% to 200%. In 1979 it was amended . In 1990 Vehicle duty raised to 230% in 1990 | Replaced | It is replaced by the custom tariff regulation No.122/1993. Accordingly duty reduced from (5%-230%) to (5% - 80%). Imposed duty rate ranging from 5% -15% as most of the commodities which were freely imported previously. |
| 9. Exports – coffee, hides and skins live animals (cattels) ivory, chat were taxed | Cancelled taxes | By the proclamation 38/ 1993. duties levied on export of goods except coffee to encourage export. |

TAXES DURING THE PERIOD OF FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA (FDRE)

The new constitution of Ethiopia adopted in November 1994 gives power to the federal and regional governments to levy and collect taxes from the source allocated to them. The frame work of income tax proclamation 286/2002 includes two chapters, chapter I and Chapter II. Chapter I provide the substantive provisions and chapter II provides procedural provisions. Chapter one includes sections I to V and articles from 1 to 37. Chapter two includes sections I to XI and articles 38 to 120.

Chapter- I . Sec.I General Provisions (Article 1 to 9)

1 Short title

2 Definitions: 1) Person 2) Body 3) Association of person 4) Related Person 5) Relative 6) Business 7) Tax Payer 8) Withholding agent 9) Permanent Establishment 10) Income 11) Taxable income 12) Employee 13) Tax authority 14) Minister 15) Fiscal year 16) Category of tax payer

3. Scope of application

Resident – Apply to their world wide income

Non Resident –Apply to their Ethiopian source of income

4. Obligation to pay tax: Every person obliged to pay

5. Determination of Residential Status.

6. Source of income

7. Foreign tax credit

8. Schedules of Income (A, B, C, D)

9. Foreign Exchange Transactions

In addition to the above, Council of Ministers issued Income tax Regulation 78/2002

It includes 7 parts.

Part I. General

Part II. Tax payable under Schedule A

Part III. Tax payable under Schedule B

Part IV. Tax payable under Schedule C

Part V. Other income Schedule D

Part VI. Declaration of Income and Assessment of Tax

Part VII. Other Provisions

AMENDMENTS MADE BY “FDRE”

1. Employment income tax reduced from 40% to 35%.
2. Business income tax reduced from 40% to 35%.
3. Mining activities of small scale and large scale were equalized.
4. Export duty on coffee export cancelled.
5. Custom duty reduced from 80% to 35%
6. Agricultural income tax collection made under the control of regional Government
7. Taxpayer Identification Number (TIN) is introduced.
8. Tax withholding system is introduced.
9. VAT is introduced replacing the sales tax.

MAJOR TYPES OF TAXES NOW EXISTING IN ETHIOPIA**I. DIRECT TAXES:** It includes the following:

- 1) Employment/ Personal Income tax
- 2) Business Profit tax
- 3) Tax on income from rental of building
- 4) Tax on interest on income from deposit
- 5) Dividend income tax
- 6) Tax on income from royalties
- 7) Tax on income from games of chances
- 8) Tax on gain of transfer of investment property
- 9) Tax on income from rental of property
- 10) Rendering of technical services outside Ethiopia
- 11) Agricultural income tax
- 12) Land use tax.

II. INDIRECT TAXES: It includes the following:

- 1) Turnover tax
- 2) Excise tax
- 3) Value Added Tax
- 4) Customs Duty

III. STAMP DUTY**SCHEDULE OF TAXES AS PER PROCLAMATION****1. TAX ON INCOME FROM EMPLOYMENT / PERSONAL INCOME TAX**

Every person deriving income from employment is liable to pay tax on that income at the rate specified in schedule A

Table- 1: **Schedule A**

| Employment income per month | Tax rate | Deduction in birr |
|-----------------------------|----------|-------------------|
| 0 - 150 | Exempt | - |
| 151 - 650 | 10% | 15 |
| 651 - 1400 | 15% | 47.50 |
| 1401 - 2350 | 20% | 117.50 |
| 2351 - 3550 | 25% | 235 |
| 3551 - 5000 | 30% | 412.50 |
| Over 5000 | 35% | 662 |

Source: Income tax Proclamation 286/2002

2. BUSINESS PROFIT TAX

This is the tax imposed on the taxable business income or net profit realized from entrepreneurial activity. Taxable business income would be determined per tax period on the basis of the profit and loss account or income statement which shall be drawn in compliance with the Generally Accepted Accounting Standards. Corporate businesses are required to pay 30% flat rate of business income tax. For unincorporated or individual businesses the tax ranges from 10% to 35%. Unincorporated or individual businesses are taxed in accordance with the schedule C

Table -2: **Schedule C**

| Business Income per year | Tax rate | Deduction |
|--------------------------|----------|-----------|
| 0 - 1800 | Exempted | - |
| 1801 - 7800 | 10% | 180 |
| 7801 - 16800 | 15% | 570 |
| 16801 - 28200 | 20% | 1410 |
| 28201 - 42600 | 25% | 2820 |
| 42601 - 60000 | 30% | 4950 |
| Over 60000 | 35% | 7950 |

Source: Income tax Proclamation 286/2002

3. Tax on Income from Rental of Buildings

Tax is imposed on the income from rental of buildings. If the taxpayer leased furnished quarters, the amounts received attributable to the lease of furniture and equipment would be included in the income and taxed. The tax payable on rented houses would be charged at the following rates:

- On income of bodies 30% of taxable income
- On income of persons according to the following schedule

Table -3

| Income per year | Tax rate | Deduction |
|-----------------|----------|-----------|
|-----------------|----------|-----------|

| | | |
|---------------|----------|------|
| 0 - 1800 | Exempted | - |
| 1801 - 7800 | 10% | 180 |
| 7801 - 16800 | 15% | 570 |
| 16801 - 28200 | 20% | 1410 |
| 28201 - 42600 | 25% | 2820 |
| 42601 - 60000 | 30% | 4950 |
| Over 60000 | 35% | 7950 |

4. TAX ON INTEREST INCOME ON DEPOSITS IN ETHIOPIA

Every person deriving income from interest on deposits shall pay tax at the rate of 5%. The payers are required to withhold the tax and account to the Tax authority.

5. DIVIDEND INCOME TAX ON DIVIDEND FROM SHARE COMPANY.

Every person deriving income from dividends from a share company or withdrawals of profit from a private limited company shall be subject to tax at the rate of 10%. The withholding agent shall withhold or collect the tax and account to the tax authority.

6. TAX ON INCOME FROM ROYALTIES FOR USE OF CERTAIN RIGHTS

Royalty income means payment of any kind received as consideration for the use of or the right to use any copy right of literary artistic or scientific work including cinematography films, and films or tapes for radio or television broadcasting. Royalty income shall be liable to tax at a flat rate of 5%. The withholding agent who effects payments shall withhold the foregoing tax and account to the tax authority. Where the payer resides abroad and the recipient is a resident, the recipient shall pay tax on the royalty income within the time limit set out.

7. TAX ON INCOME FROM GAMES OF CHANCE LIKE LOTTERIES

Income from winning from games of chances e.g. lotteries shall be subject to tax at the rate of 15%, except for winning of less than 100 birr. The payer shall withhold or collect the tax and account to the tax authority.

8. TAX ON GAIN OF TRANSFER OF CERTAIN INVESTMENT PROPERTY

Any gain obtained from the transfer (sale or gift) of building held for business, factory, office and share of companies and such income is taxable at the following rates. Building held for business, factory and office at the rate of 15%, Share of companies at the rate of 30%, Gains obtained from the transfer of building held for residence shall be exempted from tax provided that such building is fully used for dwelling for two years prior to the date of transfer.

9. TAX ON INCOME FROM RENTAL OF PROPERTY

Income derived from casual rental of property including any land, building or moveable property not related to a business activity. This type of income is subjected to tax at a flat rate of 15% of the annual gross income.

10. RENDERING OF TECHNICAL SERVICE OUTSIDE ETHIOPIA

Any kind of technical service rendered outside Ethiopia to resident persons in any form shall be liable to tax at a flat rate of 10% which shall be withheld and paid to the tax authority by the payer. The term technical service means any kind of expert advice or technological service rendered.

11. AGRICULTURAL INCOME TAX

Farmers and agricultural producer- co-operatives earning up birr 600 per annum are required to pay 10 birr (Proclamation 152/1978). The tax rate of every additional income varies from 10% to 89% for the income above 600 birr.

12. LAND USE TAX

Farmers, who are not the member's producer's co-operatives, are required to pay a land use tax fee of Birr 10 per hectare per annum (Proclamation 77/1976 and 152/1978) presently regional states have their own land use rent systems.

INDIRECT TAXES**1. TURNOVER TAX**

Turnover tax should be paid on goods sold and services rendered by persons not registered for Value Added Tax. The rate of turnover tax is 2% on goods sold locally, for service rendered locally, 2% on contractors, grain mills, tractors, combine harvesters and 10% on others. Exemptions are available as per tax proclamation 308/2002

2. EXCISE TAX

It would be imposed on the goods imported or either produced locally in accordance with the schedule given in excise tax proclamation 307/2002

3. VALUE ADDED TAX

VAT proclamation 285/2002 which has replaced the sales and excise tax proclamation 68/1993(as amended) and which has come in to force as of January 1,2003 is a consumption tax which is levied and paid as VAT at the rate of 15% of the value of every taxable transaction by registered persons every import of goods other than exempt import and a import service rendered in Ethiopia for a person registered in Ethiopia for VAT or any resident legal person by a non resident person who is not registered for VAT in Ethiopia (Article 7(1)a-c and Article 23(1) and (2)

4. CUSTOMS DUTY

When goods are imported or exported it would attract payment of duties and taxes according to the tariff of Harmonized Commodity Description and coding system. Payment of duties and taxes according to the preferential tariff rate where goods are imported from the preferred country; payment of duties and taxes at the rate in force on the day the declaration of the goods presented to and accepted by the customs office.

5. STAMP DUTY

Memorandum and articles of association of any business organization, co-operatives or any other form of associations shall be charged with stamp duty.

CONCLUSION

Now Ethiopia is in the path of developing activities. In its federal system, regions are having more autonomy. Many enterprises Public, micro, small, medium and large enterprises are growing up. Tax policy of the government should be to attract the investments from different sectors and it is to widen the tax basis and to avoid the over imposition of tax on existing income base. Tax payers should have the stage of opportunity to appeal and to express the opinion about the tax policy. More importance should be given to improve the book keeping system among the business community. When imposing penalties, it should be to correct and to guide the tax payers and should not be a overburden and a punishment and it is the stage of modern tax implementation stage.

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ABSTRACT

Organizational politics means the use of power and influence in organizations. It has been already studied by various authors in various spheres. However the researcher has studied organizational Politics in new private sector and select public sector banks specifically in the banking sector of the main metropolitan city named Chennai. Banks are the backbone of our country and therefore their contribution to the nation should be to the fullest. The researcher has done a Factor Analysis to identify the factors influencing Organisational Politics and A Cluster Analysis to find out the different groups or clusters that may be formed based on the opinion of the respondents.

KEYWORDS

Organisational politics, Chennai Banking sector, Private sector banks, Public sector banks

INTRODUCTION

As Pericles wrote over 2500 years ago, "Just because you do not take an interest in politics doesn't mean politics won't take an interest in you." The consequences of these political events lead those involved to view organizational politics in their own way. Some, who may have been negatively affected by a political incident, perceive it to be a negative influence in organizations, while others, mostly those whose position was advanced by political means, view it as a useful tool in an organization (Ferris & Kacmar, 1992). Since people act upon their perceptions of reality, recognizing and understanding employees' perceptions of politics is of importance to organizations (Lewin, 1936; Porter, 1976).

REVIEW OF LITERATURE

Organisational Politics has emerged as an important variable in organizational research. It has drawn the attention of management scientist and organizational psychologists. This variable is being studied with different perspective in the organization. The earliest comprehensive definition was provided by Mayes and Allen (1977) which is as: "Organizational politics is the management of influence to obtain ends not sanctioned by the organization or to obtain sanctioned ends through non-sanctioned influence means." Sue Jones(1978), University of Bath, in "Organisational politics – only the darker side?" defines politics as "the actions which persons undertake in pursuit of certain personally significant outcomes to influence others whom they see as having the power of various kinds to facilitate or hinder those outcomes and also different and potentially conflicting concerns to their own". According to Mangham 1979; politics is the struggle of reasonable men to have what they consider to be right and proper prevail. More specifically political behavior is defined as organizationally non-sanctioned behavior (e.g., Ferris, Russ and Fandt, 1989; Gandz and Murray, 1980; Porter, Allen and Angle, 1981) which may be detrimental to organizational goals or to the interests of others in the organization (e.g., Ferris et al., 1989; Gandz and Murray, 1980; Porter et al., 1981). Organizational politics refers to behaviors "that occur on an informal basis within an organization and involve intentional acts of influence that are designed to protect or enhance individuals' professional careers when conflicting courses of action are possible" (Drory, 1993; Porter, Allen, & Angle, 1981). Pfeffer (1981) for instance, defines politics as a social function that can contribute to the basic functioning of organisations. Politically motivated behaviours are "those activities that are not required as part of one's formal role in the organization, but that influence or attempt to influence, the distribution of advantages and disadvantages within the organization"; (Farrell & Peterson, 1982, p.405). Mintzberg (1983) refers to OP as being informal, parochial, and illegitimate behavior that is intended to displace legitimate power (p. 172). Mintzberg (1983) defined it as "behaviour outside of the legitimate systems of influence.....pitting individuals or groups against the organisation at large or against each other". (Vredenburg and Maurer, 1984); Political behavior can be defined by the nature of the act or by people's perceptions of what is political. Ariss(1985,p 707) suggested that Organisational Politics consists of intentional acts of influence undertaken by individuals or groups to enhance or project their self-interest when conflicting courses of action are possible. (Drory and Rom, 1988; Kacmar et al., 1999); Political behavior in organizations is mostly covert and subject to differences in perception and people's attitudes and behaviors are determined mostly by their perceptions of reality and not reality per se (Lewin, 1936). (Ferris et al, 1989) define organisational politics as behaviour strategically designed to maximise the self-interests of individuals, behaviour that thereby conflicts with the collective organisational goals or the interests of other individuals. Pfeffer(1992, p.30) defined politics as the processes, the actions, the behaviors through which potential power is utilized and realized. (Morgan 1998); the idea of politics stems from the view that where interests are divergent, society should provide a means of allowing individuals to reconcile their differences through consultation and negotiation. Kacmar and Baron (1999) offered the following

definition: "organizational politics involves actions by individuals, which are directed toward the goal of furthering their own self-interests without regard for the well-being of others or their organization" (p. 4). Dubrin, (2001); defined organizational politics as informal approaches to gaining power through means other than merit or luck.

OBJECTIVES OF THE STUDY

To identify the factors influencing Organisational politics in an organization from the extensive review of Literature.

To classify the type of groups existing with relevance to Organisational politics.

To give suggestions to the Banking sector about the existence of Organisational politics.

RESEARCH METHODOLOGY

The methodology of the study is based on the primary as well as secondary data. The study depends mainly on the primary data collected through a well-framed and structured questionnaire to elicit the well-considered opinions of the respondents. The study is confined to a few selected Public and New Private Sector Banks in Chennai. The researcher has taken 8 PSBs and 5 NPSBs located in Chennai City.

Multi-Stage Random Sampling Method was used in the study to select the sample. A **multistage random sample** is constructed by taking a series of simple random samples in stages. In a multistage random sample, a large area, such as a country, is first divided into smaller regions (such as states), and a random sample of these regions is collected. In the second stage, a random sample of smaller areas (such as counties) is taken from within each of the regions chosen in the first stage. Then, in the third stage, a random sample of even smaller areas (such as neighborhoods) is taken from within each of the areas chosen in the second stage. If these areas are sufficiently small for the purposes of the study, then the researcher might stop at the third stage. If not, he or she may continue to sample from the areas chosen in the third stage, etc., until appropriately small areas have been chosen-Valerie J. Easton and John H. McColl's Statistics Glossary v1.1). Similarly in this study out of the whole country Chennai is chosen as the first step, In Chennai whether public sector or private sector bank is the next stage of random sampling and in which level within private or public sector bank is the third step of random sampling.

A total of 120 questionnaires have been distributed and out of which 60 from PSBs and 60 from NPSBs were received. After the scrutiny of these questionnaires, 8 questionnaires from PSBs and 12 questionnaires from NPSBs were rejected on account of incomplete responses. Finally, 100 completed questionnaires were used for the present study.

STUDY AREA

The study is confined to a few selected Public and New Private Sector Banks and for this purpose the following 8 Public Sector Banks and 5 New Private Sector Banks are considered as the sample domain:

Table 1.1

| S.No | Public Sector Banks | No. of Branches in Chennai City | S.No. | New Private Sector Banks | No. of Branches in Chennai City |
|------|----------------------|---------------------------------|-------|--------------------------|---------------------------------|
| 1 | Bank of India | 32 | 1 | Centurion Bank of Punjab | 7 |
| 2 | Canara Bank | 59 | 2 | HDFC Bank | 28 |
| 3 | Indian Bank | 103 | 3 | ICICI Bank | 28 |
| 4 | Indian Overseas Bank | 69 | 4 | Indus Ind Bank | 3 |
| 5 | Punjab National Bank | 32 | 5 | UTI Bank | 16 |
| 6 | State Bank of India | 83 | | | |
| 7 | Syndicate Bank | 31 | | | |
| 8 | Vijaya Bank | 24 | | | |

Source: Websites of the Banks selected for the study

Out of the 20 PSBs and 8 NPSBs operating in Chennai City 8 PSBs and 5 NPSBs are selected at random for the study. The researcher has obtained the responses from 25 percent of the branch offices of select banks rationally. These branches have been selected in Chennai City comprising of 10 Zones. (www.chennaicorporation.com).

RESEARCH MEASURE- PERCEPTION OF POLITICS

Ferris (1989) defined this variable as the degree to which respondents view their work environment as political and therefore unjust and unfair. Kacmar and Ferris (1991)¹ in one attempt developed a universal tool containing 31 statements to evaluate the psychometric properties of the Perception of Politics scale (POPS).

Kacmar and Carlson (1997)² further used the above measure and suggested that it be reduced to 15 items after testing it in various settings. However the researcher has considered the 31 items proposed by Kacmar and Ferris (1991) and the 15 items modified by Kacmar and Carlson (1997) for this study. 38 items were selected from the total 46 items according to the relevance of the study area and was modified in words according to the requirement of Indian Scenario. The modified questionnaire was tested for its reliability and its Cronbach's Alpha Co-efficient was 0.837.

Sample items include:

- I will disagree with my superior to implement my ideas at work.
- Favoritism rather than merit determines the success of a person in my organization.
- Hard workers are not rewarded in my organization.

1- (Gerald.R.Ferris and K.Michele Kacmar – 1991)- Perception of Organisation politics; Journal of Management 1992, Vol 18, No.1,93-116.

2-(K.Michele Kacmar and Dawn.S.Carlson-1997)-Further validation of the Perception of Politics Scale (POPS): A multiple Sample Investigation; Journal of Management 1997; vol 23, No 5, 627-658.

ANALYSIS AND INTERPRETATION

FACTOR ANALYSIS- Factor analysis by principle component method extracted 6 predominant factors as shown below: The total variance of the 38 items is found to be 100% which is significantly greater than the benchmark variance value 60%. The factor segmentation is revealed through the correlation values exhibited in the communalities table.

RELATION WITH SUPERIOR "My supervisor helps employees to protect himself / herself – 0.994", "My superiors communicate with me in order to make himself/herself look better, not to help me – 0.910", "Managers in my organization select people only who will be helpful for them – 0.889", "The performance appraisal done by supervisors reflect more of the supervisor's "own agenda" than the actual performance of the employee – 0.849", "I will disagree with my superior to implement my ideas at work – 0.816"

COWORKER BEHAVIOUR "A co-worker is helpful because he expects to get something in return from me – 0.925", "There are in-groups which hinder the effectiveness in my organization – 0.902", "My co- workers help themselves not others – 0.745", "When I need help at work I can always rely on a co-worker to lend a hand - 0.714", "Other department connections are very helpful when I require a favour – 0.596"

GOING ALONG TO GET AHEAD "Agreeing with powerful others is the best alternative in this organization – 0.991", "Sometimes it is easier to remain quiet than to fight the system – 0.927", "Telling others what they want to hear is sometimes better than telling the truth – 0.902", "It is safer to think what you are told than to make up your own mind – 0.745", "It is better not to rock the boat in this organization – 0.614", "Employees in my organization are encouraged to speak out frankly – 0.494", "In my organization best crisis managers are successful survivors – 0.462"

PAY AND PROMOTION POLICIES "Hard workers are not rewarded in my organization – 0.966", "My organizational pay and policies are specific and well defined – 0.912", "When it comes to pay raise and promotion decisions, policies are irrelevant – 0.883", "Favoritism rather than merit determines the success of a person in my organization – 0.865", "The stated pay and promotion policies have nothing to do with how pay raises and promotions are determined – 0.741", "Pay and promotion policies are always political – 0.671", "Pay and promotion are not consistent with the published policies – 0.613", "Promotions are given to best performers in my organization – 0.516", "Pay and promotion policies are generally communicated in my organization – 0.504"

INDIVIDUAL INFLUENCE "I can survive well if I am a good person even if I don't have quality in work – 0.884", "People who are willing to voice their opinion seem to do "better" than those who don't – 0.842", "It normally takes only a couple of months for a new employee to figure out the survival techniques in an organization – 0.775", "I don't care what others do, as long as the actions of others don't directly affect me – 0.533", "I can usually get what I want around here if I know the right person to ask – 0.470"

ORGANISATIONAL INFLUENCE "People in my organization attempt to build themselves by tearing others down – 0.925", "Working hard is not sufficient to stay in my organization – 0.907", "The policy changes made in my organization benefit only a few individuals; not the entire work unit – 0.881", "There is always an influential group in my department that no one ever crosses – 0.835", "When objective standards are not specified, it is common to see many people trying to define standards to meet their needs – 1.000", "Employees in my organization usually don't speak up for fear of revenge by others – 0.828", "In my organization people deliberately distort information requested by others for purposes of personal gain, either by withholding it or by selectively reporting it – 0.645".

Table 1.2: Total Variance Explained

| Component | Initial Eigen values | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|----------------------------|----------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| Relationship with superior | 19.689 | 51.813 | 51.813 | 19.689 | 51.813 | 51.813 | 12.347 | 32.492 | 32.492 |
| Coworker Behaviour | 6.663 | 17.534 | 69.347 | 6.663 | 17.534 | 69.347 | 7.556 | 19.885 | 52.377 |
| Going along to get ahead | 4.789 | 12.603 | 81.950 | 4.789 | 12.603 | 81.950 | 6.779 | 17.839 | 70.216 |
| Pay and Promotion Policies | 3.063 | 8.061 | 90.010 | 3.063 | 8.061 | 90.010 | 6.562 | 17.268 | 87.485 |
| Individual Influence | 2.683 | 7.060 | 97.071 | 2.683 | 7.060 | 97.071 | 2.962 | 7.795 | 95.280 |
| Organisational Influence | 1.113 | 2.929 | 100.000 | 1.113 | 2.929 | 100.000 | 1.794 | 4.720 | 100.000 |

Extraction Method: Principal Component Analysis.

The total variance table explains that among 6 variables "Relationship with superior" with a highest variance of 32.492% influenced politics in the banking sector; followed by "Coworker Behaviour" with a variance of 19.885%; The third predominant factor influencing politics was "Go along to get ahead" with a variance of 17.839% ; followed by 17.268% variance for "pay & promotion policies"; followed by "Individual Influence" with variance of 7.795% and last is the "Organizational Influence" with 4.720% of variance.

A perceptual difference among the employees based on their Perception of Organisational Politics with relevance to Going Along to Get Ahead, Relationship with supervisor, coworker behaviour, pay & promotion, Individual Influence, and organizational influence was done using cluster analysis. K-Means Clustering is a method of cluster analysis which aims to partition n observations into k clusters in which each observation belongs to the cluster with the nearest mean. K-Means cluster analysis is exploited to classify the employees of PSBs and NPSBs based on the Perception of Organisational Politics. The results are interpreted as below.

Table 1.3

| | CLUSTER 1 | CLUSTER 2 | CLUSTER 3 |
|--------------------------|-----------|-----------|-----------|
| Relation with Superior | 5(VS) | 4.8(VS) | 3.83(S) |
| Coworker Behaviour | 3(m) | 3.8(S) | 3.68(S) |
| Going along to get ahead | 3.22(S) | 3.86(S) | 4(S) |
| Pay & Promotion policies | 2.9(W) | 3.22(S) | 3.84(S) |
| Individual Influence | 2.92(W) | 3(N) | 3.96(S) |
| Organisational influence | 2.69(W) | 4.29 (VS) | 3.74(S) |

| | | |
|---------|---|---------|
| Cluster | 1 | 40.000 |
| | 2 | 10.000 |
| | 3 | 50.000 |
| Valid | | 100.000 |
| Missing | | .000 |

NUMBER OF CASES IN EACH CLUSTER

From the cluster table the employees are classified as self motivated, fair and aggravated employees. The 1st group of people who were 40% had weak perceptions of politics with respect to Relation with Superior, Coworker Behaviour, Going along to get ahead, Pay & Promotion policies, Individual Influence & Organisational influence. Therefore this cluster is known as "self motivated employees". The 2nd group comprises 10% of the employees had moderate perceptions of politics with respect to Relation with Superior, Coworker Behaviour, Going along to get ahead, Pay & Promotion policies, Individual Influence & Organisational influence. It is suitable to name them as fair employees. The 3rd group comprises 50% of the employees had high perceptions of politics with respect to Relation with Superior, Coworker Behaviour, Going along to get ahead, Pay & Promotion policies, Individual Influence & Organisational influence. This cluster is known as aggravated employees.

CONCLUSION

The perception of politics in banks and their rarified heights are also obtained through the factors relationship with superiors and coworker behavior. Behavioural concepts clutch the organization politics in banks. In particular get along with superiors and subordinates on the basis of 360° appraisal and management policies on pay & promotion policies and mutual delivery of top level management and middle level managers perception towards organizational development. It is abundantly found that both individual & organizational factors create an atmosphere of politics in commercial banks.

Extensive review of literature on organizational politics from various studies has revealed Job Satisfaction, Job Involvement and organizational commitment as the usual determinants and Turnover Intention, Negligent Behaviour & Absenteeism as its outcome variables. However the researcher taken steps to classify the employees based on Perception of Organisational Politics alone in this study. From the above analysis it may be interpreted that around 50% of the people had high perceptions of organizational politics, which shows a bad signal for the banks of the present scenario. 40% of employees have shown weak perceptions of politics is a good signal. Either they have learned to live with politics or they have adapted themselves to the situation for survival reasons. Though only up to 10% of employees' moderately perceived organizational politics it has to be viewed seriously because it may be converted to high perception of politics in the long run. This shows a need for improvement situation because it leads to fall in productivity and in the growth of the banking sector. Such employees must be cared for and counseled in order to contribute effectively to the organization. Banks being the financial backbone of the country will be ruined only by such high politicking people. They have a capability to influence all others of the banks and therefore the entire internal setup.

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BANKING WITH INFORMATION TECHNOLOGY – EMERGING CHALLENGES AND POTENTIALS**DR. R. K. UPPAL, D. LITT.**

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ABSTRACT

The severe crises of 1991 gave birth to the new economic thought in the country. A bundle of measures were taken to remove the various deficiencies and rigidities in the Indian economy. Hence, new economic policy was introduced to mould the Indian economy to the right path. Financial sector reforms and banking sector reforms are the part and parcel of economic reforms, which strengthen the economic reforms. Under the regime of banking sector reforms, IT Act of 1999 gave new dimensions to the Indian banking sector. IT (ATMs, Smart Cards, Internet-Banking, Tele-Banking, Mobile-Banking, EFTs etc.) has created transformation in banking structure, business process, work culture and human resource development. It has affected the productivity, profitability and efficiency of the banks to a large extent.

The present paper analyzes the performance of major banks in terms of productivity and profitability in the pre and post e-banking period. The paper concludes that performance of all the banks under study is much better in post-e-banking period and further foreign banks are at the top position, whereas the performance of the public sector banks is comparatively very poor.

The paper suggests some measures to tackle the challenges faced by the banks particularly public sector banks. At the end, paper suggests how public sector banks can convert the emerging challenges into opportunities?

KEYWORDS

Banking, e-banking, IT, economy

INTRODUCTION

In the beginning of 90's, there were so many deficiencies were prevailing in the Indian economy, particularly in the financial sector and also in the banking sector. The major deficiencies prevailing at the time of early 90's:

- productivity and efficiency of the system has suffered;
- its profitability has been eroded;
- several public sector banks and financial institutions have become weak financially;
- some public sector banks have been incurring losses year after year;
- their customer service was poor;
- their work technology was outdated;
- they were unable to meet the challenges of a competitive environment.

Keeping in mind all the above said distortions in the economic, financial and banking sectors, the government of India and the RBI thought it was necessary to introduce reforms in the financial and banking sector also, so as to promote rapid economic growth and development with stability through the process of globalization, liberalization and privatization in the financial system so that the financial system becomes more competitive and gets integrated with the world economy through internationalizations of financial markets in the world.

NARASIMHAM COMMITTEE RECOMMENDATIONS FOR BANKING SECTOR REFORMS

The government of India, under the chairmanship of Sh. M. Narasimham, an Ex-Governor of RBI, appointed the Narasimham Committee-I (NC-I) in April 1991. The committee examined all the aspects relating to the structural organization, functions and procedures of financial system and submitted its report on November 16, 1991. The NC-I had proposed wide ranging reforms for:

- improving the financial viability of the banks;
- increasing their autonomy from government directions;
- restructuring unviable banks;
- allowing a greater entry of the private sector in banking;
- liberalizing the capital market;
- further improving the operational flexibility and competition among the financial institutions;
- setting up of proper supervisory system.

FIRST PHASE OF BANKING SECTOR REFORMS (1991)

A number of reform initiations have been taken to improve or minimize the distortions impinging upon the efficient and profitable functioning of banks, especially:

1. Reduction in SLR & CRR
2. Transparent guidelines or norms for entry and exit of private sector banks
3. Public sector banks allowed to direct access to capital markets
4. Deregulation of interest rates
5. Branch licensing policy has been liberalized
6. Setting up of Debt Recovery Tribunals
7. Asset classification and provisioning
8. Income recognition
9. Asset Reconstruction Fund (ARF)

These and other measures that have been taken would help the highly regulated and directed banking system to transform itself into one characterized by openness, competition, prudential and supervisory discipline.

SECOND PHASE OF BANKING SECTOR REFORMS (1998)

The recommendations of the NC-I in 1991 provided the blueprint for the first generation reforms of the financial sector. The period 1992-97 witnessed the laying of foundations for reforms in the banking system.

Cataclysmic changes were taking place in the world economy, coinciding with the movement towards global integration of financial services.

Against such backdrop, the committee NC-II, appointed for the said purpose generated its report in 1998, provided the roadmap for the second-generation reform process.

The NC-II with Mr. M. Narasimham as the chairman was constituted on December 26, 1997 to review the banking sector reforms since 1991 and to suggest measures of further strengthening the banking sector of India. The NC-II examined the second-generation of reforms in terms of three broad interrelated issues:

- (i) action that should be taken to strengthen the foundation of the banking system
- (ii) strengthening procedures, upgrading technology and HRD and
- (iii) structural changes in the system

These cover the aspects of banking policy, institutional, supervisory and legislative documents. The major recommendations of the committee were:

1. Strengthening banking system
2. Systems and methods of banking
3. Structural issues
4. Integration of financial markets
5. Rural and small scale industrial credit
6. Regulation and supervision

OBJECTIVES

The present paper analyzes the impact of IT on the transformation of banks during the second phase of banking sector reforms. The specific objectives of the paper are:

1. To study the process and contents of bank transformation in the regime of post-second banking sector reforms.
2. To analyze the comparative performance of public sector banks, new private sector banks and foreign banks in pre and post e-banking period.
3. To study the challenges and opportunities for the banking industry particularly to the public sector banks.

HYPOTHESIS

1. The performance of all the banks under study is significantly better in post-e-banking period than pre-e-banking period.
2. The performance of foreign banks is significantly better than new private sector banks and public sector banks.
3. The performance of new private sector banks is significantly better than public sector banks.

RESEARCH METHODOLOGY

The present paper is concerned with the Indian banking industry. Total nine banks have been selected on the basis of their market share in business in 2003-04, three banks from each bank group i.e. public sector banks, new private sector banks and foreign banks.

PUBLIC SECTOR BANKS: State Bank of India (SBI), Bank of Baroda (BOB) and Canara Bank (CB)

NEW PRIVATE SECTOR BANKS: HDFC Bank, ICICI Bank and UTI Bank

FOREIGN BANKS: Citibank, Standard Chartered Bank (SCB), The Hongkong and Shanghai Banking Corporation (HSBC)

To compare the performance of selected banks in pre and post e-banking period, ratio analysis method is used.

The following ratios are analyzed to examine the performance of the selected banks.

LABOUR PRODUCTIVITY RATIOS

- a. Deposits per Employee
- b. Credits per Employee
- c. Business per Employee

BRANCH PRODUCTIVITY RATIOS

- a. Deposits per Branch
- b. Credits per Branch
- c. Business per Branch

PROFITABILITY RATIOS

- a. Spread as Percentage of Working Funds
- b. Burden as Percentage of Working Funds
- c. Net Profit as Percentage of Working Funds

The universe for the study is Indian banking industry. The study is concerned with the second-post banking reforms period i.e. 1998-99 to 2003-04. The time period is further divided into two parts i.e. pre-e-banking period (1998-2001) and post-e-banking period (2001-04). Before the IT Act, there was very limited computerization and there were no e-delivery channels and that is why we are considering this period as pre-e-banking period (1998-2001). After the IT Act, almost all the banks less or more, started to use e-delivery channels that is why we are considering this period as post/e-banking period (2001-2004)

DATABASE

1. Performance Highlights of Banks (Various Issues) from 1998 to 2004, Indian Banking Association, Mumbai.
2. IBA, Bulletin, Vol. XXV, No. 3, Special Issue, 2003.

REVIEW OF LITERATURE

Arora, K. (2003) highlighted the significance of bank transformation. Technology has a definitive role in facilitating transactions in the banking sector and the impact of technology implementation has resulted in the introduction of new products and services by various banks in India.

Bakshi, S. (2003) said that good governance is of interest not only to an individual bank but also to the society in which it operates-the basic objectives being protection of depositors and safeguarding the integrity and soundness of the system.

Brett (1997) studied the changing in old money structure into E-Money. Now days the banks are providing different cards (Smart Card, Credit & Debit Cards) to their customers.

Clifford (2002) studied the impact of IT on the financial services. The dimensions of banking business are changing in the new economy. In many banks, transformation is managed by IT.

Federick & Phil. (2000) analyzed the E-Loyalty. According to them, the unique economics of e-business make customers loyalty more important than ever.

Jalan, B. (2003) rightly expressed his view in the Bank Economists' Conference - (2003), a forward-looking approach to our long-term vision must focus on building human resources in a continuous cycle of competency and development.

Mohan, R. (2003) expressed his views regarding the transformation in Indian Banking that if Indian Banks are to compete globally, the time is opportune for them to institute sound and robust risk management practices.

Sankar, S. (2001) concluded that in the era of transformation banks should go for mergers and acquisitions to improve their size, skills and services. He suggested that Indian Banking has to operate with a global mindset even while fulfilling local banking requirements.

Sandhu, H.S. (2003) the paper analysis the impact of IT and particularly e-delivery channels on the performance of Indian banking system. The paper also highlights that ATM is a major e-delivery channels, which is used mostly in the metropolitan and urban cities. The paper concludes that those banks, which are using e-delivery channels, they are providing better services than the other banks.

Shapiro, (2002) studied the effects of cyberspace on efficiency and productivity of banks. He also analyzed the nature of bank transformation.

Trivedi, A.K. (2003) has rightly said that Indian Banks have always proved beyond doubt their adaptability to change and it would be possible for them to mould themselves into agile and resilient organizations by adopting fine-tuned CRM strategies, operations based on asset-liability and risk management systems, the required technological capabilities and developing human resources to meet the challenges of the paradigm shift.

Because in India, IT is in infant stage and very less comprehensive studies are conducted. Some articles or research papers are appeared in different journals. The review of literature on various aspects of bank transformation concludes that transformation is taking place and IT is playing vital role in bringing this transformation and it is need of the hour to manage this transformation with IT.

INFORMATION TECHNOLOGY AND BANK TRANSFORMATION

The second banking sector reforms gave much importance to the modernization and technology up gradation. The IT Act, 1999 started the speedy process of e-banking.

E-Banking

Delivery of bank's services to a customer at his office or home by using electronic technology can be termed as e-banking. The quality, range and price of these e-services decide a bank's competitive position in the industry. The virtual financial services can be largely categorized as follows:

Automated Teller Machines:

- Cash withdrawals
- Details of most recent balance of account
- Mini-statement
- Statement ordering facility
- Deposit facility
- Payments to third parties

EFTPoS: EFTPoS card used to initiate transactions:

- Authorization and transaction capture processes take place electronically.
- Transaction confirmed manually.
- Funds not debited electronically.

Remote Banking Services:

- Balance enquiry
- Statement ordering
- Funds transfer (payment) to third parties
- Funds transfer between customer's different accounts
- Order traveler's cheques and other financial instruments.

Services Not Available Through Remote Banking:

Cash withdrawal

Cash/ chequed deposit

Sale of the more complex types of financial services such as life insurance

mortgages and (pensions).

Smart Cards:

(i) Stored value cards

(ii) As a replacement for all types of magnetic stripes cards like ATM Cards, Debit/Credit Cards, Charge Cards etc.

One smart card to carry out all these functions

One smart card can contain the functionality of several different types of cards issued by different banks while running different types of networks.

Smart card a truly powerful financial token, giving user access

STM

Debit facility

Charge facilities

Credit facilities

Electronic purse facilities at national and international level.

Internet Banking: The latest wave in IT is Internet banking. It is becoming more obvious that the Internet has unleashed a revolution that is affecting every sphere of life. Internet is an interconnection of computer communication networks spanning the entire globe, crossing all geographical boundaries. Touching lifestyles in every sphere the Net has redefined methods of communication, work, study, education interaction, health, trade and commerce. The Net is changing everything, from the way we conduct commerce, to the way we distribute information. Being an interactive two-way medium, the Net, through innumerable websites, enables participation by individual in B2B and B2C commerce, visits to shopping malls, books-stores, entertainment sides, and so on cyberspace.

Bank Transformation

The term transformation in Indian Banking Industry relates to intermediately stage when the industry is passing from the earlier social banking era to the newly conceived technology based customer - centric and competitive banking. The activities of banks have grown in multi-directional as well as in multi-dimensional manners.

During transformation, all known parameters of the earlier regime continuously change.

The current transformation process in the Indian Banking has many aspects. They pertain to:

Capital Restructuring

Financial Re-engineering

Information Technology

Human Resource Development

RESULTS AND DISCUSSION**LABOUR PRODUCTIVITY:****(a) Public Sector Banks**

Labour productivity brings in light employee's capacity to produce. Table-I shows that the productivity in terms of business per employee of all the three public sector banks is increasing in all the years.

Table I: Labour Productivity of Public Sector Banks (Rs. In Lacs)

| Years | SBI | | | BOB | | | CB | | |
|---|-------|------|-------|------|------|-------|-------|-------|-------|
| | D/E | C/E | BUS/E | D/E | C/E | BUS/E | D/E | C/E | BUS/E |
| (A) Pre – E-Banking Period | | | | | | | | | |
| 1998-99 | 0.71 | 0.35 | 1.06 | 0.97 | 0.46 | 1.43 | 0.76 | 0.55 | 1.11 |
| 1999-2000 | 0.84 | 0.42 | 1.26 | 0.97 | 0.52 | 1.49 | 0.87 | 0.43 | 1.30 |
| 2000-01 | 1.13 | 0.53 | 1.66 | 1.09 | 0.59 | 1.68 | 1.22 | 0.58 | 1.80 |
| Average | 0.89 | 0.43 | 1.32 | 1.01 | 0.52 | 1.53 | 0.95 | 0.45 | 1.40 |
| S.D. | 0.22 | 0.02 | 0.31 | 0.02 | 0.02 | 0.13 | 0.24 | 0.12 | 0.36 |
| C.V.(%) | 24.72 | 4.65 | 23.48 | 1.98 | 3.85 | 8.50 | 25.26 | 26.67 | 25.71 |
| (B) Partially – E-Banking Period | | | | | | | | | |
| 2001-02 | 1.29 | 0.58 | 1.87 | 1.59 | 0.87 | 2.46 | 1.34 | 0.69 | 2.03 |
| 2002-03 | 1.42 | 0.66 | 2.08 | 1.65 | 0.88 | 2.53 | 1.52 | 0.85 | 2.37 |
| 2003-04 | 1.54 | 0.74 | 2.30 | 1.83 | 0.89 | 2.72 | 1.81 | 1.00 | 2.81 |
| Average | 1.42 | 0.66 | 2.08 | 1.69 | 0.88 | 2.57 | 1.56 | 0.85 | 2.40 |
| S.D. | 0.13 | 0.02 | 0.22 | 0.12 | 0.02 | 0.13 | 0.24 | 0.16 | 0.39 |
| C.V.(%) | 9.15 | 3.03 | 10.58 | 7.10 | 2.27 | 5.06 | 15.38 | 18.82 | 16.25 |

Source: Performance Highlights, Various Issues, 1998-2004, IBA, Mumbai

It shows that productivity is increased almost double time in all the three banks during partially e-banking period i.e. 2001-04 as compared to that in pre-e-banking period i.e. 1998-2001, whereas variations in terms of co-efficient of variations are maximum in pre-e-banking period. From all the three public sector banks, Bank of Baroda shows the highest productivity in both the durations i.e. Rs.1.53 lakhs during 1998-2001 and Rs.2.57 lakhs during 2001-04 as compared to that of other two banks.

(b) New Private Sector Banks

From Table-II, we conclude that all the three new private sector banks show increase in their productivity in e-banking period from pre-e-banking period except UTI Bank, which shows decrease in its productivity. Variations are maximum in pre-e-banking period in all the selected banks. Although, productivity of UTI Bank is decreased, even it shows the highest labour productivity in both the durations i.e. Rs.11.41 lakhs

during 1998-2001 and Rs.9.79 lakhs during 2001-04 whereas ICICI Bank is following UTI Bank with labour productivity of Rs.7.83 lakhs and Rs.9.53 lakhs respectively during both the durations.

Table II: Labour Productivity of New Private Sector Banks

| Years | HDFC Bank | | | ICICI Bank | | | UTI Bank | | |
|-----------------------------------|-----------|-------|-------|------------|-------|-------|----------|------|-------|
| | D/E | C/E | BUS/E | D/E | C/E | BUS/E | D/E | C/E | BUS/E |
| (A) Pre – E-Banking Period | | | | | | | | | |
| 1998-99 | 2.96 | 1.42 | 4.38 | 6.83 | 2.37 | 9.20 | 5.84 | 4.17 | 10.01 |
| 1999-2000 | 4.21 | 1.73 | 5.94 | 7.34 | 2.72 | 9.06 | 7.74 | 4.75 | 12.49 |
| 2000-01 | 4.24 | 1.69 | 5.93 | 3.65 | 1.57 | 5.22 | 7.67 | 4.07 | 11.74 |
| Average | 3.80 | 1.61 | 5.42 | 5.94 | 2.22 | 7.83 | 7.08 | 4.33 | 11.41 |
| S.D. | 0.73 | 0.17 | 0.90 | 2.00 | 0.59 | 2.26 | 1.08 | 0.37 | 1.27 |
| C.V.(%) | 19.21 | 10.56 | 16.61 | 33.67 | 26.58 | 28.86 | 15.25 | 8.55 | 11.13 |
| (B) E-Banking Period | | | | | | | | | |
| 2001-02 | 4.72 | 1.82 | 6.54 | 4.15 | 6.09 | 10.24 | 7.14 | 3.11 | 10.25 |
| 2002-03 | 4.67 | 2.45 | 7.12 | 4.17 | 4.61 | 8.78 | 7.26 | 3.07 | 10.33 |
| 2003-04 | 5.36 | 3.13 | 8.49 | 5.00 | 4.56 | 9.56 | 6.08 | 2.72 | 8.80 |
| Average | 4.92 | 2.47 | 7.38 | 4.44 | 5.09 | 9.53 | 6.83 | 2.97 | 9.79 |
| S.D. | 0.38 | 0.66 | 1.00 | 0.49 | 0.87 | 0.73 | 0.65 | 0.21 | 0.86 |
| C.V.(%) | 7.72 | 26.72 | 13.55 | 11.04 | 17.09 | 7.66 | 9.52 | 7.07 | 8.78 |

Source: Same as Table I

(c) Foreign Banks

Table-III shows that labour productivity is increased in all the selected foreign banks in all the years under study and variations are maximum in pre-e-banking period. It shows increase almost of Rs.2-3 lakhs during the e-banking period as compared to that during pre-e-banking period. It is the highest in Citibank i.e. Rs.12.70 lakhs during 1998-2001 and Rs.17.32 lakhs during 2001-04 with the major difference from the other banks whereas SCB shows Rs.8.05 lakhs and HSBC Rs.6.86 lakhs during 2001-04, which is far behind the productivity of Citibank.

Table III: Labour Productivity of Foreign Banks (Rs. In Lacs)

| Years | Citibank | | | Standard Chartered Bank | | | HSBC | | |
|-----------------------------------|----------|-------|-------|-------------------------|-------|-------|-------|-------|-------|
| | D/E | C/E | BUS/E | D/E | C/E | BUS/E | D/E | C/E | BUS/E |
| (A) Pre – E-Banking Period | | | | | | | | | |
| 1998-99 | 6.14 | 3.26 | 9.40 | 2.01 | 1.27 | 3.28 | 2.35 | 1.03 | 3.38 |
| 1999-2000 | 7.80 | 5.06 | 12.86 | 3.09 | 2.66 | 5.75 | 3.15 | 1.60 | 4.75 |
| 2000-01 | 9.52 | 6.32 | 15.84 | 3.08 | 3.14 | 6.22 | 3.28 | 2.06 | 5.34 |
| Average | 7.82 | 4.80 | 12.70 | 2.73 | 2.36 | 5.08 | 2.93 | 1.56 | 4.49 |
| S.D. | 1.69 | 1.54 | 3.22 | 0.62 | 0.97 | 1.58 | 0.50 | 0.52 | 1.11 |
| C.V. (%) | 21.61 | 32.08 | 25.35 | 22.71 | 41.10 | 31.10 | 17.06 | 33.33 | 22.49 |
| (B) E-Banking Period | | | | | | | | | |
| 2001-02 | 10.37 | 7.74 | 18.11 | 3.38 | 4.22 | 7.60 | 3.68 | 2.34 | 6.02 |
| 2002-03 | 10.99 | 7.82 | 18.81 | 4.90 | 3.55 | 8.45 | 3.83 | 2.46 | 6.29 |
| 2003-04 | 8.61 | 6.42 | 15.03 | 4.47 | 3.62 | 8.09 | 5.20 | 3.08 | 8.28 |
| Average | 9.99 | 7.33 | 17.32 | 4.25 | 3.80 | 8.05 | 4.24 | 2.62 | 6.86 |
| S.D. | 1.23 | 0.79 | 2.01 | 0.78 | 0.37 | 0.43 | 0.84 | 0.40 | 1.23 |
| C.V. (%) | 12.31 | 10.78 | 11.61 | 18.35 | 9.74 | 5.34 | 19.81 | 15.27 | 17.93 |

Source: Same as Table I

Branch Productivity:

(a) Public Sector Banks

Table-IV highlights the branch productivity of SBI, Bank of Baroda & Canara Bank, which depicts the capacity of a branch to produce. Branch productivity is also more in partially e-banking period in all the banks as compared to pre-e-banking period, whereas variations are maximum in pre-e-banking period in all the banks under study. It is the highest in SBI i.e. Rs.33.29 cr. during 1998-2001 and Rs.47.93 cr. during 2001-04 and Canara Bank is following the SBI with Rs.47.01 cr. business per branch during 2001-04 where Bank of Baroda shows Rs.37.65 cr. productivity ratio.

Table IV: Branch Productivity of Public Sector Banks (Rs. In Lacs)

| Years | SBI | | | BOB | | | CB | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | D/B | C/B | BUS/B | D/B | C/B | BUS/B | D/B | C/B | BUS/B |
| (A) Pre – E-Banking Period | | | | | | | | | |
| 1998-99 | 18.82 | 9.17 | 27.99 | 17.34 | 8.20 | 25.54 | 17.64 | 8.21 | 25.85 |
| 1999-2000 | 21.77 | 10.85 | 32.61 | 19.35 | 9.20 | 28.54 | 20.03 | 9.82 | 29.85 |
| 2000-01 | 26.75 | 12.51 | 39.26 | 20.26 | 10.27 | 30.53 | 24.53 | 11.57 | 36.13 |
| Average | 22.45 | 10.84 | 33.29 | 18.98 | 9.22 | 28.20 | 20.74 | 9.87 | 30.61 |
| S.D. | 4.01 | 1.67 | 5.67 | 1.49 | 1.04 | 2.51 | 3.51 | 1.68 | 5.18 |
| C.V. (%) | 17.86 | 15.41 | 17.03 | 7.85 | 11.28 | 8.90 | 16.92 | 17.02 | 16.92 |
| (B) Partially – E-Banking Period | | | | | | | | | |
| 2001-02 | 29.78 | 13.30 | 43.08 | 23.07 | 12.57 | 35.64 | 26.58 | 13.75 | 40.33 |
| 2002-03 | 32.76 | 15.24 | 48.00 | 24.13 | 12.84 | 36.97 | 29.74 | 16.70 | 46.44 |

| | | | | | | | | | |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2003-04 | 35.25 | 17.47 | 52.72 | 27.11 | 13.22 | 40.33 | 34.97 | 19.29 | 54.26 |
| Average | 32.60 | 15.34 | 47.93 | 24.77 | 12.88 | 37.65 | 30.43 | 16.58 | 47.01 |
| S.D. | 2.74 | 2.09 | 4.82 | 2.09 | 0.33 | 2.42 | 4.24 | 2.77 | 6.98 |
| C.V. (%) | 8.40 | 13.62 | 10.06 | 8.44 | 2.56 | 6.43 | 13.93 | 16.71 | 14.85 |

Source: Same as Table I

(b) New Private Sector Banks

Table-V shows the branch productivity of new private sector banks. It is examined that branch productivity is more in e-banking period as compared to pre-e-banking period in case of HDFC Bank i.e. Rs.148.39 cr. during 2001-04 that comes up from Rs.102.42 cr. during 1998-2001, where ICICI Bank shows increase from Rs.127.22 cr. to Rs.242.03 cr. almost double, but UTI Bank shows decrease in its branch productivity from Rs.166.32 cr. to Rs.164.21 cr. during the pre-e-banking and e-banking period respectively. Overall, branch productivity is the highest in case of UTI Bank during 1998-2001 i.e. Rs.166.32 cr. but during 2001-04 ICICI Bank leads to other banks with Rs.242.03 cr. with an excellent growth in its productivity.

Table V: Branch Productivity of New Private Sector Banks (Rs. In Lacs)

| Years | HDFC Bank | | | ICICI Bank | | | UTI Bank | | |
|-----------------------------------|-----------|-------|--------|------------|--------|--------|----------|-------|--------|
| | D/B | C/B | BUS/B | D/B | C/B | BUS/B | D/B | C/B | BUS/B |
| (A) Pre – E-Banking Period | | | | | | | | | |
| 1998-99 | 51.16 | 24.58 | 75.74 | 110.42 | 38.36 | 148.78 | 86.89 | 62.00 | 148.89 |
| 1999-2000 | 75.93 | 31.19 | 107.12 | 121.79 | 45.15 | 166.94 | 116.73 | 71.57 | 188.30 |
| 2000-01 | 88.99 | 35.40 | 124.39 | 46.14 | 19.81 | 65.95 | 105.72 | 56.06 | 161.78 |
| Average | 72.03 | 30.39 | 102.42 | 92.78 | 34.44 | 127.22 | 103.11 | 63.21 | 166.32 |
| S.D. | 19.21 | 5.45 | 24.66 | 40.79 | 13.12 | 53.84 | 15.09 | 7.82 | 20.09 |
| C.V. (%) | 26.67 | 17.93 | 24.08 | 43.96 | 38.10 | 42.32 | 14.63 | 12.39 | 12.08 |
| (B) E-Banking Period | | | | | | | | | |
| 2001-02 | 103.23 | 39.85 | 143.08 | 89.62 | 131.38 | 221.00 | 110.69 | 48.22 | 158.91 |
| 2002-03 | 96.87 | 50.89 | 147.76 | 108.00 | 119.46 | 227.46 | 121.18 | 51.29 | 172.47 |
| 2003-04 | 97.46 | 56.88 | 154.34 | 145.22 | 132.40 | 277.62 | 111.46 | 49.80 | 161.26 |
| Average | 99.19 | 49.21 | 148.39 | 114.28 | 127.75 | 242.03 | 114.44 | 49.77 | 164.21 |
| S.D. | 3.51 | 8.64 | 5.66 | 28.33 | 7.19 | 30.99 | 5.85 | 1.54 | 7.25 |
| C.V. (%) | 3.54 | 17.56 | 3.81 | 24.79 | 5.63 | 12.80 | 5.11 | 3.09 | 4.42 |

Source: Same as Table I

(c) Foreign Banks

From Table-VI, it is examined that branch productivity shows fluctuations in all the three foreign banks in all the years but in case of Citibank it is decreased from Rs.1631.34 cr. during 1998-2001 to Rs.1396.22 cr. during 2001-04 with 12.82 pc fluctuations in terms of co-efficient of variations.

Table VI: Branch Productivity of Foreign Banks (Rs. In Lacs)

| Years | Citibank | | | Standard Chartered Bank | | | HSBC | | |
|-----------------------------------|----------|--------|---------|-------------------------|--------|--------|--------|--------|--------|
| | D/B | C/B | BUS/B | D/B | C/B | BUS/B | D/B | C/B | BUS/B |
| (A) Pre – E-Banking Period | | | | | | | | | |
| 1998-99 | 1179.63 | 626.63 | 1806.26 | 223.04 | 140.88 | 363.92 | 255.44 | 111.80 | 367.24 |
| 1999-2000 | 927.55 | 601.82 | 1529.37 | 278.69 | 239.94 | 518.55 | 336.73 | 170.58 | 507.31 |
| 2000-01 | 936.73 | 621.67 | 1558.40 | 267.79 | 273.68 | 541.47 | 355.68 | 223.03 | 578.75 |
| Average | 1014.64 | 616.71 | 1631.34 | 256.48 | 218.17 | 476.31 | 315.95 | 168.48 | 484.43 |
| S.D. | 142.96 | 13.13 | 152.18 | 29.46 | 69.03 | 93.71 | 53.25 | 55.66 | 107.51 |
| C.V. (%) | 14.09 | 2.13 | 9.33 | 11.49 | 31.64 | 19.67 | 16.85 | 33.04 | 22.21 |
| (B) E-Banking Period | | | | | | | | | |
| 2001-02 | 846.78 | 632.50 | 1479.28 | 402.44 | 501.83 | 904.27 | 411.37 | 261.20 | 672.57 |
| 2002-03 | 887.1 | 631.45 | 1518.55 | 276.97 | 200.34 | 477.31 | 387.94 | 248.55 | 636.49 |
| 2003-04 | 682.2 | 508.63 | 1190.83 | 302.26 | 244.73 | 546.99 | 451.92 | 267.44 | 719.36 |
| Average | 805.36 | 590.86 | 1396.22 | 327.22 | 315.63 | 642.88 | 417.08 | 259.06 | 676.14 |
| S.D. | 108.55 | 71.22 | 178.95 | 66.36 | 162.77 | 229.03 | 32.37 | 9.62 | 41.55 |
| C.V. (%) | 13.48 | 12.05 | 12.82 | 20.28 | 51.57 | 35.63 | 7.76 | 3.71 | 6.15 |

SCB shows increase from Rs.476.31 cr. to Rs.642.88 cr., where HSBC also shows increase from Rs.484.43 cr. to Rs.676.14 cr. from 1998-2001 to 2001-04 respectively. Overall, it is the highest in both the durations in Citibank i.e. Rs.1396.22 cr. in 2001-04 even it shows decrease in its productivity, both the other banks followed this bank.

Overall, at the end it can be concluded that labour productivity and branch productivity is better, showing excellent growth during the e-banking period as compare to pre-e-banking period. New electronic techniques are used to attract more and more customers especially; e-channels are used to meet the increasing expectations of the customer. On the other hand, labour and branch productivity is the highest in all the foreign banks with Citibank at the top position, new private sector banks are following foreign banks even in case of ICICI Bank & UTI Bank, and labour productivity is more as compared to that of SCB & HSBC. Public sector banks are far behind the foreign banks and new private sector banks with large extent of difference, which cannot be ignored, mainly due to their pre-electronic work culture.

PROFITABILITY**(a) Public Sector Banks**

Table-VII shows that profitability of public sector banks i.e. SBI, Bank of Baroda & Canara Bank is decreasing during 1998-2001 i.e. pre-e-banking period.

Table VII: Profitability of Public Sector Banks (Percent)

| Years | SBI | | | BOB | | | CB | | |
|---|-------|-------|--------|-------|-------|--------|-------|-------|--------|
| | S/WFs | B/WFs | NP/WFs | S/WFs | B/WFs | NP/WFs | S/WFs | B/WFs | NP/WFs |
| (A) Pre- E-Banking Period | | | | | | | | | |
| 1998-99 | 2.73 | 2.26 | 0.47 | 3.01 | 2.20 | 0.81 | 3.17 | 2.70 | 0.47 |
| 1999-2000 | 2.65 | 1.86 | 0.79 | 2.85 | 1.99 | 0.86 | 2.64 | 2.21 | 0.43 |
| 2000-01 | 2.66 | 2.15 | 0.51 | 3.06 | 2.62 | 0.44 | 2.83 | 2.40 | 0.43 |
| Average | 2.70 | 2.09 | 0.59 | 2.97 | 2.27 | 0.70 | 2.88 | 2.44 | 0.44 |
| S.D. | 0.02 | 0.21 | 0.17 | 0.11 | 0.32 | 0.23 | 0.27 | 0.25 | 0.02 |
| C.V. (%) | 0.74 | 10.05 | 28.81 | 3.70 | 14.10 | 32.86 | 9.38 | 10.25 | 4.55 |
| (B) Partially – E-Banking Period | | | | | | | | | |
| 2001-02 | 2.61 | 1.91 | 0.70 | 2.65 | 1.88 | 0.77 | 2.52 | 1.50 | 1.02 |
| 2002-03 | 2.65 | 1.83 | 0.82 | 2.75 | 1.74 | 1.01 | 2.76 | 1.52 | 1.24 |
| 2003-04 | 2.74 | 1.84 | 0.90 | 3.02 | 1.89 | 1.13 | 2.69 | 1.35 | 1.34 |
| Average | 2.67 | 1.86 | 0.81 | 2.81 | 1.84 | 0.97 | 2.66 | 1.46 | 1.20 |
| S.D. | 0.02 | 0.02 | 0.10 | 0.19 | 0.02 | 0.18 | 0.12 | 0.02 | 0.16 |
| C.V. (%) | 0.75 | 1.08 | 12.35 | 6.76 | 1.09 | 18.56 | 4.51 | 1.37 | 13.33 |

But it shows increasing trend in the partially e-banking period i.e. 2001-04, resulting more profitability in partially e-banking period as compared to that in pre-e-banking period. But profitability of Canara Bank is increased almost three times, it shows the highest profitability during 2001-04 i.e. 1.20 pc, even it is the least during 1998-2001 i.e. 0.44 pc, one reason is decrease in its burden, where Bank of Baroda shows the highest 0.70 pc during 1998-2001 following Canara Bank with 0.97 pc profitability ratio in 2001-04. Overall, Canara Bank shows much better profits having positive impact of technology.

(b) New Private Sector Banks

From Table-VIII, it is concluded that profitability of all the three new private sector banks shows fluctuating trend, it is more in e-banking period in ICICI Bank & UTI Bank but lesser in case of HDFC Bank as compared to the profitability during pre-e-banking period. Profitability variations are the highest during pre-e-banking period. Profitability of HDFC Bank is decreased during e-banking period i.e. from 1.42 pc to 1.24 pc mainly due to decrease in spread which is further witnessed by falling interest income, but even shows the highest profitability as compared to ICICI Bank i.e. 0.90 pc and UTI Bank i.e. 1.02 pc during 2001-04. Overall, it shows good profitability during 2001-04 in all the banks as compared to that in 1998-2001 indulging with more fluctuations.

Table VIII: Profitability of New Private Sector Banks (Percent)

| Years | HDFC Bank | | | ICICI Bank | | | UTI Bank | | |
|-----------------------------------|-----------|-------|--------|------------|-------|--------|----------|-------|--------|
| | S/WFs | B/WFs | NP/WFs | S/WFs | B/WFs | NP/WFs | S/WFs | B/WFs | NP/WFs |
| (A) Pre – E-Banking Period | | | | | | | | | |
| 1998-99 | 3.38 | 1.49 | 1.89 | 1.69 | 0.79 | 0.90 | 1.84 | 1.05 | 0.79 |
| 1999-2000 | 2.61 | 1.59 | 1.02 | 1.54 | 0.67 | 0.87 | 1.35 | 0.60 | 0.75 |
| 2000-01 | 3.23 | 1.89 | 1.34 | 2.05 | 1.23 | 0.82 | 0.92 | 0.12 | 0.80 |
| Average | 3.07 | 1.66 | 1.42 | 1.76 | 0.90 | 0.86 | 1.37 | 0.59 | 0.78 |
| S.D. | 0.41 | 0.21 | 0.44 | 0.26 | 0.29 | 0.02 | 0.46 | 0.47 | 0.02 |
| C.V. (%) | 13.36 | 12.65 | 30.99 | 14.77 | 32.22 | 2.33 | 33.58 | 79.66 | 2.56 |
| (B) E-Banking Period | | | | | | | | | |
| 2001-02 | 2.64 | 1.40 | 1.24 | 0.57 | 0.32 | 0.25 | 1.38 | 0.45 | 0.93 |
| 2002-03 | 2.70 | 1.43 | 1.27 | 1.33 | 0.20 | 1.13 | 1.65 | 0.67 | 0.98 |
| 2003-04 | 3.16 | 1.96 | 1.20 | 1.50 | 0.19 | 1.31 | 2.34 | 1.19 | 1.15 |
| Average | 2.83 | 1.60 | 1.24 | 1.13 | 0.24 | 0.90 | 1.79 | 0.77 | 1.02 |
| S.D. | 0.28 | 0.32 | 0.02 | 0.50 | 0.02 | 0.57 | 0.50 | 0.38 | 0.12 |
| C.V. (%) | 9.89 | 20.00 | 1.61 | 44.25 | 8.33 | 63.33 | 27.93 | 49.35 | 11.76 |

Source: Same as Table I

(c) Foreign Banks

Table-IX shows that profitability of all the three foreign banks in all the years under study, shows fluctuating trend but with tremendous increase in their profitability during e-banking period. Profitability of all the three banks is more during 2001-04 as compared to that during 1998-2001. Fluctuations are maximum during pre-e-banking period in Citibank but these are the highest during 2001-04 in case of other banks. Profitability of SCB is the highest during 1998-2001 i.e. 1.84 pc and during 2001-04 i.e. 2.22 pc followed by Citibank with 1.37 pc and 1.66 pc profitability respectively during both time periods. Overall, profitability of all the foreign banks is increased mainly due to their check on burden.

Table IX: Profitability of Foreign Banks (Percent)

| Years | Citibank | | | Standard Chartered Bank | | | HSBC | | |
|-----------------------------------|----------|-------|--------|-------------------------|-------|--------|-------|-------|--------|
| | S/WFs | B/WFs | NP/WFs | S/WFs | B/WFs | NP/WFs | S/WFs | B/WFs | NP/WFs |
| (A) Pre – E-Banking Period | | | | | | | | | |
| 1998-99 | 3.44 | 2.52 | 0.92 | 3.57 | 1.50 | 2.07 | 2.69 | 2.10 | 0.59 |
| 1999-2000 | 4.56 | 2.77 | 1.79 | 4.24 | 2.22 | 2.02 | 2.75 | 1.78 | 0.97 |
| 2000-01 | 3.78 | 2.39 | 1.39 | 3.59 | 2.15 | 1.44 | 2.79 | 1.60 | 1.19 |
| Average | 3.93 | 2.56 | 1.37 | 3.80 | 1.96 | 1.84 | 2.74 | 1.83 | 0.92 |
| S.D. | 0.57 | 0.19 | 0.44 | 0.38 | 0.40 | 0.35 | 0.02 | 0.25 | 0.30 |
| C.V. (%) | 14.50 | 7.42 | 32.12 | 10.00 | 20.41 | 19.02 | 0.73 | 13.66 | 32.61 |

| (B) E-Banking Period | | | | | | | | | |
|----------------------|-------|-------|-------|------|-------|-------|------|-------|-------|
| 2001-02 | 3.75 | 2.24 | 1.51 | 3.51 | 1.49 | 2.02 | 2.62 | 1.75 | 0.87 |
| 2002-03 | 3.76 | 2.21 | 1.55 | 3.87 | 0.96 | 2.91 | 2.88 | 2.16 | 0.72 |
| 2003-04 | 4.58 | 2.65 | 1.93 | 4.23 | 2.49 | 1.74 | 2.73 | 1.18 | 1.55 |
| Average | 4.03 | 2.37 | 1.66 | 3.88 | 1.65 | 2.22 | 2.74 | 1.70 | 1.05 |
| S.D. | 0.48 | 0.25 | 0.23 | 0.34 | 0.78 | 0.61 | 0.13 | 0.49 | 0.44 |
| C.V. (%) | 11.91 | 10.55 | 13.86 | 8.76 | 47.27 | 27.48 | 4.74 | 28.82 | 41.90 |

Source: Same as Table I

It can be concluded that profitability of foreign banks is the highest with SCB at the top position, where new private sector banks are following foreign banks, initiated to fill this gap but profitability of public sector banks is far behind the profitability of foreign banks and new private sector banks. Even then all the three bank groups show increase in their profitability during e-banking period.

TESTING OF HYPOTHESES

1. The performance of all the banks is significantly better in e-banking period than pre-e-banking period.
2. The performance of foreign banks is significantly better than new private sector banks and also from the public sector banks.
3. Similarly, the performance of new private sector banks is significantly better than public sector banks

CHALLENGES OF E-BANKING – PARTICULARLY FOR THE PUBLIC SECTOR BANKS

Psychological

- Conservative
- Hesitation
- Frustration due to lack of technical knowledge

Technological

- Less awareness regarding technology
- Insufficient technology
- Lack of proper infrastructure for the installation of e-delivery channels
- Poor network
- Flaws in design, implementation and monitoring bank's information system

Socio-Economic

- Cost factor
- Vast rural branch network
- Concept of social banking
- Lack of CRM
- Low profitability

Problem of Security in E-Banking

- Loss of data due to technical defaults
- Lack of security measures

Lack of Strong Trust Environment

Slowness in Adoption of Net by the 40+age Group

OPPORTUNITIES

Although a lot of reforms have been made in public sector banks, still there is a need to modify the policies of public sector banks. At present they are facing many internal and external challenges, which are hindering their performance, but these banks can convert these challenges into opportunities with care and some modifications. With globalization and changes in the technology, financial markets, world over have become closely integrated. Customers can access their accounts anywhere and banks' customer base is also spread across the world. Deregulation and liberalization has opened up new opportunities for banks but at the same time the pressure of competition have led to narrowing spreads, shrinking margins, consolidation and restructuring.

Increasingly, banks are focusing on core competencies, synchronizing strengths and shedding activities that are not remunerative. The winds of change sweeping across global markets will impact India also, and the Indian financial sector is set to see tremendous transformation in the coming millennium. The face of banking is set to change as banks adopt technology to reduce costs, widen product range for customer convenience and to manage risks. Greater market access to foreign banks, post-WTO will increase competition and as we move towards full capital account convertibility, banks will need to be equipped to handle large and sensitive volatile-capital flows.

Competition: Due to LPG banks are facing a severe competition. To stay ahead in the race, therefore, banks will have to leverage technology for innovative product development including developing sophisticated financial products. While some banks have taken lead in developing new tech-savvy products to beat the competition, also the public sector banks in particular will have to speed up their efforts in this area.

Greater customer-Oriented: Greater customer-orientation is the only way to retain customer loyalty and stay ahead of competition. In a market-driven strategy of development, consumer preference is paramount. Gone are the days when customers used to come to the doors of the banks and now banks are required to chase the customers. Thus, only banks that are customer-centric and extremely focused on the needs of their clients will succeed and there is need to change the mindset of banks at all levels on this issue.

Public sector banks in particular need to bring about total customer-orientation not only in their products/services but their policies and strategies should also be customer-focused. In fact, they must realize that customer is the only profit center and all others are overheads. Identification of profitable customers, understanding their needs and preferences, improving the delivery systems and reducing the transaction costs for them should become important strategic issues for banks, if they want to survive in the fiercely competitive environment. Enhancing

the customer base, cross selling of products/services and strengthening the customer relationship management will be the most important aspect.

Technology: In the deregulated environment, managing a wide range of products on shrinking margins in a fiercely competitive environment and offering top class customer services will create new challenges. In this context, technology will be the key to reduce transaction cost, offering customized products and managing risks. Growing consumer acceptance of e-channels is compelling banks to provide Internet-banking facilities and increasingly, customers are demanding fast, convenient and glitch-free banking services.

However, as banks expand into virtual banking, they will need to pay greater attention to foolproof security arrangements and systems to safeguard against frauds. Supervision and audit of e-banking will have to be strengthened and vigilance against hackers stepped up. Our public sector banks are lagging behind in technology when we compare them with their counterparts. There is a need for vision, strategy, planning and coordination at all levels of the organization.

New Credit Assessment Skills: So far the focus of attention in the Indian banking industry has largely been extending finance to agriculture and manufacturing sectors covering small, medium and large industries. But now banks should capture service class also. Through IT, banks therefore, have to sharpen their credit assessment skills and lay more emphasis in providing finance to the wide range of activities in the services sector.

Management of NPAs: the level of NPAs in the Indian banking industry is a greater concern and thus urgent cleaning up of banks balance that has become a crucial issue. NPAs will have to be reduced drastically and adequate provisioning for bad and doubtful debts will have to be made.

There is a need to have long-term solutions for overcoming this challenge. The internal control systems, risk management systems and systems of catch early warning signals for timely detection of NPAs have to be strengthened by banks. In addition, the role of legal reforms in bringing down the level of NPAs is crucial for speedy settlement of disputes and realization of banks' dues. Also, strengthening the Debt Recovery Tribunals and empowering banks to enforce their change without court intervention will result in expedition recovery of bad debts.

New Basel Capital Accord: The new Basel Accord to modify the existing capital adequacy framework is currently under discussion. Under the revised capital adequacy framework, banks will have to provide for market risk and operational risk besides credit risk. Against the background of government decisions to reduce its shareholding in nationalized banks to 33 pc, maintaining the required level of capital adequacy by the banks could come under strain.

Strong banks will be able to access the capital markets for raising additional equity, but weak banks could face severe problems. But in any case, there will be tremendous pressure on banks to improve their financial performance if they have to attract additional capital.

Profitability will thus have to be improved so that higher dividends are paid to shareholders, capital market perception about public sector banks changes and there is a positive impact on the valuation of shares so that the shares of public sector banks fetch attractive market prices.

WTO and Indian Banking Industry: As WTO provisions came into force, countries including India have to provide greater market access to other countries by eliminating Quantitative Restrictions (QR), regarding tariff barriers and liberalizing the market for financial services. The impact of these developments on various sectors of the Indian economy would be critical.

The banks will have to keep themselves updated on sector specific developments taking place in the world, particularly in countries that are India's major trading partners and advise their corporate clients to help them to prepare for competition with multinational companies.

Corporate Governance: Deregulation and self-regulation go hand-in-hand. RBI has also asked banks to set up specialized committees like Risk Management Committee, Audit Committee, Compensation Committee, Narasimham Committee etc., to ensure the uppermost standards of corporate governance and development of best practices.

A good fiscal management and clear-cut policies affecting various sectors of the economy, can promote corporate governance. The public sector banks, new private sector banks & foreign banks should ensure corporate governance in all the activities and to win the heart of shareholders.

Issue of HRM: Training, development and retaining talented and committed staff is a major emerging challenge before the public sector banks. Today, our employee performance review systems are neither objective nor transparent. They do not differentiate high performers, risk takers and innovators lot from amongst the total staff. Time has come to measure the value of human capital and take urgent steps to ensure it to its optimum level.

Lack of Risk Management: Today, instead of banks managing the risk, risk is managing the banks. A clear understanding of the risk-return profile of each activity of the bank is crucial to ensure the soundness and solvency of the organization. Skill up gradation and preparing a cadre for the risk organization is a major challenge for public sector banks particularly in the wake of high labor turnover.

Lack of Actionable Planning: Lack of planning or ineffective planning is very relevant to public sector banks. Though all the banks have established elaborate performance budgeting system and created MIS, it does not meet the management's present requirements. Basically, the entire planning process is still deposit and credit oriented, that too, without any cost and yield linkages.

To tackle this challenge an actionable strategic plans which are systematically broken-up into annual plans and performance is strictly reviewed in terms of the targets and accountability is fixed for non-performances.

Non- Accountability: In case of public sector banks, there is non-accountability of profits. No one is responsible. Every bank should fix the responsibility and good performer employees should be honored.

Public Perception: In the ultimate analysis it is the public perception that will decide the future of public sector banks. The perception of customers regarding public sector banks is very poor. Public sector banks should improve their perception by all means to remain competitive in the market.

Customers Expectations: In the era of e-banking and severe competition, the expectations of the bank customers have increased. Due to this banks should offer a broad range of deposits, investment and credit products through diverse distribution channels including upgraded branches, ATMs, telephone and Internet. For this banks should:

- Become more customer centric, offering a wide range of products through multiple delivery channels
- Become proficient in managing assets and liabilities according to risk and return
- Pay greater attention to profitability including cost-reduction and increasing fee-based income.

All these changes require vision, determination and extensive communication across all levels in the organization so that the vision and mission of the banks is communicated and understood down the line and receiver unqualified support.

Mergers and Acquisitions: Today 'size' has become an important issue in financial market world over. Merger on commercial considerations and strategic mergers are the order of the day. One of the possible ways to remain in competition would be mergers and acquisitions. The privately/foreign banks have already set in the trend.

We can say that a constructive and serious measure should be initiated for:

- better and cheaper access to basic infrastructure requirements such as power, telecommunications i.e. VSAT, leased lines etc.
- creation of customers awareness and education for technology adoption are imperative.
- The IT, Act 2000 should be implemented in totality to handle legal issues.
- Converting branches into boutiques catering to the requirements of clients and re-engineering the functions of branch banking using technology and delivery channels.
- Setting up an e-banking group to provide grid principles for risk management of e-banking activities.

CONCLUSION

- The paper concludes that transformation is taking place almost in all categories of the banks. This transformation will be helpful to cope with new economic and financial policies of the banks.
- IT is playing a crucial role to create the drastic changes in the banking ind. particularly in the new private sector and foreign banks.
- The private banks take a big share of cake; our public sector banks are still lagging behind regarding the various financial parameters.
- The immense opportunities are also available for the public sector banks if they change/modify and adopt new policies to combat the different recent challenges.
- It can be concluded that mere introduction of IT alone will not be sufficient to bring necessary performance improvement and to get the competitive edge.
- Intelligent people are required to use such intelligent tools. Thus, even though IT management is a challenge flow in future banking scenario, marketing not technology is going to be the challenge.

AREAS OF FUTURE RESEARCH

Reorienting Structure

- Issues and solutions in implementing Corporate Governance in banking
- Reforming capital structure, aspects to be covered are:
 - Disinvestments of PSBs
 - Raising capital from the market
 - Foreign direct investment (FDI)
- An appropriate banking model for India:
 - Universal banking Vs. Narrow banking
 - Adopting international best practices i.e. Basel – II

Re-engineering Operations

- Marketing of financial services: Product, Process and Pricing
- Retail Banking
- Risk Management including regulatory and environmental risks
- Legal challenges

Harnessing Facilitators

- Technology
 - Issues in identification and cost-benefit analysis of appropriate technology – Case Studies
 - Disaster Recovery Management
- Human Resource Development
 - Preparing for the cultural transformation
 - Knowledge management

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IMPACT OF CULTURE ON HUMAN RESISTANCE – A STUDY OF COMPANIES IMPLEMENTING KNOWLEDGE MANAGEMENT SOFTWARE**MADHUSUDAN.V****DIRECTOR****SIEMENS PRODUCT LIFECYCLE MANAGEMENT****RESEARCH SCHOLAR, PES INSTITUTE OF TECHNOLOGY****BANGALORE – 560 052****NAGALINGAPPA.G****DIRECTOR AND PROFESSOR****BNM INSTITUTE OF TECHNOLOGY****BANASHANKARI III STAGE****BANGALORE - 560 085****ABSTRACT**

Managing knowledge as corporate assets is important for every organization today. Many organizations actively consider implementing technologies like Portals, Product lifecycle management and custom built Knowledge Management software. A successful Knowledge management implementation involves setting up the right process and managing the people in the organization to share their knowledge in the process.

This paper looks into challenges involved in people sharing their knowledge and the resistance to change towards an enterprise centric knowledge management system. A study is conducted amongst companies that had implemented solutions in the knowledge management domain, to understand the reasons and factors behind resistance to change in people involved in adopting a Knowledge Management software application in their organization. This research investigates the relationship between cultural background and its impact on the degree of resistance and the expressive nature of resistance. A survey was conducted amongst 86 software users, between the age group of 20 to 60. The ANOVA results of the study show that resistance is common irrespective of the culture, however people in the east demonstrate a passive form of resistance while people in the west are expressive in their resistance and show a more active form.

The study therefore suggests a need for a culture specific approach towards implementation of knowledge management applications in India. This study intends to incorporate the learning towards a definition of a comprehensive software implementation methodology.

KEYWORDS

Knowledge Management, Change Resistance, Indian Ethos, Change Management

INTRODUCTION

Many organizations today consider implementation of software as a driver for knowledge management in their organization and bringing about a change in the organization. It is not just the technology that is being implemented, but processes are re-engineered and people are re-organized to perform better in the organization. Processes are made more agile and lean to the requirements of business needs and non-value added activities of people are removed, so as to maximize the output of the human intellectual and make them focus on their core activities.

A knowledge management system involves a process of both sharing knowledge and an inquiring mind to extract the knowledge relevant to his requirement, apart from an external environment created for facilitating this process.

The success of a knowledge management software implementation depends a lot on people adopting and accepting this new process and technology. Many times, delay or failure in software implementation is attributed to "Resistance to change" from people in the organization. Resistance can be a creative outburst and principled to get more from the system. It is an indication of a healthy mechanism at work. All resistance is not always bad. Unknown, unanticipated, unaddressed resistance may not be desirable. A poor implementation process of software can also lead to resistance. Understanding the type of resistance and mitigating same appropriately is very essential for any successful knowledge management implementation.

The aim of this study is to review the existing literature in the domain of resistance to change and understand why people resist change in a knowledge management implementation. Our study also investigated the impact of cultural background on resistance to change, and dealt with the pattern in the expressiveness of resistance between cultures. Our study is focused on an Indian environment and we intended to study the gap and discover the need to apply culture specific philosophies, specifically the relevance of ancient Indian philosophies to manage this human behavior towards resistance to sharing knowledge.

THEORY AND HYPOTHESIS

Many Studies have been done in this area of resistance to change. We reviewed the available literature in the areas of change management, organizational change management, organization citizenship, leadership management, emotional Intelligence, spiritual Intelligence, organization culture and basic human behavior related to resistance. Existing literature was reviewed from India and other regions on managing human behavior.

CHANGE RESISTANCE STUDIES

Resistance to change has been long perceived as a barrier to organizational change attempts. Connor (1993) stated that "resistance at its most obvious is a slow motion response to meet agreements or even a complete refusal to cooperate with change. In an organization, resistance is opposition or withholding of support for specific plans or ideas. It can be intentional or unintentional, covert or overt". Some have also classified the resistance into active and passive.

Change resistance may behave in many forms from a passive resistance to active or even aggressive resistance (Coetsee, 1999), but there is no doubt that any form of resistance will deter the change process.

The World, since long, gave much importance to Intelligence Quotient (IQ). Then in mid-1990s, Daniel Goleman discovered the findings in neuroscience and psychology based on importance of Emotional Quotient (EQ) an ability to respond skillfully to pleasure and pain keeping in mind the feelings others and himself. Many studies have also been done on applying concepts of Emotional intelligence towards managing people. Zohar and Marshall (2000) introduced the term spiritual intelligence. Spiritual intelligence is concerned with the inner life of mind and spirit and its relationship to being in the world. It implies a capacity for a deep understanding of existential questions and insight into multiple levels of consciousness.

Passive resistance is a method of nonviolent protest against policies in order to force a change or secure concessions. Among its most articulate advocates have been Gandhi, who maintained that action needs to be accompanied by love and a willingness to search for the truth, and Martin Luther King, Jr., who called for "tough-mindedness and tenderheartedness."

Most of the modern management theories focus more on experimenting and researching in order to find other ways to answer these questions of resistance while traditional Indian philosophy tends to use past experiences and wise teachings and are more conventional in finding ways in answering these questions.

Transformational change is perceived from outside the mind of the individual. It has to be seen and is externally focused for results. Most Indian philosophies however do not advocate a materialistic approach. They are very internally focused, within the realm of the individuals and believe that improving basic thinking of man will automatically enhance the quality of his actions and their results. The immense inner potential of human being needs to be harnessed. This will translate into transformational change in the organization or society.

Modern philosophers and philosophers in India do acknowledge that human beings resist change, it is their basic nature. The difference only evolves when they look at methods to manage this resistance to change.

RESISTANCE TO CHANGE MODELS

Managing change can be a reactive or a proactive process, and there are a number of different models of organizational change. Each model emphasizes different approaches to understanding and managing change. In many of these models, the role of the change manager is emphasized. The change manager may be a part of a transitional management team or may be a change agent. This person facilitates the changes to the organization and is often a critical element in the success or failure of the change.

In the late 1940s social psychologist Kurt Lewin developed a three-step model for implementing change based on the concept of force field analysis. Force field analysis addresses the driving and resisting forces in a change situation. Driving forces must outweigh resisting forces in a situation for a change to occur. Thus, managers must be willing to advocate change strongly in order to overcome resistance from employees. Lewin proposed a 3 step process of, unfreezing old activities, introduction of new concepts and then freezing of new activities. R.J. Bullock and D. Batten derived their ideas from project management and they recommend using exploration, planning, action, and integration for planned change. John P. Kotter identified eight steps every organization must follow in order to reap long-term benefits from organizational change. Establish a sense of urgency, form a powerful guiding coalition, create a vision and strategy, communicate the vision, empower others to act on the vision, generate short-term wins, consolidate improvements and produce still more change, and institutionalize the new approach. Beckhard and Harris proposed a change formula is a mathematical representation of the change process, $(A \times B \times D) > X$. The basic notion is that, for change to occur, the costs of change (X) must be outweighed by dissatisfaction with the status quo (A), the desirability of the proposed change (B), and the practicality of the change (D).

Leading an organization through change involves constructively balancing human needs with those of the organization (Spiker and Lesser, 1995; Ackerman, 1986). Because organizations consist ultimately of people, organizational change essentially involves personal change (Band, 1995). Change requires the participation of people who must first change themselves for organizational change to succeed.

INDIAN ETHOS IN MANAGEMENT

Vedic literature contains knowledge about all fields of human endeavor, from physics and psychology to medicine, art and aeronautics.

A study of how this knowledge is transferred and communicated just by word of mouth is very interesting. Core to this system of knowledge was the "gurukul" system. In this type of school, *sishyas* (students) live in the proximity of their *guru* (Teacher). Upanishad is a combination of three words: *upa*, *ni*, and *sad*. *Upa* means near; *ni* means below and determination, and *sad* means, to sit down. Thus the simple meaning of Upanishad is "near below sitting". The indicative meaning is that a student, having developed sufficiently good qualities of heart and mind, with burning desire for knowledge, approaches a teacher; sits at his feet, tunes his mind to the teachings given by the master, and tries his best to absorb and practice the teachings.

The Siksha valli of Taittiriya Upanishad describes the basics for a student, the qualities required and the mindset towards gaining knowledge. Fundamental to this ancient Indian approach, is that knowledge is not just handed over to the student. He needs to develop a mind and mediate. The Guru will guide him in the process of gaining knowledge. A very important aspect that is core quality is sharing of knowledge. "*Svadyaya pravachanabhyam na pramaditavyam*" The process of acquisition of knowledge and sharing the knowledge acquired with others is the best form of austerity that one can practice in this world. Every transaction here is to be seen as an opportunity to gain and share experience. Then the transactions enhance the openness of a person. This is very unlike the closed feeling that develops when one takes advantage of others. One should not default from the attitude of 'study and teach' at any time.

Indian Philosophy is internally focused and human centered. The foundation for this philosophy is succinctly summarized in Bhagavad Gita which is a part of the epic Mahabharata. The fundamental essence is to be in harmony with nature and in this state there is no resistance in human beings. A successful harmonious and happy life revolves around divinity of life through self development for personal growth.. Core to this concept is again for knowledge without attachment of any desires or materialistic benefit.

Venkat Krishnan (2001) studied the characteristics of transformational leadership and why Indian philosophical approaches are needed in management. Mulla and Krishnan (2006a) identified the dimensions of Karma-Yoga using a contemporary version of the Gita (Gandhi, 2001).

They also further studied its relationship with empathy (2008). Svadharma is another concept that is discussed in Gita. It connotes righteous living, thinking and action towards a constructive interaction with humanity. It essentially states that it is better to do your own duty, however imperfectly, than to assume the duties of another person, however successfully.

According to the Vedas, all material elements are infused with the modes of nature, or gunas namely, sattva, rajas and tamas. Dasgupta (1961) describes the gunas as "the universal characteristics of all kinds of mental tendencies". David Wolf (1999) made a psychometric analysis of the three Gunas and developed the vedic personality inventory (VPI) an instrument that assesses the validity of the three guna constructs.

Choi Hoi Hee (2006) applied perspectives from Bhagavad Gita towards development of a holistic approach to business management.

Most of the studies in Indian ethos has centered around human behavior, psychology, leadership and empathy. Resistance to change at the human behavior level has been extensively studied and concepts from these philosophies being applied to self-management and perfection. Sharing of knowledge for the good of the society at large is prescribed for practice and emphasized in almost all vedic literature.

HYPOTHESIS DEVELOPMENT

The above literature survey helped us to design a study to clarify and validate the research problem. An earlier study done by us in the Indian automotive industry, reported that people issues in implementation of product lifecycle management software was a major concern. This study is therefore designed to understand in more detail about the people issues and their resistance to change. We further investigate the cultural background of the people and its impact on the level of resistance and type of resistance. The types of resistance were studied in two dimensions of action and expressiveness. Actions were classified into active and passive and expressiveness was classified as overt and covert.

Hypothesis 1

Cultural background has no impact on level of resistance. Irrespective of the cultural background it is basic human nature to resist any change.

Hypothesis 2

Cultural background has no impact on type of resistance. People with Indian or other western cultural background will be equally expressive in their resistance to change.

DESIGN AND METHOD

The research used hypothesis testing to examine the strength of the relationship between cultural background and resistance. A structured questionnaire was designed and administered for data collection. A Purposive and judgmental sampling selected the target candidates. We implemented this approach because the data being sought could only be sourced from individuals exposed to the resistance phase of organizational change brought about by their software implementation. Questionnaires were hosted on a website and the link distributed to participants by email, for completion at their own convenience. The two primary reasons for choosing a self-administrated questionnaire were efficiency in data collection for measuring specific variables of interest, and anonymity for respondents who were disclosing personal information about themselves and their reactions to change.

PARTICIPANTS

Eight six candidates, in the age group of 20 to 60 and with diverse cultural backgrounds were contacted for the survey. The candidates were primarily selected with a background of involvement with product lifecycle management software implementation in their organization. The candidates were also selected with various industry background to eliminate any sampling bias. Fifty eight candidates responded, with 70 % of Indian cultural background, 5 % from other eastern cultures and 25 % with Western cultural background.

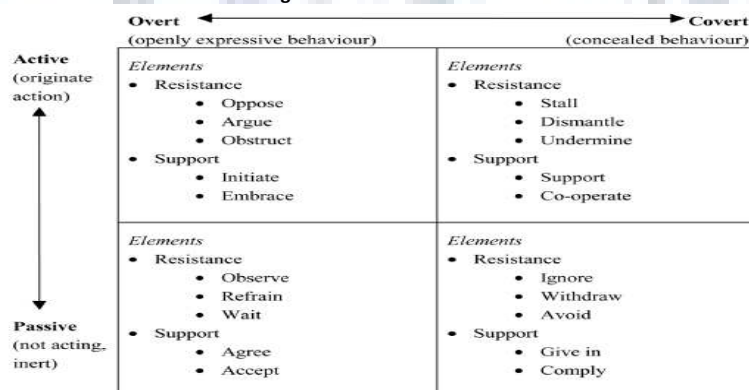
MEASURES

A questionnaire was designed to collect the level and type of resistance to change. The parameters for measuring resistance to change were on two dimensions. A 20-item seven-point interval scale was developed by the Bovey and Hede (2001) to measure an individual's behavioral intention towards organizational change. We used the same approach and used a 7 point scale to measure both support and resistance behavior. Questions for survey were constructed from key words derived in the quadrant of active-passive and overt-covert dimensions. We selected this approach to designing this questionnaire due to three reasons. First, short and precise statements could be formulated from the above dimensions. Second, responses were recorded on an interval scale which provides greater options for statistical analysis as opposed to a nominal scale. Finally this approach had been previously validated and successfully used by the previous researcher.

The 20 elements in the research dimension are shown in figure 1.

These questions were validated internally and by experts before administration to ensure their reliability.

Figure 1 Resistance Elements



(Source: Wayne, H. Bovey, Andrew, Hede (2001))

Questions were also formulated to collect their cultural background. Basic information collected and questions designed to understand any resistance that was encountered in their organization during a software implementation.

LIMITATIONS OF THE METHODOLOGY

A number of limitations are acknowledged with this research.

First, because the study adopts purposive sampling, the findings from this study need a validation on a larger scale with a probabilistic sample before it can be generalized. Second, the data collection method used was very structured. This approach did not allow the opportunity to identify measure and test other significant variables that may be associated with resistance to change. Third, self-reporting on a questionnaire is subjective rather than objective. Finally, respondents may have underestimated their level of resistance, producing respondent bias. Despite these limitations, which are common in most social research, the design and methodology was considered adequate.

RESULTS

The data was analyzed for reliability and measures of association along with an analysis of variance (ANOVA) for resistance between Indian and Western cultures.

RESULTS SUMMARY

The survey results were analyzed by cultural background. The survey indicated that 67 % of the respondents reported that there was resistance to the software implementation in their organization. Irrespective of the cultural background, 28% of the respondents indicated "departments and individuals lacked motivation to change" as the main reason for resistance. 21 % of them indicated "internal culture of organization" as a reason for resistance.

HYPOTHESIS 1 RESULTS

The hypothesis of cultural background having no impact on level of resistance was accepted. The cronbach alpha was reported as 0.71, which indicated good reliability.

The statistical analysis for the results and the ANOVA results are presented below in figure (2).

Figure 2 Hypothesis-1 Summaries

| SUMMARY | | | | | |
|---------|-------|------|----------|----------|--|
| Groups | Count | Sum | Average | Variance | |
| Eastern | 21 | 1649 | 78.52381 | 71.8619 | |
| Western | 10 | 848 | 84.8 | 47.73333 | |

| ANOVA | | | | | | |
|---------------------|-------------|----|----------|----------|----------|----------|
| Source of Variation | SS | df | MS | F | P-value | F crit |
| Between Groups | 266.8393241 | 1 | 266.8393 | 4.145159 | 0.050979 | 4.182965 |
| Within Groups | 1866.838095 | 29 | 64.37373 | | | |
| Total | 2133.677419 | 30 | | | | |
| Accept H0 | N=58 | | | | | |

(Source: Survey results)

We therefore conclude that irrespective of the cultural background resistance to change from the software implementations were same. It is human to resist change.

HYPOTHESIS 2 RESULTS

The hypothesis was that cultural background has no impact on type of resistance. People with Indian or other western cultural background will be equally expressive in their resistance to change.

The cronbach alpha was reported as 0.71, which indicated good reliability. The statistical analysis for the results and the ANOVA results are presented below in figure (3) .

Figure 3 Hypothesis-2 Summaries

| SUMMARY | | | | | |
|---------|-------|-----|----------|----------|--|
| Groups | Count | Sum | Average | Variance | |
| Eastern | 21 | 740 | 35.2381 | 22.59048 | |
| Western | 11 | 431 | 39.18182 | 31.56364 | |

H0 : Eastern or Western both equally use Expressive methods in resistance.

| ANOVA | | | | | | |
|---------------------|-------------|----|----------|----------|----------|----------|
| Source of Variation | SS | df | MS | F | P-value | F crit |
| Between Groups | 112.2728626 | 1 | 112.2729 | 4.388825 | 0.044721 | 4.170886 |
| Within Groups | 767.4458874 | 30 | 25.58153 | | | |
| Total | 879.71875 | 31 | | | | |
| Reject Hypothesis. | N=58 | | | | | |

(Source: Survey results)

This hypothesis was rejected and we conclude that people in the east do not favor expressive methods in their resistance. They are more likely to use non-expressive methods to indicate their resistance.

DISCUSSION

The objective of the study is to investigate the need for applying culture specific philosophies in management to address the resistance emanating from the change introduced by a knowledge management software implementations in an organization.

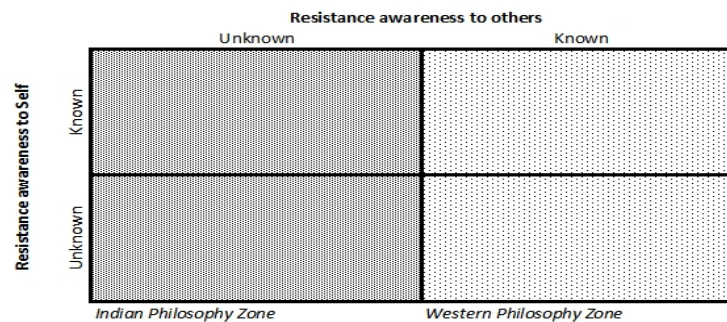
The first hypothesis showed that irrespective of culture, people resist change. This is universally known and revalidated from the statistical analysis.

The second hypothesis of expressiveness of resistance being the same irrespective of culture is rejected. This indicates that in eastern cultures, specifically in India, people may not freely express their resistance. This factor may arise due to their culture and environment in which they have grown. Further study in applying culture specific philosophies in India should focus on this non expressive nature of resistance.

In order to summarize the literature survey and the results we conceived a resistance window, which has dimensions of awareness of resistance in self and awareness of an individual's resistance to others. This is depicted as shown in figure (4).

This resistance window indicates that most modern management theories, based on western philosophy, have strengths in addressing resistance aspects that are visible and expressed to others. Indian philosophy on the other hand has strengths in addressing the resistance aspects that are internal to the individual and unknown to others. They may also address aspects that are unknown to both.

Figure 4 Resistance window



Resistance Window with Philosophy Strengths

(Source: Compiled by author)

This suggests that there is a case to use both the philosophies to arrive at a more holistic approach to address the areas of people resistance emanating from change introduced by software implementations.

Both the philosophies have their areas of strength and need to be considered while formulating a comprehensive implementation framework.

AREAS OF FUTURE RESEARCH

This investigation suggests that there is a scope to apply Indian philosophies towards management. Cultural aspects of Indians, especially the non-expressive nature of resistance can be addressed by culture specific philosophies.

Future research can therefore be considered in understanding some core Indian concepts like svadharma, karma yoga, the Gunas and how the same can be applied towards managing this resistance to change and make this individual in the organization share the knowledge as a corporate asset in the tools being implemented in the organisation. Spiritual intelligence is a growing domain today and many Indian philosophies seem to address same. Future studies on applying spiritual intelligence to managing resistance to change in an Indian context may also be considered.

A holistic approach to managing this resistance is essential in the development of a comprehensive implementation methodology.

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INTERPERSONAL ORIENTATION AS AFFECTED BY PERSONALITY

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ABSTRACT

The relationship of personality to success in occupations has been the subject of numerous studies over the years. Personality is a combination of physical, mental, psychological and spiritual sub systems which makes every individual unique and different from every other individual. One aspect of personality is how individuals tend to manage their day-to-day activities and does the personality have any bearing on interpersonal orientation. Depending upon his personality each individual behaves differently while interacting with others. What constitutes the basis of these interactions? What are the individual needs which affect his behavior while interacting with others; can be an interesting area of study? The aim of the research was to identify the basic personality type of students and understand the interpersonal orientation of each personality type.

KEYWORDS

Personality, success, interaction, interpersonal

INTRODUCTION

People need people. Every human being, because he lives in a society, must establish equilibrium between himself and his environment. The social nature of man gives rise to certain interpersonal needs, which he must satisfy to some degree while avoiding threat to him. Although each individual has different intensities of needs and different mechanisms for handling them, people have the same basic needs. In order to deal with interpersonal behavior it is necessary to have an understanding of the general principles of interpersonal behavior. In other words, every individual has a need to control his situation to some degree, so that his environment can be predictable for him. Ordinarily this amounts to controlling other people, because other people are the main agents, which threaten him and create an unpredictable and uncontrollable situation. This need for control varies from those who want to control their entire environment, including all the people around them, to those who want to control on one in any situation, no matter how appropriate controlling them would be. Here, again, everyone varies as to the degree to which he wants to control others. There is a need to maintain a satisfactory relation between the self and other people with regard to love and affection. In the business setting this need is seldom made overt. It takes the form of friendship. At one extreme individuals like their personal relationships to be quite impersonal and distant – perhaps friendly but not close and intimate. There is also a need to maintain a satisfactory relation between the self and other people with respect to interaction or belongingness. Some people like to be with other people all the time; they want to belong to organizations, to interact, to mingle. Other people seek much less contact; they prefer to be alone, to interact minimally to stay out of groups, to maintain privacy. Hence the behavior is also affected to an extent by the kind of personality a person possesses.

PERSONALITY

The word 'personality' is derived from the Latin word 'persona' which means 'mask'. The study of personality can be understood as the study of 'masks' that people wear. These are the personas that people project and display, but also include the inner parts of psychological experience which we collectively call our 'self'. Personality has both internal and external elements. An individual's personality is relatively stable. If it changes at all, it is after a very long time. Personality is both inherited as well as shaped by the environment. Each individual is unique in behavior. They have striking differences among them. Personality has been defined "...as the organization within the individual of those perceptual, cognitive, emotional and motivational systems which determine his or her unique responses to the environment" (Stagner, 1948). Personality is a relatively enduring characteristic that makes an individual unique. It relates to people's characteristic tendencies to behave, think and feel in certain ways (Arnold, 1999). Costa and McCrae (1992) asserted the importance of developmental changes that occur in the adult personality. Researchers agree, "that personality is the dynamic and organized set of characteristics of a person that uniquely influences his or her cognitions, motivations and behaviors (Hinton and Stockburger, 1991). An individual's behavior in a given situation is also better understood by his or her personality (Hall, 1997). These suggest that there is relationship between personality and behavior; Personality attributes could either be assets or liabilities in any given context (Borman, Hanson, & Hedge, 1997). A person's personality is a relatively stable precursor of behavior; it underlines an enduring style of thinking, feeling and acting (Costa, & McCrae, 1992). Personality is a unique characteristic of an individual (Rusting & DeHart, 2000; Furham 1999).

INTERPERSONAL RELATIONS

The Interpersonal Relations Orientation is useful in helping individuals gain an awareness of their own needs in situations requiring interpersonal contacts. Such an awareness would enable individuals understand their reactions to other people. In addition, if people understand the needs of others and realize that others share similar needs as their own, they may be more tolerant of others' behavior. Since everyone has these needs, everyone tries to get the same thing from other people, even though each may use different adaptive patterns for achieving his ends.

MANAGEMENT EDUCATION

The aim of management education is to equip the students to face the challenging corporate environment. There is a need to develop the interpersonal skills so that the budding managers are able to master the art of getting things done through and with the help of others. Good interpersonal relations lubricate the organizational functioning and aid in overall individual and organizational effectiveness.

REVIEW OF LITERATURE

Westerman et al., (2007) concluded that there exists some relationship between personality, work environment preferences, and the outcome variables, performance and commitment. They focused on the fact that personality and inter personal orientation have an inter related impact upon each other. Personality affects the relationships at the work place which may influence performance (Cable and Judge, 1994). Judge and Cable (1997) and Chatman (1991) concluded that there is a relationship between personalities and inter personal behavior. Billings and Moos (1982) concluded that the relationship dimension measures the degree of interpersonal interaction in a work environment, such as the social communication exchanges and cohesion among workers, and the friendship and support provided by co-workers and management. These work environment preferences have been shown to affect individuals' personal functioning at work. According to Westerman et al., (2007) the effect of personality on performance and commitment has a situational context. Luthans and Sommer (2005) and Tata and Prasad (2004) have concluded that studies should examine the effectiveness of human resource departments functioning as strategic partners. The HR department should aim at creating performance-oriented work climates and team self-management to aid in the adaptation towards increasing worker autonomy and larger spans of control in contemporary work environments thus examining the effect of personality on inter personal orientation. Smith and Ruiz (2004) stated that interpersonal orientation generally refers to individual differences in preference for social interaction. They concluded that personality and inter personal orientation have great impact upon each other. Astin et al., (1969) have concluded in their summary that two generations of researchers have established the finding that positive individual effects of higher education are related directly to a myriad of factors and the impact of college depends much on student-institution fit and the kinds of learning experiences encountered along the way that serve to reinforce compatible characteristics and also determining the effect of inter personal orientation on personality.

Now days, industries are facing a big problem regarding the placement of their employees according to the needs of employees. Matching of organization's needs and employees needs is an important factor as it brings effective results for the organization. For this there is a need to study the personality and interpersonal orientation need factors and their relationship. The industry expects a lot from management graduates in terms of higher performance at individual and at group level. Gone are the days of only individual excellence; it has today been replaced by teamwork. Hence interpersonal effectiveness is essential for teamwork in organisations. There was paucity of research regarding the relationship between interpersonal relations and personality profiles of management students. The present study would try to fill the gap.

OBJECTIVES OF THE STUDY

- To study the personality types of post graduate management students.
- To study the effect of personality on inter personal orientation.
- To determine the effect of personality on need for inclusion.
- To determine the effect of personality on need for affection.
- To determine the effect of personality on need for control.

HYPOTHESIS

While conducting the study the following three hypotheses were framed:

H1: There would be no significant difference between the need for inclusion among the students having different personality types

H2: There would be no significant difference between the need for control among the students the students having different personality types

H3: There would be no significant difference between the need for affection among the students having different personality types.

SAMPLE SIZE

The sampling unit included post graduate students of one of the private management institute of Ludhiana. The technique used in the research is convenience sampling. The sample size for research was 80 final year students pursuing MBA course.

DATA COLLECTION

In order to collect data the following research tools were used.

Two questionnaires related to FIRO-B and Kiersey Temperament Sorter was administered on the post graduate management students.

FIRO-B, fundamental interpersonal relations orientation is a theory of interpersonal relations, introduced by Schultz in 1958; was created to measure or control how group members feel when it comes to inclusion, control, and affection/openness or to be able to get feedback from people in a group. It helps in identifying the dominant interpersonal needs in a person such as need for inclusion, need for affection and need for control.

The Keirsey temperament sorter (KTS) is a self-assessed personality questionnaire designed to help people better understand themselves and others. The KTS is closely associated with the Myers Briggs type indicator (MBTI) hence the results are linked with MBTI.

STATISTICAL TECHNIQUES USED

Percentage method was used for the analysis of the data of different types of personalities. For analysis of variance between the variables such as need for inclusion, need for control, need for affection with different type of personalities one way ANOVA at 0.05 level of significance has been used.

ANALYSIS AND INTERPRETATION

TABLE 1.1: DEPICTING THE PERCENTAGE OF STUDENTS HAVING DIFFERENT TYPES OF PERSONALITY

| Sr NO. | PERSONALITY TYPE | Percentage |
|--------|------------------|------------|
| 1 | ESTJ | 21% |
| 2 | ISFP | 8% |
| 3 | ESTP | 10% |
| 4 | INFP | 9% |
| 5 | INTJ | 8% |
| 6 | INTP | 3% |
| 7 | INFJ | 3% |
| 8 | ISTP | 4% |
| 9 | ISTJ | 8% |
| 10 | ISFJ | 6% |
| 11 | ESFP | 4% |
| 12 | ESFJ | 8% |
| 13 | ENTJ | 5% |
| 14 | ENTP | 3% |
| 15 | ENFJ | 4% |
| 16 | ENFP | 0% |

As evident in the table personality type ESTJ got the maximum representation among the students and the personality type ENFP was not represented at all.

1.2: BAR DIAGRAM SHOWING THE PERCENTAGE OF STUDENTS HAVING DIFFERENT TYPES OF PERSONALITY

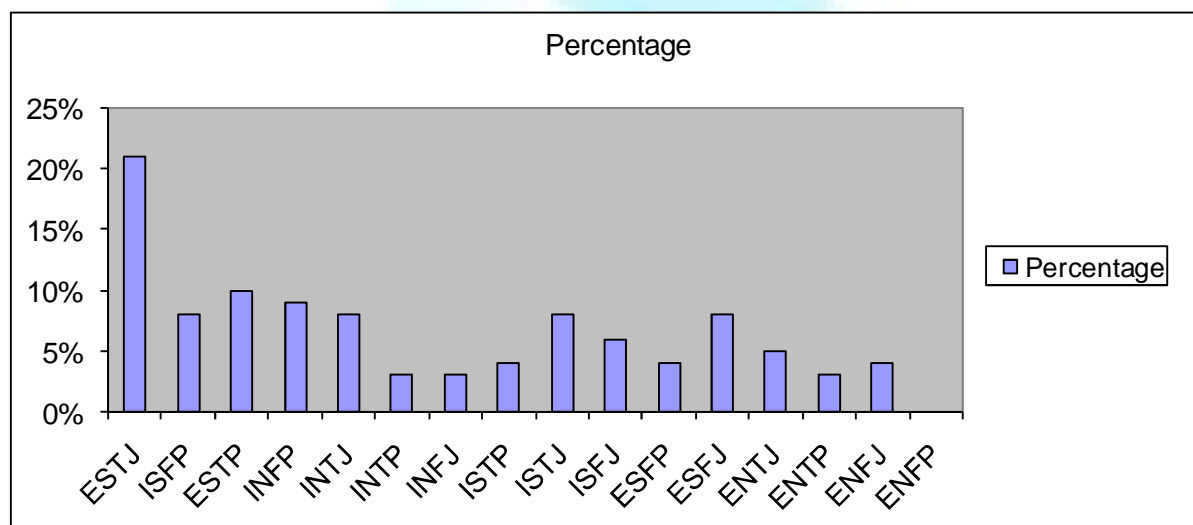


TABLE 2.1: ANALYSIS OF VARIANCE FOR POST GRADUATE MANAGEMENT STUDENTS HAVING DIFFERENT PERSONALITY TYPES FOR "NEED FOR INCLUSION" FACTOR OF INTERPERSONAL RELATIONS ORIENTATION

| Source Of Variation | Sum Of Squares | Degree Of Freedom | Mean Square | Variance Ratio |
|---------------------|----------------|-------------------|-------------|----------------|
| Between the samples | 180 | 14 | 12.85 | 1.185 |
| within the samples | 706 | 65 | 10.86 | |

For $v_1=14$ and $v_2=65$ the value of $F_{0.05}=1.834$ the calculated value of F is less than the tabulated value then the hypothesis H_1 holds true. We therefore conclude that the hypothesis "There would be no significant difference between the need for inclusion among the students having different personality types" is accepted.

TABLE 2.2: ANALYSIS OF VARIANCE FOR POST GRADUATE MANAGEMENT STUDENTS HAVING DIFFERENT PERSONALITY TYPES FOR "NEED FOR AFFECTION" FACTOR OF INTERPERSONAL RELATIONS ORIENTATION

| Source Of Variation | Sum Of Squares | Degree Of Freedom | Mean Square | Variance Ratio |
|---------------------|----------------|-------------------|-------------|----------------|
| Between the samples | 143 | 14 | 10.21 | 1.136 |
| within the samples | 584 | 65 | 8.99 | |

For $v_1=14$ and $v_2=65$ the value of $F_{0.05}=1.834$ The calculated value of F (1.136) is less than the tabulated value(1.834) then the hypothesis H_2 holds true. We therefore conclude that the hypothesis "There would be no significant difference between the need for control among the students the students having different personalities types" is accepted.

TABLE 2.3: ANALYSIS OF VARIANCE FOR POST GRADUATE MANAGEMENT STUDENTS HAVING DIFFERENT PERSONALITY TYPES FOR "NEED FOR CONTROL" FACTOR OF INTERPERSONAL RELATIONS ORIENTATION

| Source Of Variation | Sum Of Squares | Degree Of Freedom | Mean Square | Variance Ratio |
|---------------------|----------------|-------------------|-------------|----------------|
| Between the samples | 278 | 14 | 19.8 | 1.94 |
| within the samples | 661 | 65 | 10.16 | |

For $v_1=14$ and $v_2=65$ the value of $F_{0.05}=1.834$ The calculated value of F (1.948) is greater than the tabulated value(1.834) then the hypothesis H_3 does not hold true. We therefore conclude that the hypothesis is rejected. "There would be no significant difference between the need for affection among the students having different personalities types" is rejected.

TABLE 3.1: TOTAL SCORES OF STUDENTS WITH DIFFERENT PERSONALITY TYPES FOR 3 DIMENSIONS ON INTER PERSONAL RELATIONS ORIENTATION

| Personality Type | | Need for inclusion | Need for affection | Need for control |
|------------------|------|--------------------|--------------------|------------------|
| 1 | ESTJ | 149 | 126 | 179* |
| 2 | ISFP | 39 | 44 | 49* |
| 3 | ESTP | 51 | 55 | 89* |
| 4 | INFP | 40 | 39 | 60* |
| 5 | INTJ | 38 | 26 | 56* |
| 6 | INTP | 3 | 33* | 15 |
| 7 | INFJ | 10 | 12* | 5 |
| 8 | ISTP | 15 | 20 | 36* |
| 9 | ISTJ | 51 | 41 | 58* |
| 1 | ISFJ | 42 | 37 | 55* |
| 1 | ESFP | 30* | 25 | 25 |
| 1 | ESFJ | 49* | 45 | 34 |
| 1 | ENTJ | 33 | 36 | 39* |
| 1 | ENTP | 16 | 22* | 19 |
| 1 | ENFJ | 30 | 31 | 35* |

* denotes the highest score in the particular category

FINDINGS

RELATED TO THE PERCENTAGE OF DIFFERENT PERSONALITY TYPES

The findings indicated that 21 % students belonged to personality type ESTJ followed by personality type ISFJ and ESTP at 10 % ; personality type INFP at 9 % ; personality types ISFP, ISTJ, ESFJ and INTJ at 8%; personality type ENTJ at 5% and ISTP, ESFP, ENFJ at 4% and INTP, INFJ and ENTP at 3%. Personality type ENFP found no representation.

- Personality type ESTJ: it has 21 % students in its range which means these students belong to guardian temperament .They are well suited as supervisors.
- Personality type ESTP: it has 10 % students in its range which means these students belong to artisan temperament they are well suited as promoter.
- Personality type INFP: it has 9 % students in its range which means these students belong to idealist temperament they are well suited as healers.
- Personality type ESFJ: it has 8 % students in its range which means these students belong to guardian temperament they are well suited as provider.
- Personality type INTJ: it has 8 % students in its range which means these students belong to rationals temperament they are well suited as masterminds.
- Personality type ISFP: it has 8 % students in its range which means these students belong to artisan temperament they are well suited as composer.
- Personality type ISTJ: it has 8 % students in its range which means these students belong to guardian temperament they are well suited as inspector.
- Personality type ISFJ: it has 6 % students in its range which means these students belong to guardian temperament they are well suited as protector.
- Personality type ENTJ: it has 5 % students in its range which means these students belong to rational temperament as they are well suited field marshal.
- Personality type ISTP: it has 4 % students in its range which means these students belong to artisan temperament they are well suited as crafters.
- Personality type ESFP: it has 4 % students in its range which means these students belong to artisan temperament they are well suited as performer.
- Personality type ENFJ: it has 4 % students in its range which means these students belong to idealist temperament they are well suited as teacher.
- Personality type INTP: it has 3 % students in its range which means these students belong to rationals temperament they are well suited as architects.
- Personality type INFJ: it has 3 % students in its range which means these students belong to idealist temperament they are well suited as counselor.
- Personality type ENTP: it has 3 % students in its range which means these students belong to rational temperament they are well suited as inventor.
- Personality type ENFP: it has 0 % students in its range which means these students belong to idealist temperament as champions.
- The maximum students belonged to the supervisor (ESTJ) and promoter (ESTP) category. It was indeed an interesting finding since the MBA students enter the industry generally at the middle level of the management and are generally in a supervisory role. Another interesting finding worth noting was 8 % students belonged to INTJ category and they were well suited as 'masterminds'. 4 % students had ENFJ personality type which meant that these students belonged to idealist temperament and they are well suited as teachers.

None of the students however belonged to the 'inventor' (ENTP) or the 'champion' (ENFP) category.

RELATED TO EFFECT OF DIFFERENT PERSONALITY TYPE ON DIMENSIONS OF INTERPERSONAL ORIENTATION

No significant difference between the personality types and the need for inclusion among the students was found. A significant difference between the personality types and the need for control among the students was found. No significant difference between the personality types and the need for affection among the students.

RELATED TO AFFECT OF DIFFERENT PERSONALITY PROFILES ON INTERPERSONAL ORIENTATION

Students belonging to thirteen personality types exhibited high need for control .These included the personality types ESTJ ,ISFP, ESTP,INFP, INTJ, INTP, ISTP, ISTJ, ISFJ, ESFJ, ENTJ ,ENTP and ENFJ . This is the need to maintain a satisfactory relation between oneself and other people with regard to power and influence. In other words, every individual has a need to control his situation to some degree, so that his environment can be predictable for him. Ordinarily this amounts to controlling other people, because other people are the main agents, which threaten him and create an unpredictable and uncontrollable situation. This need for control varies from those who want to control their entire environment, including all the people around them, to those who want to control on one in any situation, no matter how appropriate controlling them would be. The findings justify the fact that it was obvious for the management students to have a strong need for control since the management education trains them to control and manage different set of situations and to be under control of challenging situations

Personality type INFJ had more need for affection. This is the need to maintain a satisfactory relation between the self and other people with regard to love and affection. In the business setting this need is seldom made overt. It takes the form of friendship. In essence, affection is a relationship between two people, only a dyadic relationship. At one extreme individuals like their personal relationships to be quite impersonal and distant – perhaps friendly but not close and intimate. People of this type tend to be: creative, original, and independent; thoughtful, warm, and sensitive; cautious, deliberate, and planful; organized, productive, and decisive; reserved and polite. The most important thing to INFJs is their ideas, and being faithful to their vision. Respect their need for privacy, quiet, and time alone to play, think, or dream .The findings justify the fact the need for affection was strongest among the students belonging to this personality type.

Personality type ESFP had more need for inclusion. This is the need to maintain a satisfactory relation between the self and other people with respect to interaction or belonging-ness. Some people like to be with other people all the time; they want to belong to organizations, to interact, to mingle. Other people seek much less contact; they prefer to be alone, to interact minimally to stay out of groups, to maintain privacy. People of ESFP type tend to be: warm, gregarious, and playful; impulsive, curious, and talkative; sensitive, caring, and gentle; social and

unpredictable with a great zeal for life; active, responsive, and highly aware of the physical world. The most important thing to ESFPs is freedom to be spontaneous, have fun, and enjoy the company of others. The findings justify the fact the need for affection was strongest among the students belonging to this personality type.

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FACTORS INDUCING PARTICIPATION IN B2B & B2C E-MARKETS: AN ANALYTICAL STUDY OF PUNJAB**DR. NARESH MALHOTRA**

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ABSTRACT

The present study explores the dynamics of Internet based B2B & B2C E-Markets and provides concrete suggestions to exploit these markets to a great extent. The present research work focuses the various benefits attracting the companies to deploy these markets. We applied Factor Analytic approach to explore the factors determining the level of organizational participation in Internet based B2B & B2C E-Markets and ANOVA to elicit the divergence between various factors.

The provision of an electronic market place within the Internet will significantly improve the productivity & Competitiveness of all participating companies regardless of whether they are suppliers or customers. The Internet provides access to an on-line global market place, which operates on a 24x7 basis with Billion of customer and thousands of products and services. It also provides companies with new more cost effective & time efficient means for working with customers, suppliers and development partners.

Although the organisations in European countries are totally exploiting the B2B & B2C E-Markets but as far as India is concerned still the companies are not fully exploiting the benefits of capturing these E-markets. The study highlights the problems faced by the organizations in deploying the E-Markets and also provide remedial strategies.

INTRODUCTION

As the world steps into the new millennium, the IT revolution that has triggered in the last decade of the 20th century intensified, mainly because of the invention of Internet which has turned the world into global village, where people interact instantly with anybody in any part of this planet through clicking of mouse and sitting before a computer connecting on world wide web (WWW) enabled the individual to collect so much volume of information in a year that of a person living in nineteenth century can gather in his entire life. E-markets (Kaplan & Sawhney, 2000) by virtue are the form of IT facilitated markets where buyers & sellers come together in market space & exchange information pertaining to price, product specifications & terms of trade and dynamic price-making mechanism (such as bid & ask system) transaction between the firms.

E-Marketing is about buying and selling products and services on the World Wide Web via Internet. The sellers are individual, small businesses at large corporation. The buyers are consumers or business. Payments can be made through credit or debit card, money order, cash, cheque etc. Defining marketing for the twenty first century (Kotler Philip, 2010) states that e-marketing describes company's efforts to inform, communicate, promote and sell its products and services over the Internet. Kotler also stressed over the deployment of Internet as electronic marketing channel, which provides astonishing advantages over traditional marketing channels (Newspapers, TV, Mail, Telephone, Video tape, CD & Audio Tapes) such as: Both small & large firms can afford it, No real limit on advertising space, Information access and retrieval are fast.

Marketers (Kotler Philip, 2000) can conduct on-line marketing by creating an electronic presence on the Internet, "placing ads on-line; participating in forums, newsgroups, bulletin boards and web communities; & using e-mail & web casting. The range of things that can be sold using that E-Marketing is enormous and covers things that are sold today and those that are not practical to sell any other way. It encompasses anything that can be described, is well defined and has value to one or more buyers. It includes art apartments and antennas, batteries, bicycles, bonds, books, clothing, computers, cosmetics etc. and whatever else can change hands.

The present research work is to dwell on aspects managed in the new era. But the backdrop for this world emerge from a better understanding of the fact that the competitive advantage for a business comes from the accumulated knowledge base, as well as ability to mobilize and integrate knowledge.

REVIEW OF LITERATURE

Tatsuo Tanaka (1996), James Ho (1997) and Dirk Stelzer (2001) study concluded the factors attracting the companies to exploit the E-Markets such New business opportunities, resolve communication barriers rather improve the communication especially in B2C E-markets. Similarly Jackson Michele (1997) & Stone & Han (1999) also studied the benefits of exploiting E-markets and also it studied the problems such Low penetration level, Requiring Computer skill, Payment Security issue and many more. Hann Jungpil et al (2001), Schoop markieke (2001), Grewal Rajdeep et al (2001) concluded that the level of participation in B2B E-Markets depends on Ability and motivation. The Ability is influenced by age based learning, effort based learning and IT capabilities. The second variable motivation is influenced by efficiency motive & legitimacy motives. Gauzente Claire et al (2001), Ruth M. Guzley et al (2001), Kauffman J. Robert et al. (2001) suggested the strategy enabling organisation to cultivate the advantages to participate in B2B & B2C E-markets such as attractive web presence, e-payment security, prompt

delivery of goods , safe surfing , effective handling of e-mails and suitable EDI system depending on the organisation nature and size of market. Arora Shivani and Chander Subhash (2003) studied the nature of B2B & B2C E-markets and problems of prospective of exploiting e-markets through a sample size of 300 customers and 50 marketers working in B2B and B2C E-Markets. It found the various barriers of e-markets such as ambiguous privacy policy, lack of payment security, lack of touch and feel, fear of hidden cost, delayed delivery, complicated ordering system. It also conclude the factors attracting to participate in B2B & B2C E-Markets such as communication benefits , instant delivery and payment , vast coverage , a new way to sell electronically, Available 24X7 , cost benefits and many more.

OBJECTIVES OF THE STUDY

In view of above, the present study is to focus on the various factors which motivate the organization to participate in the internet based B2B and B2C E-market. However, the specific objectives of the study are as follows:-

1. To study the factors motivating the organization to participate in B2B and B2C E-markets.
2. To analyse the divergence between motivating factors with regard to B2B and B2C E-markets.
3. To elaborate potential solution of the identified problems and to recommend the suitable strategy to cultivate the E-markets.

METHODOLOGY

The basic objective of the present study is to evaluate the various factors motivating to participate in internet based B2B and B2C E-Markets and divergence nature of these factors. To elicit theoretical conclusion the researchers examined the available literature in the form of books, research works, research articles, reports of various committees/commissions. To explore the various motivating factors a sample of registered 50 industrial units dealing in B2B E-markets and 50 industrial units dealing in B2C E-Markets were drawn from the three districts namely Jalandhar, Amritsar, and Ludhiana situated in Punjab through a well structured interview schedule.

FACTOR ANALYSIS

Principal Component Analysis was employed for extracting factors and the number of factors to be extracted were finalized on the basis of 'Latent Root Criterion' i.e. variables having Eigen values greater than 1. Six factors were extracted which together accounted for 77.543 per cent of the variance. Finally, the Principal Component Analysis with Orthogonal Rotation has been used in the present study. In Orthogonal Rotation, it is assumed that factors operate independently of each other. Varimax Rotated Factor Analysis which is the most popular method of Orthogonal Rotation has been used.

DATA SUITABILITY FOR FACTOR ANALYSIS

In order to test the suitability of data for Principal Component Analysis, the following steps were taken:

1. The correlation matrix was computed and sufficient correlations were found to go ahead with factor analysis
2. Kaiser-Meyer-Olkin Measure of Sample Adequacy (KMO) was calculated. Overall, MSA was found to be 0.693 which supports that the sample was good enough for factor analysis.
3. Anti-image Correlations were calculated. These showed that partial correlations were low, indicating that true factors existed in the data.

ANALYSIS OF VARIANCE (ANOVA)

To analysis the similarity or divergence among various factors of the sample taken from B2B and B2C industrial units on the basis of type of e-markets, both within different factors and between different groups also ANOVA was applied by the researcher to draw concrete conclusion.

MOTIVATORS OF B2B & B2C E-MARKETS (Table 1)

| Label | Statement |
|-------|---|
| F1 | E-markets enable the organization to Increase the market share |
| F2 | It helps in locating the potential Suppliers and Customer |
| F3 | Reduce the Transaction Costs |
| F4 | Locates new product and respective markets. |
| F5 | To make instant purchase orders and delivery of goods. |
| F6 | Comparative prices of the competitors can be known |
| F7 | Provides complete information about the products in more attractive manner. |
| F8 | Customer queries can be easily tackled. |
| F9 | Available on 24X7 basis |
| F10 | Goods can be purchased from anywhere at any time. |
| F11 | Prompt payments. |
| F12 | Enable to build customer database and healthy relationships |
| F13 | Effective feedback and communication with customer |
| F14 | Detail knowledge about the competitors can be ensured. |
| F15 | Online Ads can increase sales. |
| F16 | Attractive Websites accelerates the potential customers |
| F17 | It ensures interaction with customers |
| F18 | Customer recognize the Web Ads more than TV Ads |
| F19 | Digital goods can be transported at negligible rate. |
| F20 | Provide new and attractive services to customers. |
| F21 | I think in future customer would locate the company via internet. |
| F22 | Goods can be sold worldwide. |

Rotated Correlation Matrix (Table 2)

| Factors Statement | I | II | III | IV | V | VI | Communalities |
|------------------------|--------|--------|--------|--------|-------|--------|---------------|
| F1 | .187 | .433 | .838 | -.038 | -.035 | .068 | .932 |
| F2 | .923 | .228 | -.198 | .096 | .050 | .005 | .899 |
| F3 | -.144 | .101 | -.191 | .215 | .148 | .756 | .707 |
| F4 | .193 | .437 | .834 | -.046 | -.013 | .077 | .933 |
| F5 | -.307 | .770 | -.277 | -.151 | -.130 | -.124 | .819 |
| F6 | -.183 | .378 | -.021 | .675 | -.356 | -.138 | .778 |
| F7 | -.164 | .286 | -.090 | .576 | -.507 | -.145 | .727 |
| F8 | .873 | .275 | -.102 | -.044 | .016 | .054 | .853 |
| F9 | -.329 | .751 | -.280 | -.272 | .007 | -.003 | .825 |
| F10 | -.293 | .694 | -.307 | -.237 | .107 | .110 | .742 |
| F11 | -.240 | .682 | -.202 | -.320 | .095 | -.032 | .677 |
| F12 | .863 | .246 | -.185 | -.004 | -.059 | .013 | .844 |
| F13 | .850 | .170 | -.255 | .121 | .051 | -.030 | .834 |
| F14 | -.224 | .429 | .057 | .481 | -.114 | -.089 | .490 |
| F15 | .117 | .366 | .773 | -.042 | -.133 | .024 | .765 |
| F16 | .847 | .101 | -.247 | .140 | -.066 | -.031 | .814 |
| F17 | -.125 | .162 | .057 | .365 | .697 | -.317 | .766 |
| F18 | -.127 | .302 | -.080 | .481 | .640 | -.116 | .768 |
| F19 | -.281 | .227 | -.163 | .373 | .014 | .570 | .621 |
| F20 | -.268 | .656 | -.288 | -.311 | -.070 | -.110 | .699 |
| F21 | .794 | .248 | -.222 | -.051 | .011 | .054 | .747 |
| F22 | .204 | .375 | .738 | -.022 | .184 | .083 | .768 |
| Percentage of Variance | 23.708 | 18.474 | 14.809 | 8.974 | 6.465 | 5.113 | |
| Cumulative Percentage | 23.708 | 42.182 | 56.991 | 65.965 | 72.43 | 77.543 | |

Factors Naming (Table 3)

| Factors | Factor Name | Label | Statement | Loadings |
|---------|------------------------|--------------------------------------|--|--|
| I | CUSTOMER ORIENTED | F2 F8 F12 F13 F16 F21 | <ul style="list-style-type: none"> It helps in locating the potential Suppliers and Customer Customer queries can be easily tackled. Enable to build customer database and healthy relationship Effective feedback and communication with customer Attractive Websites accelerates the potential customers I think in future customer would locate the company via internet. | .923 .873 .863 .850 .847 .754 |
| II | UNIQUE FACILITIES | F5 F9 F10 F11 F20 | <ul style="list-style-type: none"> To make instant purchase orders Available on 24X7 basis Goods can be purchased from anywhere at any time. Prompt payments. Provide new and attractive services to customers | .770 .751 .694 .682 .656 |
| III | BUSINESS OPPORTUNITY | F1 F4 F15 F22 | <ul style="list-style-type: none"> E-markets enable the organization to Increase the market share Locates new product and respective markets. Online Ads can increase sales. Goods can be sold worldwide. | .838 .834 .773 .738 |
| IV | MARKET AWARENESS | F6 F7 F14 | <ul style="list-style-type: none"> Comparative prices of the competitors can be known Provides complete information about the products in more attractive manner Detail knowledge about the competitors can be ensured. | .675 .576 .481 |
| V | COMMUNICATION BENEFITS | F17 F18 | <ul style="list-style-type: none"> It ensures interaction with customers Customer recognize the Web Ads more than TV Ads | .697 .640 |
| VI | COST BENEFIT | F3 F19 | <ul style="list-style-type: none"> Reduce the Transaction Costs Digital goods can be transported at negligible rate. | .756 .570 |

Factor I CUSTOMER ORIENTED

Consumer is always the king of Market/E-market which has emerged as significant factor accounting for 23.708 per cent of the total variance. Six out of Twenty Two statements are loaded on this factor which is highly correlated. The high positive loading on these four factors such as E-markets helps in locating the potential Suppliers and Customer, Customer queries can be easily tackled, Enable to build customer database and healthy relationship, Effective feedback and communication with customer, Attractive Websites accelerates the potential customers, future customer would locate the company via internet played dominate role in deciding the level of organisation participation.

Factor II UNIQUE FACILITIES

Inborn feature of E-markets that it provides the unique facilities to the marketers emerged to be the second major factor with percentage of variance equal to 18.474 per cent which constitute five factors motivate to participate in B2B & B2C E-Markets. Some of the most important facilities that e-markets provides are instant purchase orders and payment , Available on 24X7 basis , Goods can be purchased from anywhere at any time , Prompt payments , Provide new and attractive services to customers

Factor III BUSINESS OPPORTUNITY

This is the third important factor with percentage of variance equal to 14.809. Four statements have been loaded on this factor. First two states i.e. E-markets enable the organization to Increase the market share, Locates new product and respective markets are highly loaded and correlated each other.

Factor IV MARKET AWARENESS

Three statements have been loaded on this factor which explains 8.974 per cent of variance. The first statement i.e. Comparative prices of the competitors can be known is highly loaded on this factor

Factor V COMMUNICATION BENEFITS

One of the prominent objective of participating in B2B & B2C E-markets is to ensure the smooth communication Keeping in mind this, Two statements have been loaded on this factor with percentage of variance equal to 6.465 , revealing that effective communication is always life blood of every business undertaking.

Factor VI COST BENEFITS

Two statements have been loaded on this factor with percentage of variance equal to 5.113. Out of these two one statement is highly loaded.

H0 (Null Hypothesis): There is no significance difference in the perception of the Business units dealing in B2B & B2C E-MARKETS

MOTIVATORS OF B2B & B2C E-MARKETS (Table 4)

| WAS MOTIVATING FACTORS | B2B E-Market | B2C E-Market | TOTAL |
|---|-----------------|-----------------|-------|
| E-markets enable the organization to Increase the market share | 4.71 | 4.55 | 4.63 |
| It helps in locating the potential Suppliers and Customer | 4.23 | 4.32 | 4.27 |
| Reduce the Transaction Costs | 2.27 | 2.11 | 2.19 |
| Locates new product and respective markets. | 3.78 | 3.98 | 3.88 |
| To make instant purchase orders and delivery of goods. | 4.55 | 4.23 | 4.39 |
| Comparative prices of the competitors can be known | 3.78 | 3.99 | 3.89 |
| Provides complete information about the products in more attractive manner. | 3.89 | 3.76 | 3.83 |
| Customer queries can be easily tackled. | 3.57 | 3.45 | 3.51 |
| Available on 24X7 basis | 4.09 | 4.22 | 4.12 |
| Goods can be purchased from anywhere at any time. | 3.29 | 3.42 | 4.35 |
| Prompt payments. | 3.33 | 3.31 | 3.22 |
| Enable to build customer database and healthy relationships | 3.21 | 3.38 | 3.3 |
| Effective feedback and communication with customer | 2.76 | 2.55 | 2.66 |
| Detail knowledge about the competitors can be ensured. | 2.45 | 2.50 | 2.48 |
| Online Ads can increase sales. | 3.33 | 3.44 | 3.39 |
| Attractive Websites accelerates the potential customers | 4.42 | 4.23 | 4.33 |
| It ensures interaction with customers | 3.44 | 3.31 | 3.38 |
| Customer recognize the Web Ads more than TV Ads | 2.45 | 2.76 | 2.61 |
| Digital goods can be transported at negligible rate. | 3.87 | 4.01 | 3.94 |
| Provide new and attractive services to customers. | 3.22 | 3.56 | 3.39 |
| I think in future customer would locate the company via internet. | 3.98 | 4.01 | 4.00 |
| Goods can be sold worldwide. | 2.84 | 2.90 | 2.87 |

F-Value (Between Columns) -----40

Insignificant at 5% level of Significance

D.F. = 1, 21

F-Value (Between Rows) -----55.75

Significant at 5% level of significance

D.F. = 21, 21

Table 4 shows WERE of the 22 statements engulfing the opinion of organisation concerning the use of Internet in B2B & B2C E-markets. The F-value between columns i.e. B2B E-Markets & B2C E-markets, of the table 4 is .40, which is statistically insignificant at 5% level of significance. It shows that as regards to motivator factors the opinion of business undertaking does not vary significantly, hence the Null Hypothesis is accepted. However, the F-value within the factors of the table is 55.75 at 5 per cent level of significance which signifies that the opinion of organisation with regard to various factors varies significantly and hence the Null hypothesis is rejected.

SUMMARY, RECOMMENDATION OF STRATEGIES AND CONCLUSION

The study of the various factors and their respective divergence provides great help to the markets before participating in the B2B & B2C.

PRODUCT RELATED STRATEGIES

E-markets are entirely different from the traditional markets because it is not like the real store of brick and motor where the customer can touch and feel the products and then buy. The study revealed that the marketers need to provide the complete information about the product, comparative prices in more attracting way through fascinating web sites and must ensure to provide the right quality of product at right prices.

PRICE RELATED STRATEGIES

Customer feels that the internet provides the product relatively at lower rate as compared to conservational marketing system and hence the efforts should be made to provide the goods at price lower than offline marketing and ensure attractive offers to promote the business.

PLACE RELATED STRATEGIES

There is dire need to deliver the goods to the customer in time through making the simplified order system. If possible the marketers must ensure the instant delivery of digital goods with full E-payment security to the customer through technically sound Hardware and Software penetrations.

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SIX SIGMA APPROACH FOR QUALITY AND PERFORMANCE EXCELLENCE IN PLASTIC INJECTION MOLDING INDUSTRY - A CASE STUDY AND REVIEW**P. K. BHARTI**

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ABSTRACT

Injection molding has been a challenging process for many manufacturers and researchers to produce products meeting requirements at the lowest cost. Its complexity and the enormous amount of process parameter manipulation during real time production create a very intense effort to maintain the process under control. What is more, complexity and parameter manipulation may cause serious quality problems and high manufacturing costs.

Determining optimal process parameter settings critically influences productivity, quality, and cost of production in the plastic injection molding (PIM) industry. Previously, production engineers used either trial-and-error method or Taguchi's parameter design method to determine optimal process parameter settings for PIM. However, these methods are unsuitable in present PIM because the increasing complexity of product design and the requirement of multi-response quality characteristics.

Six Sigma is the most fervent managerial methodology not only in manufacturing area but also in the services industry. Many investigations have indicated that Six Sigma can increase organization's competitive capability and enhance the quality of products or services by conducting the projects. Since this program focus on data-driven analysis and rigorous methodology to improve quality, and seem to be gaining significant popularity in industrial settings. This article focuses on the benefits of Six Sigma in injection molding industries, Obstacles in its implementation and future of six sigma programs.

This study also aims to review the effect of six sigma tools in a plastic injection molding industries along with a case study to improve the quality of nylon-6 bush (KAMANI BUSH) produced by plastic injection molding process. The production equipment employed in this study is a precision injection machine, model: PPU7690TV40G, over all dimensions 856×1500×2480 mm manufactured by the Targor Corporation This study has two advantages. First is to choose the best tools that fit that type of industry. Second is to encourage similar companies to apply the same methodology. The case studies by researchers showed a significant improvement in the rejection rate using the structured DMAIC methodology.

KEYWORDS

Continuous Quality Improvement (CQI), Design for six sigma (DFSS), DMAIC, Parameter design, Plastic injection molding (PIM),

INTRODUCTION

One of the main goals in injection molding is the improvement of quality of molded parts besides the reduction of cycle time, and lower production cost. Solving problems related to quality has a direct effect on the expected profit for injection molding companies. As in many manufacturing processes, meeting required specifications means keeping quality characteristics under control. Quality characteristics in injection molding are classified as mechanical properties, dimensions or measurable characteristics, and attributes. In general, some of the main causes of quality problems are material related defects i.e., black specks and splay, process related problems such as filling related defects i.e., flash and short shots, packing and cooling related defects i.e., sink marks and voids, and post mold related defects i.e., warpage, dimensional changes, and weight.

Factors that affect the quality of a molded part can be classified into four categories: part design, mold design, machine performance and processing conditions. The part and mold design are assumed as established and fixed. During production, quality characteristics may deviate due to drifting or shifting of processing conditions caused by machine wear, environmental change or operator fatigue.

Faced with global competition in injection molding industry, using the trial-and-error approach to determine the process parameters for injection molding is no longer good enough. Quite a few researchers have attempted various approaches in the determination of process parameters for injection molding in order to reduce the time to market and obtain consistent quality of molded parts.

Manufacturing firms have long used structured methods to reduce process variability and standardize outcomes. Beginning with the introduction of statistical methods for measuring and analyzing quality in the late 1930s, Shewhart, Deming, Juran, Feigenbaum, Taguchi, and Ishikawa, among others, helped to formalize a discipline focused on quality. They advocated reducing outcome variation through control of processes, which they argued would increase customer satisfaction, and which would in turn result in increased profitability and enhanced product quality. Quality tools such as statistical process control evolved to help analyze behavior and variability of processes and to explore the relationships between inspections, defects, and operating costs.

During the 1980s quality control evolved into "named" initiatives or programs, such as Total Quality Management (TQM), Zero Defects, Quality Circles, Continuous Quality Improvement (CQI), Continuous Process Improvement, and many others. While each is perhaps technically different from the others, most involved identifying defects as they occurred through inspection and quality control and changing processes to sustain the improvements. It has been suggested that naming these quality initiatives contributed to their being perceived as short-term "fads," and the decline in their popularity and use. For many years, industries focused on quality improvement initiatives such as TQM and CQI. However, these programs lost momentum and popularity due to their lack of data driven analysis, and many managers became disillusioned with the prospects of quality improvement.

The most recent quality philosophy to be adopted by businesses around the world is known as "Six Sigma". This article focuses on the benefits of Six Sigma in manufacturing industries, Obstacles in its implementation and future of six sigma programs. Since this program focus on data-driven analysis and rigorous methodology to improve quality, and seem to be gaining significant popularity in industrial settings. This study also aims to review the effect of six sigma tools in a plastic injection molding industries along with a case study to improve the quality of nylon-6 bush (KAMANI BUSH) produced by plastic injection molding process. The production equipment employed in this study is a precision injection machine, model: PPU7690TV40G, over all dimensions 856×1500×2480 mm manufactured by the Targor Corporation.

THE SIX SIGMA QUALITY PHILOSOPHY

Six Sigma is a process improvement methodology that uses data and statistical analysis to identify and manage process variations to reduce or eliminate "defects" in a company's operational performance. Developed by Bill Smith at Motorola Corporation in 1986[7]. Six Sigma can be applied to any work process by adapting the following goals: improve customer satisfaction, increase profitability, and increase productivity[16].

Six Sigma uses data and statistical analysis to improve processes by focusing on input variables. The methodology identifies sources of variability in the work process that result in "defects," defined as anything outside of customer specifications. Six Sigma traditionally sets the improvement goal of 3.4 defects per million opportunities. Once these sources have been identified, they are modified to reduce the defects.

Six Sigma has two key methodologies, each consisting of five phases: DMAIC (define, measure, analyze, improve, control) and DMADV (define, measure, analyze, design, verify) [8]. The first methodology is used for existing processes, while the second is used to design new processes.

Six Sigma was originally used in manufacturing corporations, but has branched out in such diverse areas as the banking, health care, military, and telecommunications industries. One of the earliest corporations to use the methodology was General Electric, which reported benefits of more than \$300 million during its first year of application [9]. Other major companies that have reportedly used Six Sigma include Ford, Caterpillar, Microsoft, 3M, and Siemens.

The focus on achieving six sigma quality is commonly referred to as design for six sigma (DFSS). The two goals in designing for quality are: (1). striving to maintain performance within acceptable limits, consistently (reliability), and (2). Striving to reduce performance variation and thus increase robustness. Reliability is defined as the probability of satisfying constraints; conversely, the probability of failure, probability of not satisfying constraints, is often measured [4].

IMPLEMENTATION

Most of the literature concerning Six Sigma focuses on successfully implementing Six Sigma practices into one's organization. Implementation comes in one of two models: tool-based and projected-based [6].

Tool based implementation focuses on "the mechanics of tool execution, as opposed to when and how a tool should be implemented and integrated with other tools."

Project-based implementation involves tools being "taught and then applied to projects that are defined before [training] sessions begins." [5]. The Six Sigma methodology is conducted by a team of people in five roles. The team is led by the quality leader/manager, who is responsible for representing the customer's needs. Master Black Belts are responsible for specific areas or functions of a business, such as human resources, and work closely with the Process Owners, who are individuals responsible for a specific process. Black Belts lead the quality projects and work full time with the company until they are complete. They also train the Green Belts, who are company employees trained in Six Sigma. [9]

DMAIC IN SIX SIGMA

DMAIC or Define-Measure-Analyze-Improve-Control, principle is used to execute six sigma projects in an organization.

DEFINE PHASE AND TOOL

Define (D) is the first step of the Six Sigma methodology where leaders are expected to select projects, set initial goals or targets, and develop a project charter or statement of work (SOW). Costs of poor quality associated with the new or existing process being analyzed are estimated. Improvement targets are set often in terms of sigma and cost [3]. Leadership selects the appropriate team members. The team then determines more precisely the criteria that are critical to the customer. Run charts, interviews, or surveys, for example, are utilized to obtain leads and useable figures. A high-level process map of the existing process is to be developed with start and end-points clearly illustrated. Strategic deliverables are a process map, a working project charter, a team roster, and the costs of poor quality. A progress report to leadership normally concludes each step [3].

MEASURE PHASE AND TOOL

Measure is the second step of the Six Sigma methodology and is denoted by the capital letter M. The goals of Measure appear to activate only in the mode of data management, which includes both collection and organization of the data for the purpose of observation. However, the modes of identification and solution generation may be triggered on a small scale as well.

FMEA, MSA and particularly Gage R&R are tools that serve largely in a verification capacity, which fall into the problem identification and data management stages.

ANALYZE PHASE AND TOOL

The third step, A, is analyze. Here teams identify several possible causes (X's) of variation or defects that are affecting the outputs (Y's) of the process. One of the most frequently used tools in the analyze step is the cause and effect diagram.

A Six Sigma team explores possible causes that might originate from sources, such as people, machinery and equipment, environment, materials, and methods. Another highly effective technique to expose root cause is asking "why" to a possible cause at least five times [10]. Team member suggestions may need clarified before proceeding further, so each and every team member has a clear understanding of the cause being presented. The resulting list should be reduced to the most probable root causes. Causes can be validated using new or existing data and applicable statistical tools, such as scatter plots, hypothesis testing, ANOVA, regression, or design of experiments (DOE). Experts warn not to assume causation or causal relationships unless there is clear proof. Furthermore, validating root causes can help teams avoid implementing ineffective improvements and wasting valuable resources. Root cause is the number one team deliverable coming out of the analyze step [3].

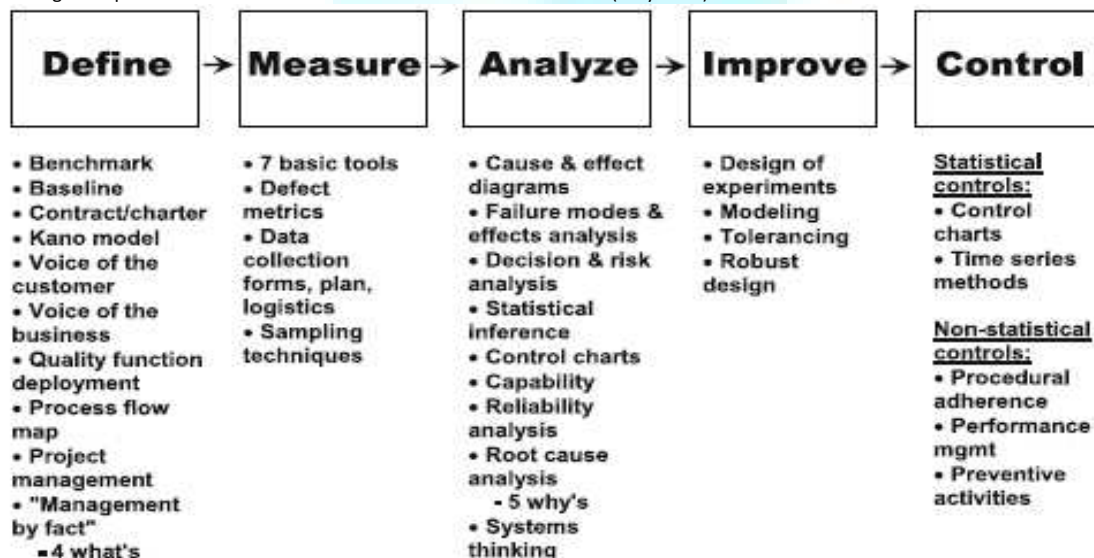
IMPROVE PHASE AND TOOL

The team then enters the improve (I) step. Here a team would brainstorm to come up with counter measures and lasting process improvements that address validated root causes. The tool most preferred for this process is the affinity diagram, which is a brainstorming technique where a topic or issue is presented to a small team who then quickly list ideas or solutions [10]. The team should narrow the list to one or two potential improvements that are step deliverables for small- should be selected based on probability of success, time to execute, impact on resources, and cost. If newly gathered data indicates the small-scale implementation is a legitimate success, teams should proceed to full-scale implementation [3].

CONTROL PHASE AND TOOL

The final step for at least the black belt and many of the team members is control, which is signified by the capital letter C. At this point devices should be put in place to give early signals when a process is heading out of control. Teams may develop poka-yokes or mistake proof devices that utilize light, sound, logic programming, or no-go design to help control a process [2]. The ultimate goal for this step is to reduce variation by controlling X's (i.e., the inputs) and monitoring the Y or Y's (i.e., the outputs) [10].

In brief Six Sigma improvement framework and tool kit can be shown as below (Siviy 2008)

**SUCCESSFUL APPLICATION OF SIX SIGMA BY GIANTS**

Identifies by company, the yearly revenues, the Six Sigma costs (investment) per year, where available, and the financial benefits (savings) [11].

COST AND SAVING BY A COMPANY [TABLE-1-SIX SIGMA 11]

| YEAR | REVENUE (\$B) | INVESTED (\$B) | % REVENUE INVESTED | SAVINGS (\$B) | % REVENUE SAVINGS |
|---------------|---------------|----------------|--------------------|---------------|-------------------|
| MOTOROLA | | | | | |
| 1986-2001 | 356.9(E) | ND | - | 16 | 4.5 |
| ALLIED SIGNAL | | | | | |
| 1998 | 15.1 | ND | - | 0.5 | 3.3 |
| GE | | | | | |

| | | | | | |
|--|-------|-----|-----|-----|-----|
| 1996-1999 | 382.1 | 1.6 | 0.4 | 4.4 | 1.2 |
| HONEYWELL | | | | | |
| 1998-2000 | 72.3 | ND | - | 1.8 | 2.4 |
| FORD | | | | | |
| 2000-2002 | 43.9 | ND | - | 1 | 2.3 |
| KEY: \$B = \$ BILLIONS, UNITED STATES (E) = ESTIMATED, YEARLY REVENUE 1986-1992 COULD NOT BE FOUND ND = NOT DISCLOSED NOTE: NUMBERS ARE ROUNDED TO THE NEAREST TENTH | | | | | |

Wipro is the first Indian company to adopt Six Sigma. Today, Wipro has one of the most mature Six Sigma programs in the industry ensuring that 91% of the projects are completed on schedule, much above the industry average of 55% [12].

The results of achieving Six Sigma are rapid and overwhelming at Wipro. Its unique methodology provides Six Sigma knowledge and skills to the client, enabling the client to create ownership, generate results and sustain success. The maturity of Wipro's quality processes takes the benefits to another level, ensuring that the customers benefit from:

- 30-40% lower total cost of ownership
- 20-30% higher productivity
- On-time deliveries (93% projects completed on time)
- Lower field defect rates (67% lower than industry average). The performance enhancement enabled the client to have an improved product with the overriding Benefit that the end customer perception of the quality of the client's product is Improved [13].

CASE STUDY

The case study was conducted at a manufacturing facility specializing in plastic products. The particular plant is a part of the "parag group" of its parent company, which is made up of three divisions: filter, hygiene/medical, and plastics. This company's vision, which is to be innovative and quality-driven in its technically demanding applications, is determined by its guiding principles of continuous improvement, leadership, and commitment to anticipate and understand their customer's needs and expectations. Seventy percent of the plant's revenue comes from the plastic molded parts it produces for the automotive industry. The plant also produces inner carrier layers for rolls and carpet tiles, which makes up the other 30% of their revenue.

The DMAIC principle of six sigma was applied to improve the quality of nylon-6 bush (KAMANI BUSH) produced by plastic injection molding process. The production equipment employed in this study is a precision injection machine, model: PPU7690TV40G, over all dimensions 856×1500×2480 mm manufactured by the Targor Corporation.

Application of DMAIC principle at manufacturing facility is as described below

DEFINE

The first step in DMAIC procedures is to define the problems so that possible confusion in targets for improvement due to differences in cognition among project staff can be avoided. In this paper, the reasons for rejection and failure of nylon-6 bush were investigated by the management techniques like voice of customer and brain storming of production manager, quality engineer on the shop floor, as well as workers concerned with the production of above product. After voice of customer and brain storming we concluded that following three defects are playing important role in rejection and failure of bush.

1. Sink marks
2. Stress cracking
3. Bulging defect (over shrinkage)

After doing Pareto analysis we decided that bulging defect is responsible for 80% of the failures and rejection.

MEASURE

In the "measure" step, the process capability index is measured to illustrate the most efficient way to circumvent the problems defined in the previous steps (bulging defect in this case). For the nylon-6 bush molded in this study, the process capability index is measured based upon the measured data obtained from the bulging measurements. (For the bulging measurement we used a dial gauge attached with a v shaped anvil placed over a surface plate)

In general, the upper process capability index CPU is defined by the following equation.

$$CPU = \frac{USL - \bar{X}}{3\sigma}$$

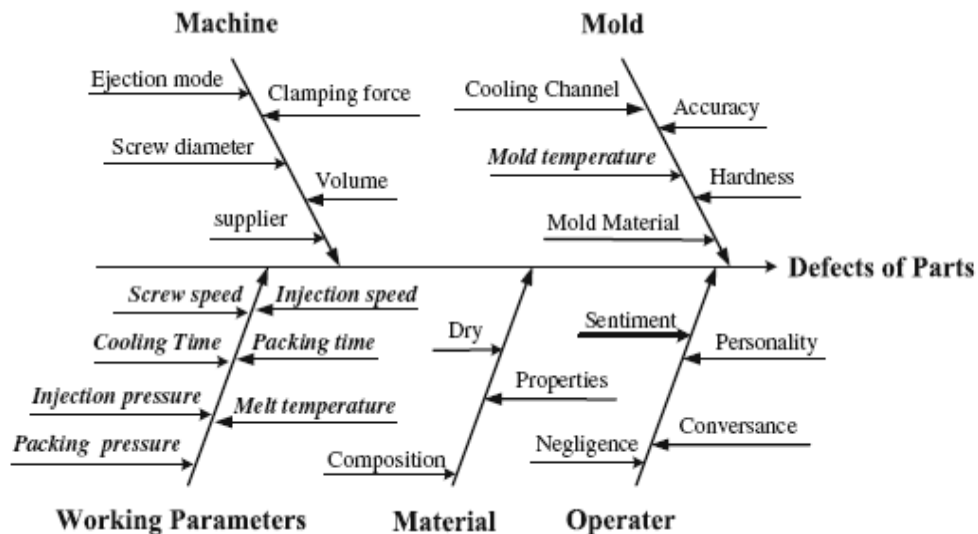
Where USL is the upper specification limit \bar{X} is the mean of all measured values, and σ is the standard deviation.

Before implementation of six sigma project value of CPU calculated from random samples was 0.80.

ANALYZE

In the analysis step, the data collected from the process is analyzed in accordance with the CTQ (critical to quality) factors. The literature review suggests that to have better surface quality of molded part, it is important to correctly tune the settings of process parameters in injection molding plus precision machining of mold.

FIG. 1 CAUSE-AND-EFFECT DIAGRAM SHOWN IN FISHBONE SCHEMATICS FOR THE MOLDED LENSES. THERE ARE MANY FACTORS THAT INFLUENCE THE QUALITY OF THE MOLDED BUSH AND EIGHT FACTORS ARE SELECTED HERE AS SHOWN IN BOLD ITALIC TYPE



According to the literature and with the cause-and-effect diagram shown in Fig. 1, the most significant processing parameters selected were melt temperature, screw speed, injection speed, injection pressure, packing pressure, packing time, mold temperature, and cooling time. Using Taguchi method L27 orthogonal experiment was performed setting above eight parameters at three levels. The results obtained from this orthogonal array were further analyzed with the help of ANOVA and regression analysis. The optimum setting of these parameters obtained with the help of above analysis was implemented in next step.

IMPROVE

At this step, the approach in the analysis step is carefully conducted for generating results into the current process so that the effectiveness of improvement can be verified.

First, the bush are injection molded by using the optimal combination of process parameters (decided in analysis step) for an adequate number of samples. Bulging defect measurements are then conducted on 50 randomly sampled bushes. After process improvements, the upper process capability index CPU is increased from original 0.80 to 1.56. which implies a substantial improvement in quality characteristics of bushes.

CONTROL

The results must be clearly defined in the control plan in order to constantly monitor its process capabilities and retaining the fruitful improvements. The production equipment employed in this study is a precision injection machine, model: PPU7690TV40G, over all dimensions 856×1500×2480 mm manufactured by the Targor Corporation.

OTHER APPLICATIONS OF SIX SIGMA IN PLASTIC INJECTION MOLDING

Tarek Safwat, Aziz Ezzat (2008) presented an approach to implement six sigma technique to decrease the scrap rate in a plastic injection molding plant. Using a case study of NATPACK Co. a plastic packaging company in Al Obour City, Cairo, Egypt. A Six sigma DMAIC methodology was applied to structure the study and scope the project. DMAIC which stands for Define, Measure, Analyze, Improve, Control is widely used in many six sigma projects since the 1990s. The proper tools that are suitable for injection molding industry needs were investigated. The primary tools used in this work were SIPOC, MSA, FMEA, P-Control Charts, Hypothesis Testing. In this case study the average scrap rate for the "Before" study period with the average scrap rate of the "After" study period were compared.

This study created a decrease in the scrap rate from an average of 5.2% to 2.6%. Using the financial department of Natpack Company to calculate the hard savings in Egyptian Pounds, the result was 123000 L.E./Yr. This value equals to a cost saving of 3% of the total cost of goods sold. Knowing that Nat pack's plastic injection molding department profit margin is 5%, then we are looking at a breakthrough in the company's cost structure. However, the team was faced with a lot of challenges. The culture change required to depend on statistical data analyses rather than experience and intuition was not easy.

This study aimed to investigate the effect of applying six sigma tools in a plastic injection molding department trying to decrease the scrap rate. This study has two advantages. First is to choose the best tools that fit that type of industry. Second is to encourage similar companies to apply the same methodology. Decreasing the plastic scrap will have a very positive effect on the society and environment. The case study showed a significant improvement in the scrap rate using the structured DMAIC methodology. This work would encourage all plastic injection molders to apply this methodology for decreasing the scrap, cost saving and consequently make more money. Hopefully, the companies use the extra generated profit in a socially responsible way.

Team members who participated in the study needed a lot of training on soft skills such as team work, communication skills, continuous improvement, Brain storming, cost of poor quality concept, etc. and hard skills such as sampling, data collection, Minitab software and the applied six sigma tools. It was not an easy task. [15]

W. C. Lo & K. M. Tsai & C. Y. Hsieh (2009) studied to improve the quality of injection-molded lenses with the implementation of DMAIC procedures based on the Six Sigma approach. At first, critical-to-quality factors (CTQ) were determined according to customer requirements for quality.

This study employed Taguchi design-of-experiment method (DOE) for screening pertinent process parameters in the injection process. After completing the DOE procedures, confirmation experiments were conducted with selected combinations of factors and levels. The experimental

results show substantial improvement for the profile accuracy on molded lenses. As a further step, an optimal set of factors and levels were taken during the mass production processing conditions. In conclusion, the Six Sigma approach effectively improved the upper process capability index CPU from 0.57 to 1.75, i.e., 0.07 defects per million, without an upgrade of production equipment or an increase of production costs [16].

Before the implementation, the original process could only deliver 0.57, or equivalently 43,331 PPM. This approach not only significantly improved quality characteristics of the lenses but also achieved the targets of improvement. Furthermore, the Taguchi method adopted in the analysis step successfully identifies the optimal combinations of process parameters as well as the most significant factors affecting the surface qualities. In the meantime, the factors are evaluated via ANOVA of S/N ratio for various combinations of process parameters throughout the experiments. The final results suggest that among all the process parameters, the most significant factors affecting surface accuracy of products were packing pressure, melt temperature, injection pressure, and packing time. [6]

OBSTACLES IN SIX SIGMA PROGRAMS

Despite the immense popularity and the wide spread adoption of Six Sigma, there is a rising concern regarding the failures of Six Sigma programs.

Berg (2006) reported that their Six Sigma program was expensive and did not yield results. Concerned about Six Sigma's problems, Sutton (2006) described nine ways to get the best out of Six Sigma programs [10].

A national survey of healthcare companies revealed that 54% do not intend to embrace Six Sigma programs [10].

Angel and Pritchard reported that "nearly 60% of all corporate Six Sigma initiatives fail to yield the desired results..." In short, we lack an understanding of how and why so many Six Sigma programs fail. One explanation of many Six Sigma failures could be escalation of commitment.

Escalation of commitment refers to the propensity of decision-makers to become overcommitted to a course of action. In escalation situations, decision-makers first receive negative feedback on a previous course of action, and then they are faced with a dilemma, 'whether to persist with or withdraw from the previously chosen course of action'. This decision error is repeated many times during the course of action and several authors have studied this phenomenon [14].

Where Six Sigma does excel is in the setting of standards for measuring, analyzing, and reducing inefficiency. However, forcing every single business activity into this Six Sigma Model may not work. Such was the case with NBC, a business unit of General Electric. Not every activity or process should be squeezed into a quantifiable model when in fact; the real value proposition gets completely lost.

A good example of how Six Sigma can make you sick was Polaroid. Polaroid, a large manufacturer of cameras found out the hard way. Polaroid put enormous emphasis on quality, but failed to pay attention to a critical product substitute, digital cameras. As a result, Polaroid went bankrupt despite its outstanding quality. So make sure you balance Six Sigma against all those other factors in running your business; otherwise you will destroy value in the name of quality. This is perhaps the biggest risk with Six Sigma – getting blindsided by all those other things that impact your business [11].

FUTURE OF SIX SIGMA PROGRAMS

It seems everything within corporate America is getting six stigmatized. Though, Six Sigma is a well-defined methodology for improving quality, which in turn, leads to control over costs. However, like any major business initiative, Six Sigma can have its drawbacks.

Common problem with Six Sigma is playing games with the numbers. How you categorize and define defects is significant in how well you meet Six Sigma targets.

Like so many major initiatives, Six Sigma can receive less than enthusiastic response from workers. For example, Six Sigma can be somewhat divisive – a few people are chosen as Black Belts, a larger group is selected as Green Belts, and others are not included at all. In order for Six Sigma to be truly accepted, everyone should be given an opportunity to become a Green Belt and people who have demonstrated strong leadership on improvement issues should be considered for Black Belts. Don't exclude people on such a major enterprise-wide initiative as Six Sigma [12].

CONCLUSION

The purpose of this paper has been to review the effect of six sigma tools in a plastic injection molding industries and better understand what Six Sigma is as described by a rapidly developing body of literature. Six Sigma is generally described as a metric, a mindset, and a methodology for strategic management and process improvement. Six Sigma has numerous strengths and a near equal amount of weaknesses which implies that it is not perfect and should not be mistaken for a solution to all problems.

Because of the remarkable benefits the Six Sigma approach has demonstrated, the method has been employed for study of injection-molded nylon-6 bush so that quality improvement via systematic design can be demonstrated. Prior to application of the Six Sigma approach, compromise among various interacting process parameters are difficult for obtaining the desired quality characteristics. After the implementation of the proposed method, targets for improvement are clearly defined with the problems and causes being identified. The process parameters are then optimized for quality improvement so that the Six Sigma standard can be reached.

Six Sigma should not be mistaken as something that is suitable for all people and all organizations. However, Six Sigma has been around for over a decade and is still growing to the extent that more people and more organizations should probably be prepared.

The study tried to clarify some of Six Sigma's expanding influence on industry. Though, more research is required to determine the true extent of Six Sigma's success and influence on industry.

This study also reviewed the effect of six sigma tools in a plastic injection molding industries. This study has two advantages. First is to choose the best tools that fit that type of industry. Second is to encourage similar companies to apply the same methodology. The case studies by researchers showed a significant improvement in the rejection rate using the structured DMAIC methodology.

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MEASURING EFFICIENCY OF SELECTED STATE INDUSTRIAL DEVELOPMENT CORPORATIONS THROUGH APPLICATION OF DATA ENVELOPMENT ANALYSIS

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ABSTRACT

The role and effectiveness of any State Industrial Development Corporation (SIDC) depends not only on the quantum of its assistance but also the efficiency with which its financial resources are managed. It has direct bearing on the development bank's ability to perform some of its basic functions of mobilising private investment capital for economically important projects and to develop the groundwork for a capital market. This paper is focused on analysing the efficiency of State Industrial Development Corporations (SIDCs) by applying window analysis of data envelopment analysis technique (DEA). Sample consists of four SIDCs of northern states. Inter period and inter-SIDC efficiency has been calculated. Time period covered for inter-temporal analysis is eleven years i.e. from 1993-94 to 2003-04 for all the four SIDCs. Results have shown that some of the SIDCs like HSIDC and PSIDC have shown efficiency in their performance. Mean efficiency score of PSIDC was better than HSIDC but later on HSIDC has shown remarkable improvement. Whereas other SIDCs like JKSIDC are not able to cope with the changing economic environment. Its efficiency score is lowest among all the SIDCs under study.

KEYWORDS

Data Envelopment Analysis, Efficiency, State Industrial Development Corporations

INTRODUCTION

State Industrial Development Corporations (SIDCs) are state level institutions established under the Companies Act 1956 as wholly owned undertakings of State governments for promotion and development of medium and large industries in the respective states. SIDCs, like all other commercial organisations survive by earning a higher return on uses of funds than what they pay for their sources of funds while maintaining risk at tolerable level. They are required to have sufficient resources to give them an opportunity to become self sustaining and enable them to make an attempt on industrial development. The process of financial sector reforms initiated in 1991 have also emphasized that the national and state level financial institutions should function on business principles which further necessitates the need for examining the efficiency of these SIDCS.

The objective of this paper is to measure the efficiency of these SIDCs using data envelopment analysis technique (DEA). Four SIDCs of north Indian states i.e. Punjab, Haryana, Himachal Pradesh, and Jammu & Kashmir namely Punjab State Industrial Development Corporation (PSIDC), Haryana State Industrial Development Corporation (HSIDC), Himachal Pradesh State Industrial Development Corporation (HPSIDC) and Jammu and Kashmir State Industrial Development Corporation (JKSIDC) are selected for comparison. Data Envelopment Analysis is a linear programming technique which uses data on input and output quantities of decision making units. It has been used previously to analyse the relative efficiency of industrial firms, universities, hospitals, military operations etc. Recently number of studies has applied this technique to analyze the efficiency of banks. Efficiency basically is the success with which an organization uses its resources to produce outputs – that is the degree to which the observed use of resources to produce outputs of a given quality matches the optimal use of resources to produce outputs of a given quality.

REVIEW OF LITERATURE

There exists vast literature pertaining to the evaluation of the performance of financial institutions, but most of these studies are concentrated on developed countries. Berger and Humphrey (1997) document a country-wise and methodology-wise review of studies on bank performance. They found that out of 130 performance analysis of financial institutions, including 21 countries, only five percent investigated the banking sectors of developing countries. A few studies assessed the performance of Indian banks and evolved in 1990s. The prominent studies which used the traditional ratio analysis for evaluating the performance of commercial banks include Ajit & Bangar (1997), Mohan(2002), Bhide, Prasad & Ghosh(2002), D'souza(2002), Choudhary(2002) and Rakesh(2004). Most of these studies were descriptive in nature and failed to discover any benchmark for measuring the performance of commercial banks in India which is also one of the shortcomings of ratio analysis. In recent years number of studies has been conducted on Indian banking sector to evaluate the relative performance and productivity of commercial banks. In these studies parametric and non parametric techniques are employed to measure the performance of banks. The prominent research work based on non parametric approach for Indian banking sector include Das & Ghosh(2005), Nag, Ray & Das(2005), Sarkar & Kumbhakar(2005), Ray & Mohan(2004), Pal,Nath& Mukherjee(2002), Das(2002), Ravisankar & Saha(2000). They used Data Envelopment Analysis technique for measuring the relative performance in terms of efficiency. There are few notable research studies based on parametric approach in Indian case including Kumar De(2004), Shanmugam & Das(2004),Naidu & Nair, Sensrama(2005),Srivastva(1999) Bhattacharya (1997), Subarmanyam & swamy (1994).

All the above mentioned studies have evaluated the performance of commercial bank and there is hardly any study which has measured the performance of development banks in India by using the parametric or non parametric approach. The present study is an attempt to measure the performance of State Industrial Development Banks in India by applying DEA technique.

DATA ENVELOPMENT ANALYSIS

DEA is a methodology for analysing the relative efficiency and managerial performance of productive units having the same multiple inputs and multiple outputs. It is based on non parametric, deterministic methodology for determining the relative efficient production frontier, based on empirical data on chosen inputs and outputs of a number of entities called Decision Making Units (DMUs). Farrell (1957) attempted to measure the efficiency in production in single input and output case. Farrell's study involved the measurement of price and technical efficiencies and the derivation of the efficient production function. Farrell applied his model to estimate the efficiency of US agricultural output relative to other countries. However he failed in providing a way to summarise all the various inputs and outputs into a single virtual input and single virtual output.

Charner, Cooper and Rhodes (1978) extended Farrell's idea and proposed a new technique. It generalizes the single-input, single-output measure of efficiency of decision making unit (DMU) to a multiple-input, multiple-output setting. A DMU is an entity that uses inputs to produce outputs. This approach to performance measurement is called data envelopment analysis (DEA). The technique of DEA involves the use of linear programming to solve a set of inter-related problem to determine the relative efficiency of DMUs. The efficiency of a DMU is computed as a rate of virtual output produced to virtual input consumed.

$$\text{Efficiency} = \frac{\sum \text{weighted outputs}}{\sum \text{weighted inputs}}$$

The analysis will measure outputs(s) achieved from the input(s) provided and will compare the group of DMUs by their strength in turning input into output. At the end of the analysis DEA will be able to say which units/branch are relatively efficient and which are relatively inefficient. This mathematical programming technology can be applied to assess the 'relative' efficiency of variety of institutions using a variety of input and output data. The term 'relative' is rather important here since an institution identified by DEA as an efficient unit with a given data set may be deemed inefficient when compared, using another set of data. DEA identifies reference points (relatively efficient DMUs) that define the efficient frontier (as the best practice production technology) and evaluate the inefficiency of other, interior points (relatively inefficient DMUs) that are below- that frontier

For illustration, CCR model (1978), assume that there are n DMUs to be evaluated. Each consumes different amounts of i_{th} inputs and produces r_{th} different outputs i.e. DMU_j consumes x_{ij} amounts of input to produce y_{rj} amounts of output (Coelli 2000; Ray2004)

Let $x \in R_+^l$ and $y \in R_+^m$. Assuming constant-return to scale and strong disposability of inputs and outputs and convexity of the production possibility set, the technical efficiency of the s_{th} DMUs can be obtained as:

$$\begin{aligned} \text{Max. } h_s &= \frac{\sum_{r=1}^m u_r y_{rs}}{\sum_{i=1}^l v_i x_{is}} \\ \text{Subject to } & \frac{\sum_{r=1}^m u_r y_{rj}}{\sum_{i=1}^l v_i x_{ij}} \geq h_s \quad \text{for } j = 1, 2, \dots, s, \dots, n; \quad r = 1, 2, \dots, m; \quad i = 1, 2, \dots, l; \\ & u_r, v_i \geq 0 \end{aligned} \quad \text{------(i)}$$

Where y_{rs} = the amount of the r_{th} type output produced by the s_{th} DMU; x_{ij} = the input of the i_{th} type used by j_{th} DMU, u_r and v_i are the weights assigned to output and input respectively. The efficiency score of different decision making units is computed by determining the values of weights (u_r, v_i). However, this problem has an infinite number of solutions since if (u^*, v^*) is optimal than $h(hu^*hv^*)$ is also optimal for each positive scalar. To avoid this problem, the above model may be transformed into another linear programming model by restricting the denominator of the objective function h_s to unity and adding this as a constraint to the problem which can be written as

$$\begin{aligned} \text{Max. } h_s &= \frac{\sum_{r=1}^m u_r y_{rs}}{\sum_{i=1}^l v_i x_{is}} \\ \text{Subject to } & \sum_{i=1}^l v_i x_{is} = 1 \\ & \sum_{r=1}^m u_r y_{rj} - \sum_{i=1}^l v_i x_{ij} \leq 0 \\ & u_r, v_i \geq 0; \text{ for } j = 1, 2, \dots, s, \dots, n; \quad r = 1, 2, \dots, m; \quad i = 1, 2, \dots, l; \end{aligned} \quad \text{------(ii)}$$

For the above linear programming problem, the dual can be written as.

$$\text{min } z_s = \theta_s$$

$$\begin{aligned}
 & \sum_{j=1}^n \lambda_j y_{rj} \geq y_{rs} \\
 \text{Subject to} \quad & \Theta_s x_{is} - \sum_{j=1}^n \lambda_j x_{ij} \geq 0 \\
 & \Theta_s \quad \text{for } j = 1, 2, \dots, n; r = 1, 2, \dots, m; i = 1, 2, \dots, l; \\
 & \Theta_s \in [0, 1] \quad \text{-----(iii)}
 \end{aligned}$$

Both the above problems yield an optimal solution Θ_s^* which is efficiency score for particular DMUs and efficiency scores for all Θ_s^* of them are obtained by repeating them for each DMU, $j = 1, 2, \dots, n$. The value of Θ_s^* is always less than or equal to unity DMUs for which $\Theta_s^* < 1$ are relatively inefficient and those for which $\Theta_s^* = 1$ are relatively efficient.

For introducing variable return to scale, it is necessary to add the convexity condition for the weights λ_j in the form of $\sum \lambda_j = 1$. This type of DEA model is called BCC model, after Banker, Charnes and Cooper (1984).

An advantage of DEA is that it uses actual sample data to derive the efficiency frontier against which each firm in the sample can be evaluated. As a result, no explicit functional form for the production function has to be specified in advance. Instead, the production frontier is generated by a mathematical programming algorithm which also calculates the optimal DEA efficiency score for each firm. In this way, a given firm at a given time can compare its performance at different time and with the performance of other firms at the same time and at different times. Through a sequence of such 'windows' the sensitivity of a firm's efficiency score can be derived for a particular year according to changing conditions and a changing set of reference firms (panel data analysis). A firm that is DEA efficient in a given year, regardless of the window, is likely to be truly efficient relative to other firms. Conversely, a firm that is only DEA efficient in a particular window may be efficient solely because of extraneous circumstances.

RESEARCH METHODOLOGY

For analysing the performance of the development banks over the period, Window approach of DEA is employed in the study. A DEA window analysis is based on the principle of moving average (Charnes et al 1994, Yue 1992) and is useful to detect performance trends of a unit over time. A DMU in each period is treated as if it is a different DMU. The performance of a DMU is compared with its performance in other periods, in addition to comparing it with the performance of other DMUs in the same period.

The most important step in using DEA to examine the relative efficiency of any type of firm is the selection of appropriate inputs-outputs. Although DEA model avoids the problem of agreeing on a common set of weights for the inputs and outputs, it cannot avoid the problem of selecting which inputs and outputs should be included in the comparison. Clearly, any resources used by a unit should be included as input. A unit will convert resources to produce outputs so that outputs should include the amount of products or services produced by the unit and these products or services may be produced at different levels of quality. In banking literature, there is debate among researchers about what constitute inputs and outputs of financial institutions. Most studies have adopted either the production or the intermediation approach. The former approach view the financial institutions as using purchased inputs in the form of capital, labour and other non-financial inputs to produce deposits and various categories of financial institutions assets like advances, investments etc. (Ferrier and Lovell, 1990). The intermediation approach views that financial institutions are intermediating funds between savers and investors and incur interest expenses and other operating expenses to provide revenue generating services (Sealey and Lindley, 1977). The intermediation approach is most appropriate to the financial institutions like state industrial development corporations. It considers capital, borrowings and establishment expenses as input and loans and advances and investment as output. SIDCs uses capital raised from state government and borrowings from different sources like refinancing from IDBI, SIDBI.

Inputs

- X_1 = Capital and reserves
- X_2 = Borrowings
- X_3 = Establishment expenses

Output

- Y_1 = Loans and advances
- Y_2 = Investments

To analyse the performance of SIDCs for different periods, input oriented DEA score is calculated. In this research effort all these variables are measured in terms of rupees in lakhs. The data of these variables is taken from the annual reports and official records of SIDCs. The data covered is of eleven years i.e. from 1993-94 to 2003-04 for all the four SIDCs namely HSIDC, PSIDC, HPSIDC and JKSIDC. In this, each SIDC in different period is treated as separate DMU and comparison is made over period of time. It is assumed that period included in each window have same type of environment. However, this assumption is restrictive in nature because of changes in technology, policies and economic conditions which may influence the decision making units. Three years window analysis is used in the study because most of studies reviewed have chosen three year period. CCR input-oriented model is used to arrive at the results. Efficiency Measurement System (EMS) 1.7 computer software is used for analysis.

EMPIRICAL RESULTS

A basic summary of the value of the key variables used in the analysis is presented in Table-1

TABLE 1 SUMMARY OF THE POOLED DATA (1993-1994 TO 2003-04) (Rs. Lakh)

| | Capital and Reserves | Borrowing | Establishment Expenses | Loan and Advances | Investment |
|----------------|----------------------|-----------|------------------------|-------------------|------------|
| Mean | 6196.974 | 19112.185 | 197.36958 | 12919.689 | 7266.8521 |
| Std. Deviation | 3817.4181 | 21028.071 | 109.15746 | 10278.458 | 12226.907 |
| Minimum | 1800 | 1669.56 | 65.66 | 2343.91 | 205.15 |
| Maximum | 13470.78 | 65509.07 | 572.49 | 36153.29 | 41889.95 |

Source: Calculated from Annual Reports of different SIDCs (different years)

The average capital and reserves per financial corporation is Rs. 6196.974 lakh which ranged from Rs. 1800 lakh to Rs. 13470.78 lakh, implies heterogeneity in the capital base of the sampled corporations. Similar type of interpretation we can make about the remaining variables. The question arises whether this type of data which have high variability is fit for analysis. It may be noted that figures presented in the table are the descriptive of panel data and high variability exist in both the output and input variables. Here in our analysis as usual we have assumed that the financial corporations are working in normal conditions, so high level of output is accompanied by high level of inputs and vice versa. However the relative position of output in relation to inputs may vary with respect to time or Individual Corporation or both. With these considered the given data is fit case for our analysis based on DEA approach.

The results of input oriented DEA scores based on the assumption of constant return is presented in table 2 to 5. In each window, the number of SIDCs is tripled because each SIDC at different year is treated as an independent firm. Repeating this procedure for each window, DEA efficiency score of every SIDC during the eleven year period has been obtained. The efficiency scores presented in the tables include the SIDC efficiency scores of a year attained in different windows. For instance the efficiency scores of a SIDC corresponding to the column year 1995 show the relative position of the concerned SIDC with respect to year 1993, 1994 & 1996 along with its relative performance with respect to other SIDCs. The average of thirty three efficiency scores of each SIDC is presented in column developed by mean. A comparison of minimum and maximum efficiency score reveals that the performance at individual level exhibits a marked deviation from the best practice frontier.

The column denoted by GD includes the greatest difference in SIDCs' DEA scores for the same year but in different window. If the difference of this column is highest it means performance of SIDC is not constant. The column labeled TGD denotes the greatest difference in SIDC's DEA scores for the entire period. A SIDC can receive a different DEA efficiency score for the same year in different window. This variation in DEA scores of each SIDC reflects both the performance of SIDC over time as well as that of other SIDC. Table-5.2 to 5.5 also presents the mean score of efficiency of each year for every SIDC separately which provide us one figure in each year.

HSIDC's efficiency score varied in different periods. In 1999 efficiency is at minimum. It is 77.9 percent efficient. Mean score of efficiencies in different periods has also shown mixed trend. It varied between 100 percent efficient to 87 percent efficient which implies that HSIDC exhibit marked deviations from the best practice frontier. Overall efficiency of HSIDC has improved in the last three windows (Table 2). Mean score of overall efficiency shows that corporation can reduce its input by 4 percent to produce same level of output. It implies that HSIDC is not able to utilize its resources fully and needs to make concerted efforts in this regard. GD is maximum in 1998 at 16.9 percent which implies the inconsistency in the performance. TGD is 22 percent over the period under study which indicates the variation in overall performance over a period under study.

TABLE 2 DEA EFFICIENCY SCORES OF HSIDC (1993-2004)

| Year | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | mean | SD | max | min | GD | TGD |
|--------------|------|-------|------|-------|------|-------|-------|-------|-------|------|------|------|------|------|-----|------|------|-----|
| Windows | | | | | | | | | | | | | 0.96 | 0.06 | 1 | 0.78 | .169 | .22 |
| W1 | 1 | 0.898 | 1 | | | | | | | | | | | | | | | |
| W2 | | 0.891 | 1 | 0.947 | | | | | | | | | | | | | | |
| W3 | | | 1 | 0.962 | 1 | | | | | | | | | | | | | |
| W4 | | | | 1 | 1 | 0.958 | | | | | | | | | | | | |
| W5 | | | | | 1 | 0.83 | 0.779 | | | | | | | | | | | |
| W6 | | | | | | 0.999 | 0.855 | 0.9 | | | | | | | | | | |
| W7 | | | | | | | 0.933 | 0.943 | 1 | | | | | | | | | |
| W8 | | | | | | | | 0.866 | 0.909 | 1 | | | | | | | | |
| W9 | | | | | | | | | 0.943 | 1 | 1 | | | | | | | |
| W10 | | | | | | | | | | 1 | 1 | 1 | | | | | | |
| W11 | | | | | | | | | | | 1 | 1 | | | | | | |
| W12 | | | | | | | | | | | | 1 | | | | | | |
| Mean of Year | 1.00 | 0.89 | 1.00 | 0.97 | 1.00 | 0.93 | 0.86 | 0.90 | 0.95 | 1.00 | 1.00 | 1.00 | | | | | | |

Source :Computed from the financial data of SIDCs

The efficiency scores of PSIDC over a period of eleven years is shown in table 3. In the initial years PSIDC was operating at hundred percent efficiency in comparison to the other DMUs under study but in later years it showed fluctuating trends. Overall efficiency score in all windows and all years was 99 percent. Its minimum efficiency score is 91 percent in 2004. Overall efficiency score of the period under study is 99 percent. Its GD is highest in 2004 at 8.8 percent and its TGD is also same. It shows that performance of PSIDC varied between 100 percent to 91

percent. Mean efficiency score in twelve windows is less than hundred. But overall efficiency score of PSIDC is higher in comparison to other SIDCs.

TABLE 3 DEA EFFICIENCY SCORES OF PSIDC (1993-2004)

| Year | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | mean | SD | max | min | GD | TGD |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|------|
| Windows | | | | | | | | | | | | | 0.99 | 0.02 | 1 | 0.91 | .088 | .088 |
| W1 | 1 | 1 | 1 | | | | | | | | | | | | | | | |
| W2 | | 1 | 1 | 1 | | | | | | | | | | | | | | |
| W3 | | | 1 | 0.95 | 1 | | | | | | | | | | | | | |
| W4 | | | | 1 | 0.99 | 1 | | | | | | | | | | | | |
| W5 | | | | | 0.99 | 1 | 1 | | | | | | | | | | | |
| W6 | | | | | | 1 | 1 | 1 | | | | | | | | | | |
| W7 | | | | | | | 1 | 1 | 1 | | | | | | | | | |
| W8 | | | | | | | | 1 | 1 | 1 | | | | | | | | |
| W9 | | | | | | | | | 1 | 1 | 1 | | | | | | | |
| W10 | | | | | | | | | | 1 | 1 | 0.91 | | | | | | |
| W11 | | | | | | | | | | | 1 | 1 | | | | | | |
| W12 | | | | | | | | | | | | 1 | | | | | | |
| Mean of year | 1.00 | 0.89 | 1.00 | 0.97 | 1.00 | 0.93 | 0.86 | 0.90 | 0.95 | 1.00 | 1.00 | 1.00 | | | | | | |

Source :Computed from the financial data of SIDCs

Table 4 presents the efficiency scores of HPSIDC. Its efficiency scores has shown decreasing trend over a period of time. Efficiency scores of HPSIDC is minimum in the year 2000 at 71 percent. It implies that the corporation can save up to .291 units of input for producing the same output. GD is .289 in the year 2000 and variation is maximum in the year 2000 only. Mean efficiency score in different windows is 83.8 percent in 1998-2000. It means corporation can save upto 16.2 percent for producing same output. Values related to standard deviation reflect consistent performance of HPSIDC.

TABLE 4 DEA EFFICIENCY SCORES OF HPSIDC (1993-2004)

| Year | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | mean | SD | max | min | GD | TGD |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|------|
| Windows | | | | | | | | | | | | | 0.96 | 0.06 | 1 | 0.71 | .289 | .289 |
| W1 | 1 | 1 | 1 | | | | | | | | | | | | | | | |
| W2 | | 1 | 1 | 1 | | | | | | | | | | | | | | |
| W3 | | | 1 | 1 | 1 | | | | | | | | | | | | | |
| W4 | | | | 1 | 0.96 | 1 | | | | | | | | | | | | |
| W5 | | | | | 1 | 1 | 0.8 | | | | | | | | | | | |
| W6 | | | | | | 1 | 0.8 | 0.71 | | | | | | | | | | |
| W7 | | | | | | | 1 | 0.97 | 0.92 | | | | | | | | | |
| W8 | | | | | | | | 1 | 0.96 | 1 | | | | | | | | |
| W9 | | | | | | | | | 1 | 0.93 | 0.92 | | | | | | | |
| W10 | | | | | | | | | | 0.94 | 0.9 | 1 | | | | | | |
| W11 | | | | | | | | | | | 0.9 | 1 | | | | | | |
| W12 | | | | | | | | | | | | 1 | | | | | | |
| Mean of year | 1.00 | 0.89 | 1.00 | 0.97 | 1.00 | 0.93 | 0.86 | 0.90 | 0.95 | 1.00 | 1.00 | 1.00 | | | | | | |

Source :Computed from the financial data of SIDCs

Table 5 shows the performance of JKSIDC over the period of eleven years. Efficiency of JKSIDC is minimum among all the four SIDCs. Mean of efficiency score of JKSIDC is also lowest at 88 percent. High value of standard deviation also reflects inconsistency in the performance of the corporation. Its efficiency score is minimum at 66 percent in 1998 and is consistent in all the three windows. It implies that corporation, if utilized its resources efficiently could have saved 34 percent of input for producing same output. JKSIDC showed consistently efficient performance in the year 2001 only. Overall performance of JKSIDC is not satisfactory. Corporation is not able to utilize its resources fully. Inter temporal analysis reveals that overall efficiency in later years has improved in comparison to earlier years.

TABLE 5 DEA EFFICIENCY SCORES OF JKSIDC (1993-2004)

| Year | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | mean | SD | max | min | GD | TGD |
|---------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Windows | | | | | | | | | | | | | 0.88 | 0.11 | 1 | 0.66 | .193 | .34 |
| W1 | 0.885 | 0.9 | 0.9 | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|-----------------|------|-----------|-----------|-----------|-----------|----------|-----------|-----------|----------|-----------|-----------|-----------|--|--|--|--|--|
| W2 | | 0.85 3 | 0.9 | 0.89 9 | | | | | | | | | | | | | |
| W3 | | | 0.92 8 | 0.92 8 | 0.79 3 | | | | | | | | | | | | |
| W4 | | | | 0.92 4 | 0.65 7 | 0.6 6 | | | | | | | | | | | |
| W5 | | | | | 0.65 7 | 0.6 6 | 0.81 2 | | | | | | | | | | |
| W6 | | | | | | 0.6 6 | 0.95 1 | 0.77 6 | | | | | | | | | |
| W7 | | | | | | | 1 | 0.91 3 | 1 | | | | | | | | |
| W8 | | | | | | | | 0.96 9 | 1 | 0.93 3 | | | | | | | |
| W9 | | | | | | | | | 1 | 0.93 3 | 0.97 1 | | | | | | |
| W10 | | | | | | | | | | 0.93 2 | 0.96 9 | 0.94 5 | | | | | |
| W11 | | | | | | | | | | | 0.97 | 0.94 5 | | | | | |
| W12 | | | | | | | | | | | | 0.94 7 | | | | | |
| Mean of year | 0.88 | 0.88 | 0.91 | 0.92 | 0.70 | 0.6 6 | 0.92 | 0.89 | 1.0 0 | 0.93 | 0.97 | 0.95 | | | | | |

Source :Computed from the financial data of SIDCs

DISCUSSION OF FINDINGS

Comparison of the results of different SIDCs reveals that HSIDC and PSIDC have been performing better than HPSIDC and JKSIDC. Mean efficiency score of PSIDC were higher, in comparison to HSIDC in the initial years. But in later years HSIDC has shown remarkable improvement. Its efficiency score is equal to one in last three years and is consistent in different windows. Average efficiency score of HPSIDC has shown wide fluctuations which is revealed from the fact that maximum efficiency score of the corporation is hundred and minimum 71 percent. Its TGD is also highest JKSIDC's technical efficiency score is lowest among all the four corporations under study. It implies that it has lagged behind which may be attributed to the overall environment of state. Industry in the state is badly effected due to turmoil which has put direct impact on the performance of the corporation.

CONCLUSION

State Industrial Development Corporations have played a great role in the industrial development of states. Apart from providing long-term loans, equity capital, guarantees and underwriting functions they also helped in upgrading the managerial and entrepreneurial skills of the assisted units. But during the last decade the contribution made by these SIDCs in industrial development of their respective states has diminished except in few SIDCs. Some SIDCs are able to cope up with the changing economic environment whereas others have given up. It is evidenced through the in-depth analysis of their performance. Moreover from being in sellers market to be in buyers market asks for change in attitude, which has not been forthcoming from these corporations. They are required to improve their operational efficiency. They need to reduce their cost of operations. Efficiency in funds mobilisation and deployment is required. For these corporations to survive in this competitive environment they must consolidate their financial position.

LIMITATIONS OF THE STUDY

Present study is based on sample data of four state industrial development corporations of northern states and its generalization of results to all SIDCs may have some inherent problem as all the SIDCs may not be functioning in same economic and social environment. The study does not take into account non economic factors like political, social and international behind the performance of these SIDCs which could be quite important. Limitations of measures chosen to analyse and interpret the data are inherited in the study.

DIRECTIONS FOR FUTURE RESEARCH

This study has concentrated on SIDCs of northern states. It can be extended to other SIDCs and development financial institutions also. There are other methods of measuring the efficiency and productivity also, those can be applied and results compared. Impact of high level of nonperforming assets on the performance of these SIDCs can also be studied.

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ATTRIBUTES THAT IMPACT THE STORE PREFERENCE OF THE CONSUMERS FOR A LIFE STYLE PRODUCT (APPAREL)**DR. (MRS.) HEMLATA AGARWAL**

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ABSTRACT

Retailing business is greatly affected by the patronage behavioral orientations of shoppers. Understanding these orientations can assist retailers in developing appropriate marketing strategies toward meeting the needs and wants of consumers. Consumer's tastes have shifted toward a more casual, but luxurious, way of wearing apparels. Like many other products, apparels are composed of many physical characteristics, which are perceived differently by various consumers. When considering an apparel purchase, consumers tend to compare and contrast alternative attire made up of different quality blend. At the same time, deciding to select a particular store for the purchase of apparels, usually starts with a set of characteristics or attributes that consumer aspires. Consumers then use these attributes to make decisions regarding what store or stores can cater to their particular needs.

A key objective of the research has been to identify the orientation that the respondent has towards lifestyle apparel shopping specific to Surat City. To identify this, there were 13 statements, which were created as a bipolar semantic scale ranging from one to seven. The respondents (cases) were then grouped into two major clusters on the basis of cluster analysis. In all, two prominent groups emerged, with some responses being too scattered as to not fit in with any group.

An attempt is also made to observe the ramification of age, income, occupation, and choices of brands on the consumption patterns of customers for apparels. This can help marketers to plan the specific marketing strategies for their customers.

KEYWORDS

Apparel Preferences, Consumer Characteristics and Store Attributes.

INTRODUCTION

The term 'lifestyle' depicts one's attitude towards life, the way we lead our life and the values that we not only believe in, but also practice. Studies on lifestyle products in India have largely been limited to their time and money spending patterns, demographic profiles and preferences for a particular format. The investigation of the shopping orientation by the researchers indicates that the Indian shoppers seek more of hedonic pleasure than the functional value of shopping (Sinha and Benerjee, 2004). Many consider shopping as a task and want to finish as soon as possible where as others derive entertainment value out of their shopping.

The IBM Business Consultancy Services Survey (2004) reveals that the customers value system are increasingly complex and vary by product/need category (survival, social, esteem and self-actualization), shopping occasions (convenience, discovering, replenishment, self-expression and solutions) and other factors like price, quality, product benefits, convenience, service, entertainment, ethics, security and so on. It has been found that customers' tastes have shifted towards a more casual but luxurious, way of wearing apparels. With increasing incomes and standard of living has come the demand for new cloths, style and fashion accessories (The Tribune, January, 10, 2007). Like many other products, apparels are composed of many physical characteristics, which are perceived differently by various consumers. When considering an apparel purchase, consumers tend to compare and contrast alternative attire made up of different quality blend (Talha et al, 2004). Their preferences for items of apparel may depend on the joint influence of price and product attributes such as quality, style, and brand. At the same time, deciding to select a particular store for the purchase of apparels, usually starts with a set of attributes that consumer aspires. Consumers then use these attributes to make decisions regarding what store or stores can cater to their particular needs.

Lambert (1979), Lumpkin et al. (1985), and Mason and Bearden (1978) agree that the most important attributes of store selection relate to the relationship of quality to price and the finding of satisfactory products. The consumer prefers quality products yet wants attractive prices-value for the money-not necessarily the cheapest price. The consumers want fashionable clothing and the ability to return unsatisfactory goods (Greco, 1986; Lumpkin et al., 1985). Another group of attributes that impacts the store choice of the consumer is sales (reduced prices) (Lambert, 1979; Lumpkin et al., 1985). Another important consideration is the availability of advertised products and the ease in locating these advertised products within the store. Also included in the group of important attributes are helpful and courteous salespeople and the readability of tags or labels, which are either in or on the products (Greco, 1986; Hildebrandt, 1988; Lambert, 1979, Lumpkin et al., 1985; Mason & Bearden, 1978). Dychtwald and Flower (1990) assert that the consumer is also searching for convenience, including convenient use of

the product or service, as well as convenient procurement of the product. This includes the purchase arrangements and delivery, setup, and instructions for use if required.

Lumpkin et al. (1985) report that attributes not perceived as primary determining factors in store choice by the consumers are those, which deal with tangible aspects, such as carryout, parking, and location. The consumer desires to be comfortable, but it is not a primary consideration; nor is a great deal of emphasis placed on un-crowded stores or package carry-out. These findings contradict other research (Lambert, 1979; Lowe & McCrohan, 1988; Mason & Bearden, 1978), which suggests that these attributes are important to the every consumer. It can be seen that the lifestyle apparel purchase is a complex process as many factors enter into decision-making. Therefore it is important for the marketers to understand what the prevailing consumers' life styles are. How consumers live, think, behave and act while shopping for lifestyle apparels. A study of this would provide them better understanding of consumers buying and consumption preferences and outlet selection. Also it can help them understand how they can influence the purchasing and consumption process as well as store selection of their customers. This understanding can help them decide which appeals to use in order to influence the purchasing and consumption process of their customers.

ABOUT SURAT: In Surat, the lifestyle apparels sector is going through a transformation stage. The emerging market is witnessing a significant change in its growth and investment patterns. Both existing and new players are experimenting with new retail formats.

Surat has for long been a city, which lives life to its joyous best, aptly, aided by the affluence and prosperity of its citizens. Far from being spent thrift, Surti's are famous for being generous on spending money right from food to exclusive lifestyle products and activities. Each weekend see Surti's convulsing from the entire city at Dumas Road for an evening drive and consequently thronging the numerous food hawkers lined up. Thus it comes to no surprise that the most prominent side of this road has been exclusively developed and branded as "Gaurav path", alongside which huge retail locations have developed and prominent new age retailers like Westside, Pantaloon, Levi's, Sony, Big Bazar, General Motors and many more have set up their shops. This gives us a reason to consider this area as our scope of study.

METHODOLOGY AND ANALYSIS

The purpose of this research is to investigate attributes that impact the store preference of the consumers of a life style product (apparel) in the Silk City - Surat (Gujarat). A key objective of the research has been to identify the orientation that the respondent has towards lifestyle apparel shopping. To identify this, a set of variables were selected like – the respondent's desire to be in touch with the latest in fashion, his/her readiness to try out and experiment with new introductions, preferences for quality comfort and style, perception of apparel shopping as a task to be completed or a fun filled outing, preferences for particular outlets to shop, and budget considerations for lifestyle apparel shopping. In all, there were 13 statements, which were created as a bipolar semantic scale ranging from one to seven.

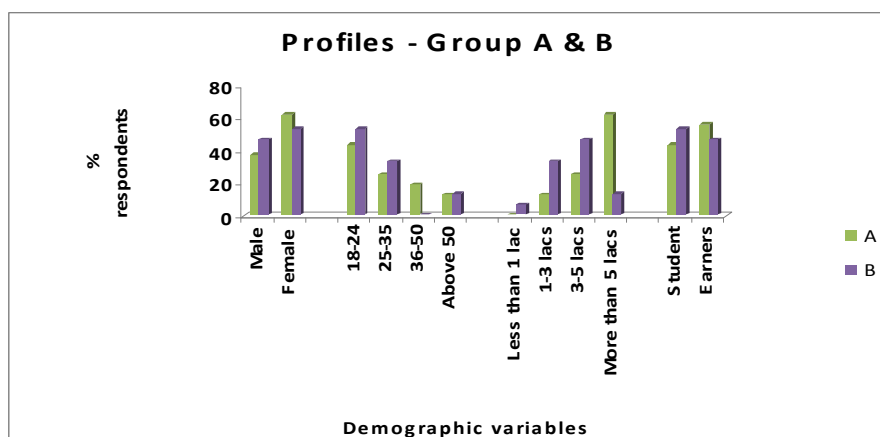
The respondents (cases) were then grouped into two major clusters on the basis of cluster analysis. In all, two prominent groups emerged, with some responses being too scattered as to not fit in with any group.

Out of a total of 300 respondents, 120 respondents belonged to one group (Say group A) and 114 respondents belonged to say Group B, with the remaining 66 respondents not showing any strong similarities with either group. The profile of Group A and B are depicted with the help of histogram as under-

TABLE 1.1: PROFILE OF RESPONDENTS IN EACH GROUP

| | Group A (%) | Group B (%) |
|------------------|-------------|-------------|
| Male | 38 | 47 |
| Female | 63 | 53 |
| | | |
| 18-24 | 44 | 53 |
| 25-35 | 25 | 33 |
| 36-50 | 19 | 0 |
| Above 50 | 13 | 13 |
| | | |
| Less than 1 lac | 0 | 7 |
| 1-3 lacs | 13 | 33 |
| 3-5 lacs | 25 | 47 |
| More than 5 lacs | 63 | 13 |
| | | |
| Student | 44 | 53 |
| Earners | 56 | 47 |

GRAPH 1. PROFILE OF RESPONDENTS (GROUP A & B)



From the Graph 1, we can see that Group A consists of more of female respondents. Though the profile has age group more dominant as 18-24, but still it also consists of respondents of other age groups. 63% respondents have an income level more than ` 5 lacs, which may be because there are more earners than students as respondents. We can see that the Group B also consists of 53% female respondents, less than Group A. Again the respondents in the age group of 18-24 are more in number (44%) in Group A, but there are no respondent in the age group of 36-50 in Group B. Their income level falls more in the range of ` 1-5 lacs, this may be because Group B consists of 53% students and 47% earners. From the analysis of above data it is very clear that the demographic profile of the respondents in Group A and Group B are mixed and there exist no major significant differences. This fact was further validated by applying Chi Square Test to test whether there is a significant difference between respondents of both groups (A & B) with respect to the demographic composition of the groups (Table 1.2).

H_0 : there is no significant difference in the composition of both groups as regards to the demographic variables of Gender, Age, Income and Occupation.

H_1 : there is a significant difference in the composition of both groups as regards to demography.

TABLE 1.2: CHI SQUARE TEST WITH THE DEMOGRAPHIC COMPOSITION OF THE GROUPS.

| Variable | d.f. | $\chi^2_{cal.}$ | $\chi^2_{tab.}$ | Decision |
|------------|------|-----------------|-----------------|--------------|
| Gender | 1 | .053 | 3.84 | Accept H_0 |
| Age | 3 | 0.4 | 7.81 | Accept H_0 |
| Income | 3 | .038 | 7.81 | Accept H_0 |
| Occupation | 1 | 0.59 | 3.84 | Accept H_0 |

Thus, it was statistically observed that there was no significant difference between both groups with respect to demography, viz. gender, age, income and occupation of the respondents. In other words, the difference in consumer orientation of both groups cannot be attributed or co-related to the demographic composition of the groups.

Respondents clustered in Group A scored relatively high on all variables (Mean score of 4.0 and above) except one variable – comfort level of the apparels. The mean score on 'comfort' was just 2.5, indicating that these respondents were not too eager in compromising on comfort. These respondents were also not too keen on purchasing from any particular outlet or outlets. They were willing to explore any outlet for their choice of clothes, as indicated by a mean score of 5.4. These respondents also considered shopping for lifestyle apparels as lot of fun and relaxation – with a mean score of 5.3. Similarly, these shoppers were flexible on their budget spending during any outing for purchasing lifestyle apparels – with a mean score of 5.1. With a mean score of 4.5, these respondents considered it important to be aware about the latest fashion trends in lifestyle apparels.

Correspondingly, respondents falling under 'Group B' scored relatively low on all variables with the highest mean score being 3.93 out of 7. The singular variable desired by all was the comfort level of the apparels, indicated by a mean score as low as 1.27, indicating thereby that they were not at all willing to compromise on comfort in favor of new trends and fashions.

The highest mean score was 3.93, for their willingness to 'experiment' with new fashionable apparels, but a score of 3.93 can at best be considered average, thus indicating an inherent reluctance to try out something 'new'.

TABLE 1.3: MEAN SCORES OF BOTH GROUPS ON ALL ATTRIBUTES

| Variable | Mean Score A | Mean Score B |
|---|--------------|--------------|
| Fashion Consciousness | 4.5 | 3.47 |
| Innovativeness | 4.3 | 3.93 |
| Désire for utility vis-à-vis design | 4.1 | 2.6 |
| Comfort vis-à-vis new design | 2.5 | 1.27 |
| Quality and durability | 4.3 | 3.00 |
| Decency versus glamour appeal of apparels | 4.3 | 2.13 |
| Need based versus any-time shopping of apparels | 4.4 | 2.47 |
| Perception for apparel shopping: Fun vis-à-vis task | 5.3 | 3.53 |
| Influence of others' opinion | 4.0 | 3.2 |

| | | |
|---|-----|------|
| Fixed versus flexible budget while shopping | 5.1 | 2.27 |
| Apparels as a means to impress others | 4.1 | 1.93 |
| Specific stores versus explorers | 5.4 | 3.47 |
| Buying more than the shopping list | 4.8 | 3.27 |

As can be inferred from the above table 1.3, there are clear distinctive preferences amongst respondents of both groups pertaining to the mentioned variables. For instance, Group A shoppers consider fashionable apparels important enough for making an impression, in addition to inner qualities; on the contrary, Group B shoppers rely more on inner qualities to cast an impression.

Variables where Group A scores on the higher side while B is more on the average side are: shopping from specific outlets vis-à-vis a preference for exploring any outlet for purchase; and the perception of apparel shopping as a time-and-energy consuming task vis-à-vis it being a lot of fun and relaxation.

Thus, it is quite apparent from the above scores that shoppers of Group A were fun seekers when it came to shopping for lifestyle apparels. They have showed a tendency to view such shopping as fun, which is very apparent from their willingness to explore new outlets and also from their flexibility on spending on apparels during any shopping trip. These shoppers derived their personal worth from the apparels they wore, and thus, they were more fashion-conscious. Also, they were more inclined to try out newer fashions, thus they weren't as much inclined to superior quality in their apparel purchases. As a result, these shoppers may not be as brand conscious if apparels provide glamour and trendiness.

Shoppers of Group B viewed apparel shopping as a cumbersome task that they had to indulge into, and thus, they tried to minimize on their effort by shopping only when really needed and that too, from their preferred outlets. They weren't as fashion conscious or fastidious as the previous group, chiefly because they didn't consider fashion apparels as being symbolic of their personality and inner qualities. Not being as fashion-conscious as the previous group, they were more inclined to superior quality of the apparels, as they desired longevity and durability from the brand over trendiness.

Responses were also gathered regarding relevant parameters for selection of an outlet for purchase – proximity to residence, complete collection of apparels, opportunity to 'touch and feel', upscale locality of the outlet, superior ambience, availability of many brands, helpful and courteous employees, ample parking facilities, availability of latest fashion and trends and so on. The respondents were asked to state their preferences for these parameters from 'Very Important' (3) to 'Not at all important' (1).

TABLE 1.4: MEAN SCORES OF BOTH GROUPS FOR OUTLET SELECTION PARAMETERS

| Parameter | Mean Score A | Mean Score B |
|---------------------------------|--------------|--------------|
| Proximity to residence | 1.63 | 1.64 |
| Complete collection | 2.56 | 2.71 |
| 'Touch and feel' | 2.63 | 2.86 |
| Complimentary merchandise | 1.75 | 1.64 |
| Upscale locality of the shop | 1.69 | 1.43 |
| Ample parking | 2.13 | 2.36 |
| Well trained sales people | 2.44 | 2.71 |
| Wide price range | 2.69 | 2.57 |
| Helpful and courteous employees | 2.69 | 2.64 |
| Hi-fi ambience | 2.0 | 1.71 |
| Ongoing promotional schemes | 2.19 | 2.21 |
| Latest fashions and trends | 2.56 | 2.43 |
| Food court and play area | 1.56 | 1.43 |
| Classy crowd | 2.06 | 1.71 |
| Many brands available | 2.63 | 2.71 |

As is evident from the table 1.4 above, the parameters of relevance to the respondents of both groups are more or less similar: wide price range, freedom to explore merchandise (touch and feel), availability of multiple brands and helpful and courteous employees, followed by the availability of a complete collection and that too one which has the latest in fashion and trends.

The parameters of least relevance to both groups are: food court and play area for children, proximity to residence and availability of complimentary merchandise.

Though they do vary slightly on certain parameters, for instance, Group A shoppers prefer 'classy crowds' and 'hi-fi' ambience within the stores more than Group B shoppers.

In order to understand the ramification of age, income and occupation on the consumption patterns of customers for apparels we have further segregated the collected information under the head Students and Earners assuming that the students will be in the age group of 18-25 and others are earners. The students refer themselves in the income levels between ` 1-5 lacs where as earners are more in the range of ` 3 lacs and above. When asked about the importance of Apparels as an indicator of their lifestyle both students and earners have indicated apparels as one of the more important indicators for them (ranking of 1-3 on a scale of 1-10). The most common factors which describe the purchase of students' lifestyle products are - purchase for specific occasions (gifts, marriages etc) followed by availability of good deals and then - fun and self-satisfaction.. For earners it was the availability of a good deal which was most important, followed by purchase for specific occasions (gifts, marriages etc). Many of the earners' purchases were more planned than purchase simply for the sake of fun and self-satisfaction.

For both students as well as for the earners the first and most important criterion affecting their purchase of lifestyle apparels is **Individual choice** followed by **family approval**. Price is more important a criterion for earners than students in making the judgment, where as brand is seen as more important criterion for judgment by students rather than by the earners. Though previous experience does also matter to some extent to both, but outlet selection is more important for the earners than for the students.

It is found from the study that the frequency of purchase for the routine and formal clothing is once in 3 months for the students where as casuals are bought by them almost every month and its only special wear that they buy once in a year. For earners, routine wear, formals as

well as casual purchases have a frequency of once in 3 to 6 months and for some earners, formals are also purchased once in a year just like special wear which is preferred to be bought once in a year by them.

When asked about the most preferred brands of lifestyle apparels for Office/Formal wear, the most prominent brands which came up were Westside, Pantaloon, Raymond's, Peter England, B+More, Louis Philippe, Allen Solely, TNG and Chimanlal Vrajilal by both the groups almost unanimously. For Specialty wear Raymond's, Asopalav, Chimanlal Vrajilal, G3 and Allen Solely are the most common choices for both the groups. When it comes to casual wear again Westside and Pantaloon are the top choices followed by Levis, Pepe, Wills and TNG. Though when asked about their favorite brands, the brands most preferred by students are Raymond's followed by Westside, Pepe, Pantaloon, Levi's, Allen Solley, Spykar Jeans. Earners have ranked Westside as most preferred brand followed by Raymond's, Pantaloon, Asopalav, TNG and Levi's as favorite brands. The major reasons for preferences of these brands are fitting, comfort and variety, Good range of products offered by the stores and good prices. Styling, designer look, quality of fabric and classy looks are some of the other important reason for choice of these brands as favorites.

Among the most common brands, which were not preferred by both the groups, are Provogue, Pepe, Benetton and Maxim. Some more brands, which are experienced but disliked by earners, are Biba, Mochi, Colour Plus, Diesel and Nike. The most common reason mentioned by the respondents are that they found them too costly, no value for money spent, limited collection, poor fitting, no sizes and poor promotions.

CONCLUSION

Significant differences were found among the lifestyle clusters with regards to the perceived importance of various factors between Group A and Group B, which influences their purchasing criteria, budget, price range, attractions to sales promotions and personal preferences while shopping for lifestyle apparels, though there was no statistically significant difference in the profiles of both the groups. An understanding of these differences can help the shopkeepers of lifestyle apparels to target and position their lifestyle apparels to their customers more attractively.

The survey reveals that for Surtis, lifestyle apparels are not just good looking products, they have a purpose of satisfying not just the functional need that it is meant to but also to project its possessor attitude and sometimes social status. For them, lifestyle apparels are not just products but also a source of a display of status and passionate indulgence, an experience of possessing and using an object, a personal and intimate relation and an association to a specific time, place and memories of purchasing lifestyle apparel for themselves.

Despite the fact that both the groups were almost of same opinion as far as criteria for outlet selection is concerned, it is still essential that every shopper visiting a store should be handled carefully because whether the shoppers buy or not, they would discuss about their visit with others. Customers have shown an inclination to patronize stores and have attached importance to referrals. A positive opinion would surely help build traffic as well as loyalty to the store. Under such circumstances, the sales persons at the store should possess good communication and assistance skills.

The Surti shoppers have shown an orientation that is based more on the entertainment value than on the functional value. An assurance to provide many unique services at the retail outlet like web cams to click the photographs, Internet connectivity to cross check their purchases with family members, better trial rooms with easy access, facilities for handicaps to shop and for elderly shoppers, Spacious entry with assistance right from entrance hall, an advisor who can give sincere advice on the selection of the apparels who could be having some knowledge of tailoring too and easy return of unsatisfactory merchandise can attract more of Group B customers as well as will add more fun for Group A customers increasing their preference for a particular store.

At the end, we offer some broad-spectrum suggestions with respect to the new marketing strategies, which marketers should examine about the changes in the consumption patterns of lifestyle apparels discussed so far.

1. As individual choice is one of the most important criteria for the present consumers irrespective of their age, income and occupation, it is suggested that the marketers should have very customized approach in the assortments they keep in their stores.
2. Dealing with the diversified group could be a challenge therefore the marketers should try to identify relatively small groups like alumni associations, hobby clubs or in-company circles. This should be accompanied by cash rewards to members, and also involving their active participation in product evaluation.
3. A marketing strategy on the convergence of Internet transactions (virtual) and traditional channels (real physical outlets) can help customers collect information online and complete purchase procedures such as authentication, settlement and delivery at the physical stores. This will help customers in making comparison-based purchases as well as have greater transaction securities.
4. Collaborated marketing can help consumers submit their product ideas to the site and companies show their prototype versions of such products for a certain period of time. This approach will be effective in not only reflecting consumer views and improving the quality of products developed, but also in enhancing the loyalty of consumers who participate in the development process. This strategy can be especially appealing to consumers who are concerned with the behaviour of those around them.
5. The consumers make their decisions on the basis of the views of those they can trust (family, friends etc.). A new approach can be adopted to build a new avenue that offers such key information on the Internet, without necessary being bound by any community format and this will be effective in future.

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A REVISIT ON THE APPLICATION OF HACKMAN AND OLDHAM MODEL IN ORGANISATIONS

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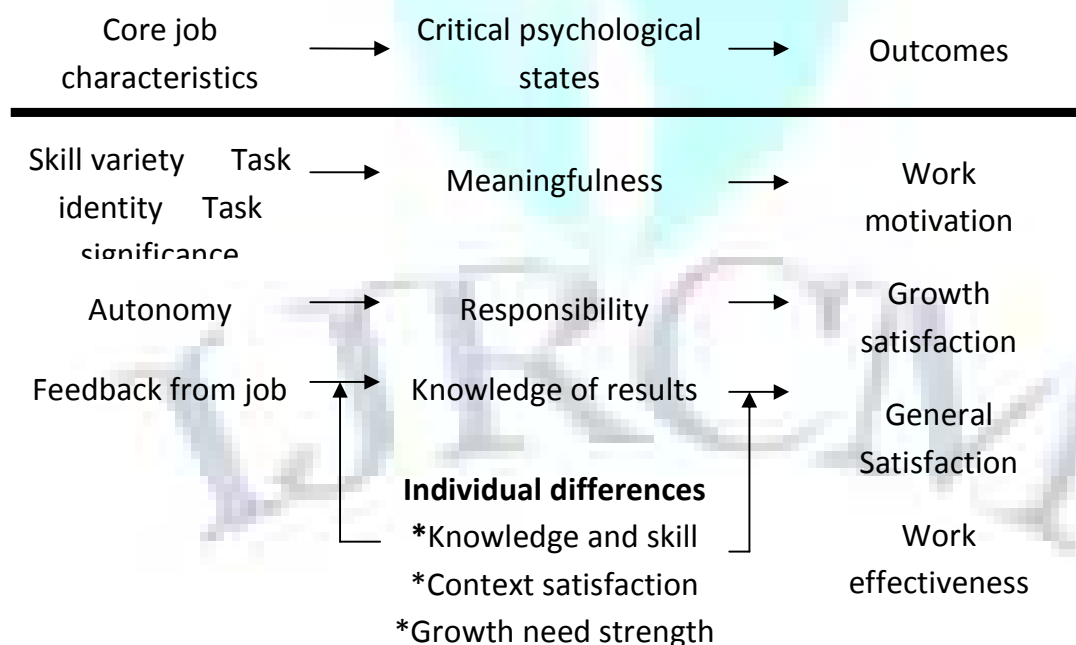
ABSTRACT

The study examined the role of job dimension in determining the motivating potential score of the employees. A sample of 96 employees was surveyed using the job diagnostic survey and the score were compared with the national norms established by Oldham, Hackman and Stepina using nine job families. The study revealed that the job dimensions highly influenced the motivating potential score and the study also revealed the presence of significant differences between the national norms and the study data.

INTRODUCTION

A large body of research provides evidence that the way jobs are designed impacts outcomes that are important to workers (e.g., job satisfaction) and to employers (e.g., productivity). Job design can be approached with one or more goals in mind. For instance, jobs can be designed in the interest of increasing production efficiency, minimizing physical strain, or with an eye on maximizing the extent to which they are motivating to the worker (Campion and Thayer, 1985). Hackman and Oldham developed the theory that the job itself should be designed to possess fundamental characteristics needed to create conditions for high work motivation, satisfaction and performance. The concepts of their Job Characteristics Theory are diagrammed in Figure 1.

FIGURE 1: THE RELATIONSHIPS AMONG THE CORE JOB DIMENSIONS, THE CRITICAL PSYCHOLOGICAL STATES, PERSONAL/WORK OUTCOMES, AND MODERATORS AS ILLUSTRATED BY HACKMAN AND OLDHAM (1974).



Hackman and Oldham began by searching for the basic psychological states that promote high-performance motivation and satisfaction at work. The three conditions they suggested were: (a) a person must experience the work as meaningful, as something which is generally

valuable and worthwhile; (b) a person must experience responsibility for the results of the work, that is, he /she must feel personally accountable and responsible for the work results; (c) a person must have knowledge of the final results of the work being done, that is, he/she must understand the effectiveness of his/her job performance. For the development and maintenance of strong internal work motivation, Hackman and Oldham (1975) assert that it is necessary for all three critical psychological states of experienced meaningfulness, experienced responsibility, and knowledge of results to be present (p. 90). Since the three critical psychological states are, by definition, internal to persons, they cannot be directly manipulated in managing work. Therefore, the authors began with the question of how the critical psychological states could be created. They identified five core job characteristics of skill variety, task identity, task significance, autonomy, and feedback as reasonably objective, measurable and changeable properties of work, and that foster the desired psychological states, which in turn motivate positive personal/work outcomes. They further suggested that skill variety, task identity, and task significance contributed to the experienced meaningfulness of the work while autonomy accounted for experienced responsibility, and feedback established knowledge of work results. A job high in motivating potential must be high on at least one of the three job characteristics that prompt experienced meaningfulness, and high on both autonomy and feedback, to create conditions which foster all three critical psychological states (Hackman and Oldham, 1980, p.81). The overall motivating potential of a job can be determined by the computation of a motivating potential score, which is calculated as illustrated below:

MOTIVATING POTENTIAL SCORE

$(\text{Skill Variety} + \text{Task Identity} + \text{Task Significance}) / 3 \times \text{Autonomy} \times \text{Feedback}$

The motivating potential score provides a quantitative diagnosis of the job situation in question by means of the scores obtained from the Job Diagnostic Survey. In summary, the Job Characteristics Theory of Hackman and Oldham asserts that a job will be meaningful to an employee to the extent that it requires a variety of skills, involves the completion of a whole and identifiable piece of work, and has significance for the lives of other people; it will foster feelings of personal responsibility to the degree that it provides the employee autonomy in selecting the methods for carrying out the work; and it furnishes the employee knowledge on which to judge the effects of his or her efforts if it is arranged to allow such feedback. Thus, the motivating potential of a job, as elaborated by the five core job characteristics, are said to affect the three critical psychological states, which, in turn, are essential ingredients of the employee's internal work motivation and other positive personal/work outcomes.

DEFINITION OF TERMS: HACKMAN AND OLDHAM PROVIDE THE FOLLOWING DEFINITIONS

Core Job Characteristics refers to objective properties of Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback that contribute to the work effectiveness and satisfaction of employees.

Critical psychological states refer to the Experienced Meaningfulness of Work, Experienced Responsibility for Work Outcomes, and the Knowledge of Work Results.

Motivating Potential Score refers to a single summary index of the degree to which the objective characteristics of the job will prompt high internal work motivation.

Skill Variety is the degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee

Task Identity is the degree to which the job requires the completion of a "whole" and identifiable piece of work (i.e.; doing a job from beginning to end with visible outcomes).

Task Significance is the degree to which a job has a substantial impact on the lives or work of other people whether in the immediate organization or in the external environment.

Autonomy is the degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling his or her work and in determining the procedures to be used in carrying it out.

Feedback refers to the degree to which carrying out the work activities required by the job results in the employee obtaining information about the effectiveness of his or her performance.

Knowledge of Results refers to the degree to which the employee knows and understands, on a continuous basis, how effectively he or she is performing his or her job.

PURPOSE OF STUDY

The purpose of this study was to apply Hackman and Oldham's Job Characteristic Model to the perceptions of employees hold towards their job.

RESEARCH QUESTIONS

1. How do the employees feel about their core job characteristics of skill variety, task identity, task significance, autonomy, and feedback, all of which determine the motivating potential of the job?
2. How do the mean scores of employees compare to the norms established by Oldham, Hackman, and Stepina ?

METHODOLOGY

Sample: The data for the study was based on the survey of 96 respondents from various departments namely accounts, export, logistics, IT, HR and Sales of a private limited organization in Chennai. The respondents range in different positions from officers, executives to area head. Table 1 details the sample split. Non probability convenience method sampling was used.

TABLE NO. 1: SAMPLE CLASSIFICATION

| Name of the Department | Frequency | Percent |
|------------------------|-----------|---------|
| Accounts | 33 | 34.38 |

| | | |
|--------------|-----------|---------------|
| Export | 3 | 3.13 |
| HR | 18 | 18.75 |
| IT | 29 | 30.21 |
| Logistics | 2 | 2.08 |
| Sales | 11 | 11.46 |
| Total | 96 | 100.00 |

QUESTIONNAIRE: Core Job Characteristics model developed by Richard Hackman and Greg Oldham has been used in this study. This model identifies five core job dimensions that produce three psychological states. Employees who experience these psychological states tend to have higher levels of internal work motivation, job satisfaction and work effectiveness. The five core job characteristics include skill variety, task identity, task significance, autonomy and job feedback. The questionnaire contains 15 questions with three questions measuring each variable. The results can be decided from the motivating potential score (MPS) calculated from these five variables. The five core job dimensions were measured through the self-descriptive items asking the respondents how strongly they agree or disagree with a number of statements, which describe work experiences. A total of fifteen statements comprised the measurement of core job characteristics. The respondents identified how much of each job dimension they perceive to be present in their current jobs. All items are direct-scored and the score for each job dimension is determined by averaging the values of the items. Question of the Job Diagnostic Survey of Hackman and Oldham.

1. How much variety is there in your job? That is, to what extent does the job require you to do many different things at work using a variety of your skills and talents?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|------------------|---|--|---|
| Very little: the job requires the same routine things over and over | | | Moderate Variety | | Very much: the job requires me to do many different things, using a number of different skills and talents | |

ANALYSIS AND FINDINGS

SAMPLE CHARACTERISTICS

The mean age of the samples was 31 years with minimum age of 22 and maximum age of 46 years. Among ninety six, 65 of the sample respondents were in the age interval of 21-30 years. Further 27 of the respondents were in the age interval of 30-39 years and only 4 of the respondents were in the interval of 39-48 years and 66 respondents were in the experience interval of 1-9 years and 17 respondents were in the experience category of 17-25 years, 13 respondents were in the category of 9-17.

TEST OF NORMALITY

To analyze the data normality, one sample K-S test was applied to the data obtained on the factors of MPS. All the factors were significant at 1 per cent level, thus arriving to a conclusion that the data is normally distributed.

TABLE NO. 2: CORE JOB CHARACTERISTICS SURVEY MEANS AND STANDARD DEVIATION ACROSS THE RESPONDENTS

| Core Job Characteristics | N | Min | Max | Mean | SD |
|--------------------------|----|-----|-----|------|------|
| Skill variety | 96 | 1 | 6 | 4.49 | 0.49 |
| Task significance | 96 | 1 | 7 | 4.29 | 0.67 |
| Task identity | 96 | 1 | 7 | 4.41 | 0.37 |
| Autonomy | 96 | 1 | 7 | 4.24 | 0.54 |
| Job feed back | 96 | 1 | 7 | 4.74 | 0.86 |

Note. N = number of subjects, Min = minimum score, Max = maximum score, SD = standard deviation.

As indicated in the table 2, mean scores for all but one dimension were slightly higher than four, thus indicating moderate presence of the dimension and/or that they were uncertain about the accuracy of the statements provided freedom in determining how the work was done (M = 4.74) received the highest agreement. Employees were neutral or uncertain regarding the degree to which the task had significance (M = 4.29). None of the employees felt the job required very much utilization of their various skills and talents as indicated by the range of scores (high score = 6). There was also less variability in employees responses for this item compared to the others as the smaller standard deviation suggests (.49).

TABLE NO.3: CORE JOB CHARACTERISTICS SURVEY MEANS AND STANDARD DEVIATION ACROSS THE DEPARTMENT

| Department | Factors | SV | TI | TS | AT | JF |
|----------------------|---------|------|------|------|------|------|
| Accounts (n =33) | Mean | 4.64 | 4.24 | 4.52 | 4.22 | 4.80 |
| | SD | 0.59 | 0.70 | 0.38 | 0.45 | 0.98 |
| Exports (n =3) | Mean | 4.89 | 4.56 | 4.78 | 4.67 | 4.78 |
| | SD | 0.51 | 0.84 | 0.19 | 0.88 | 0.69 |
| HR (n =18) | Mean | 4.46 | 4.28 | 4.46 | 4.30 | 4.81 |
| | SD | 0.43 | 0.71 | 0.33 | 0.46 | 0.97 |
| IT (n =29) | Mean | 4.51 | 4.40 | 4.32 | 4.32 | 4.84 |
| | SD | 0.38 | 0.74 | 0.35 | 0.64 | 0.87 |
| Logistics (n =2) | Mean | 4.83 | 4.50 | 4.50 | 4.50 | 5.17 |
| | SD | 0.71 | 1.18 | 0.71 | 0.24 | 0.24 |
| Sales (n =11) | Mean | 4.39 | 4.42 | 4.61 | 4.30 | 4.64 |
| | SD | 0.44 | 0.34 | 0.33 | 0.64 | 0.41 |

Note: SV-skill variety; TI-task identity; TS-task significance; AT- autonomy; JF- job feedback

The table 3 shows that except exports, in all other department such as accounts, HR, IT, logistics and sales, highest mean has been obtained for Job Feedback which implies that the respondents of these departments were able to make conclusions about their

performances. In the exports department, highest mean has been obtained for Skill Variety which implies that the respondents were able to make use of variety of skills/talents to perform their job.

TABLE NO. 4: MOTIVATING POTENTIAL SCORE OF EMPLOYEES OF VARIOUS DEPARTMENTS

| DEPARTMENTS | MPS |
|---------------------|--------------|
| Accounts | 90.47 |
| Exports | 105.88 |
| HR | 84.38 |
| IT | 92.20 |
| Logistics | 107.25 |
| Sales | 89.25 |
| OVER ALL MPS | 88.36 |

Table 4 shows the motivating potential score (MPS) of the employees as calculated using the formula developed by Hackman and Oldham (1974).

MOTIVATING POTENTIAL SCORE

$MPS = ((Skill\ Variety + Task\ Identity + Task\ Significance)/3) * Autonomy * Feedback$

From the table 4 it is inferred that the MPS is high in logistics department followed by Exports and Information technology department. The human resources department have the least Motivating potential score. The Motivating Potential Score for the organisation when considering all the employees perception is 88 approximately, which is considered a low score when comparing to the normative data established by Oldham, Hackman, and Stepina (1979).

COMPARISON WITH NORMATIVE DATA

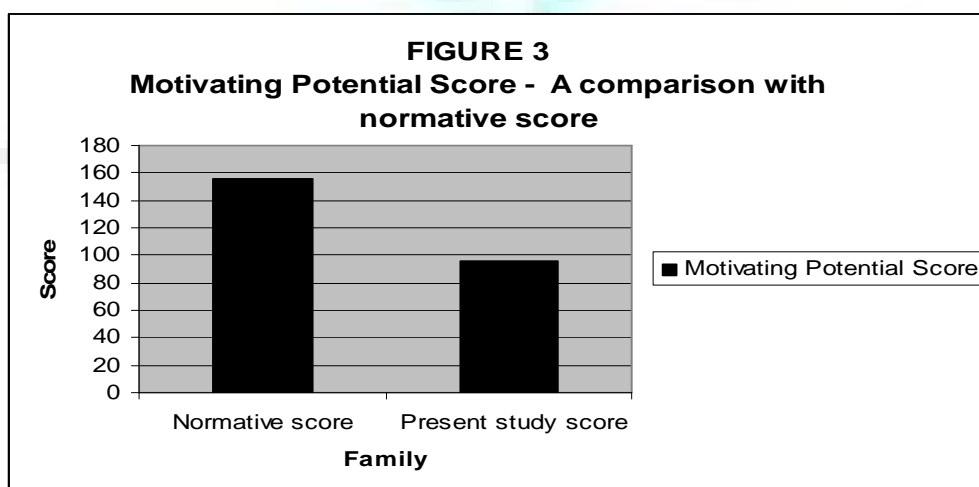
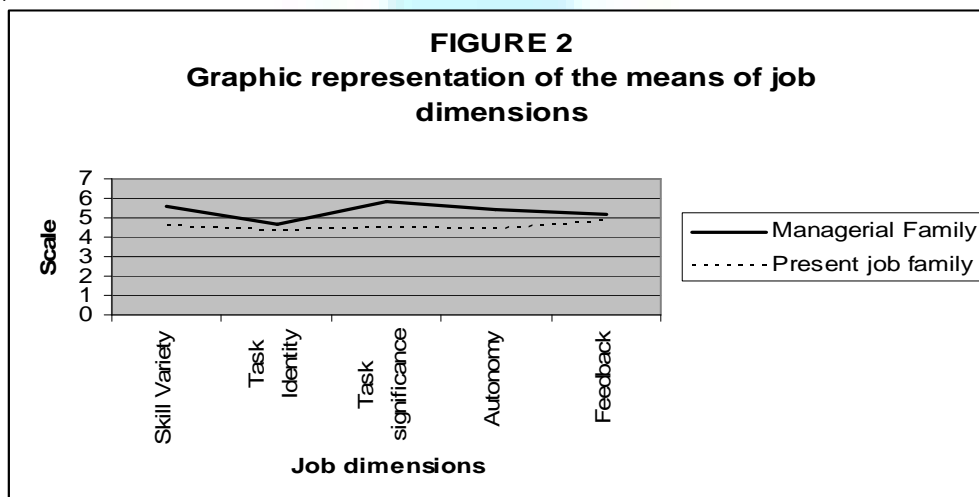
In an effort to establish a meaningful perspective of the data collected for this study, the means for the job were compared to normative data established by Oldham, Hackman, and Stepina (1979). The normative data are based on the results of studies involving 6,930 employees holding 876 jobs in 56 organizations. The jobs included in those studies were highly heterogeneous and divided into nine job groups established by the Equal Employment Opportunity Commission (EEOC) and defined in the Dictionary of Occupational Titles (DOT) published by the U.S. Department of Labor. Table 5 presents the core job dimensions and motivating potential score of the present study and that of the five job groups proposed (only five out of nine were considered for this study) by Oldham, Hackman, and Stepina as normative data.

TABLE 5: MEANS FOR THE JOB DIMENSIONS OF THE STUDY AND THE FIVE JOB FAMILIES USED BY OLDHAM, HACKMAN, AND STEPINA

| Job dimensions | 5 job families(Oldham et al) | | | | | Job families in this study | | | | | |
|----------------|------------------------------|-----|-----|-----|-----|----------------------------|------|------|------|------|------|
| | Man | Clr | Sal | Ser | Pr | Acc | Exp | HR | IT | Log | Sal |
| SV | 5.6 | 4 | 4.8 | 5 | 4.2 | 4.64 | 4.89 | 4.46 | 4.51 | 4.83 | 4.89 |
| TI | 4.7 | 4.7 | 4.4 | 4.7 | 4.3 | 4.24 | 4.56 | 4.28 | 4.4 | 4.50 | 4.42 |
| TS | 5.8 | 5.3 | 4.5 | 5.7 | 5.3 | 4.52 | 4.78 | 4.46 | 4.32 | 4.50 | 4.61 |
| AU | 5.4 | 4.5 | 4.8 | 5.0 | 4.5 | 4.22 | 4.67 | 4.3 | 4.32 | 4.50 | 4.3 |
| FB | 5.2 | 4.6 | 5.4 | 5.1 | 4.7 | 4.80 | 4.78 | 4.81 | 4.84 | 5.17 | 4.64 |
| MPS | 156 | 106 | 146 | 152 | 105 | 90 | 106 | 84 | 92 | 107 | 89 |

SV:Skill variety; TI:Task Identity; TS:Task Significance; AU:Autonomy; FB: Feed Back; Man: Managerial; Clr:Clerical; Sal:Sales; Ser:Services; Pr:Processing; Acc:Accounts; Exp:Exports; HR:Human resource; IT:Information Technology; Log: Logistics

For the purpose of this study, the accounts, exports, human resource, Information technology and logistics departments were considered as Managerial task for comparison with the managerial family identified by Oldham, Hackman and Stepina. Figure 2 graphs the mean score of the employees in the present study (5 job families) and managerial job family means (Oldham, Hackman and Stepina) as presented in Table 5. Managerial job family means are represented with a solid line and the present study's means are symbolized with a dashed line. Each of the core job dimensions are represented on the X-axis while the Y-axis portrays the 7-point Likert scale used to measure each job dimension. Figure 3 graphically compares the motivating potential score of the managerial job family to the motivating potential score of the employees of present study.



Using a one-sample t-test, the means representing the core job dimensions and motivating potential score of the present study and those of the managerial job family and sales job family were compared to determine if they were significantly different.

TABLE NO. 6: ONE SAMPLE T-TEST COMPARING THE CORE JOB DIMENSIONS MEANS OF THE MANAGERIAL JOB FAMILY AND THE PRESENT STUDY'S EMPLOYEES SCORE

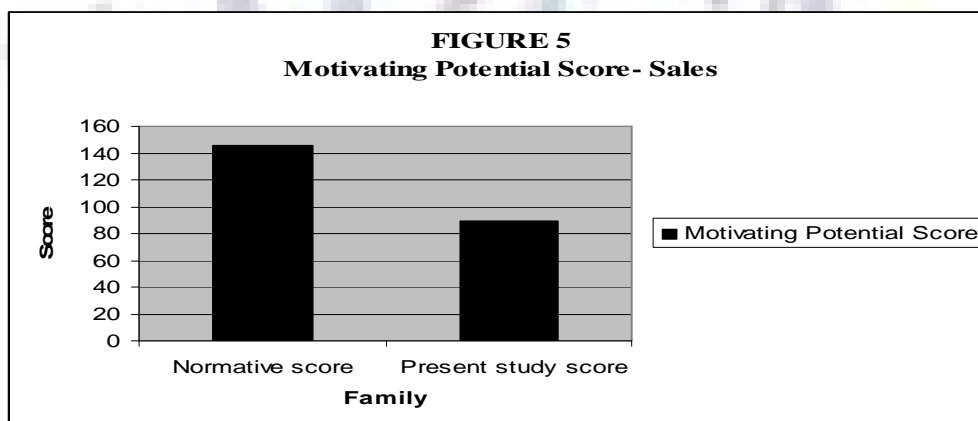
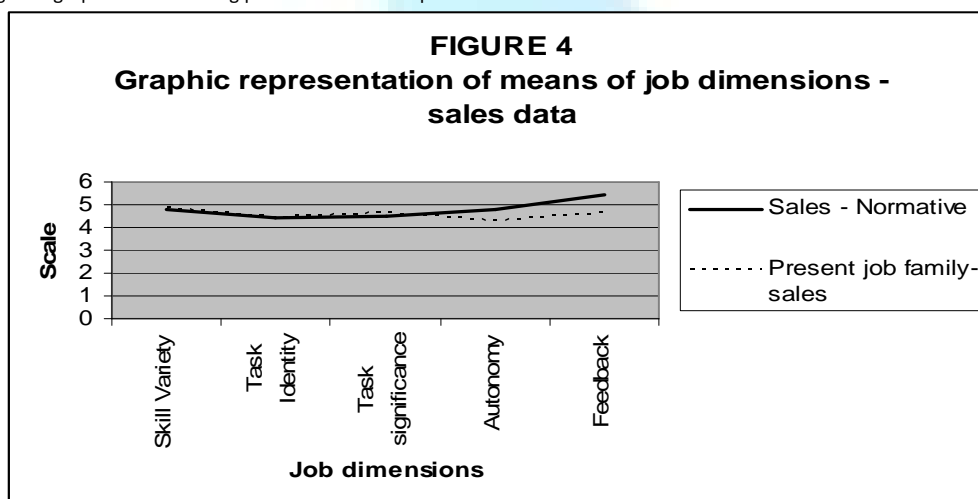
| Job dimensions | t value | Sig (2 tailed) |
|-------------------|---------|-----------------|
| Skill Variety | 10.60 | 0.00* |
| Task Identity | 08.90 | 0.00* |
| Task Significance | 11.50 | 0.00* |
| Autonomy | 13.84 | 0.00* |
| Feed back | 12.24 | 0.00* |

* p < 0.05

The results reported in Table 6 indicate a significant difference between each of the core job dimensions for the managerial job family and the sample of employees (accounts, exports, human resource, information technology, and logistics) in this study.

COMPARISON OF THE SALE DATA (NORMATIVE) WITH THE SALES DATA GENERATED IN THIS STUDY

The scores of sales department as such were compared with that of the normative data of the sales family established by Oldham, Hackman and Stepina. Figure 4 graphs the mean score of the sales job family data identified by Oldham et al and the data generated in this study and figure 5 graphs the motivating potential scores comparison .



Using one sample t test the scores of job dimension obtained from the sales department was compared with the normative data of the sales family established by Oldham, Hackman and Stepina. Table 7 details the result of the comparison.

TABLE 7: ONE SAMPLE T-TEST COMPARING THE CORE JOB DIMENSIONS MEAN OF THE SALES JOB FAMILY AND THE PRESENT STUDY'S SALE'S DEPARTMENT EMPLOYEES SCORE

| Job dimensions | t value | Sig (2 tailed) |
|-------------------|---------|-----------------|
| Skill Variety | 0.688 | Not significant |
| Task Identity | 0.567 | Not significant |
| Task Significance | 0.798 | Not significant |
| Autonomy | 0.655 | Not significant |
| Feed back | 0.346 | Not significant |

The results reported in Table 7 indicate no significant difference between each of the core job dimensions for the sales job family.

DISCUSSION AND CONCLUSION

A descriptive comparison of the means produced by this study to those of the 2 job families (as in this study only two family was considered for this study), illustrated that the feelings the employees best resemble those of people working a managerial job. The comparison was also done using a one-sample t-test. Significant differences for the managerial job family were revealed between all core job dimensions ($p < .05$). The comparative study on the sales jobs did not reveal any significant differences.

The following conclusions can be drawn from the results of this investigation:

1. Employees felt most strongly about their sense of work responsibility due to the autonomy experienced in doing the job.
2. Employees felt least strongly about the meaningfulness of their job due to the degree in which they felt the job required a variety of different activities, allowed for the completion of entire tasks, and the impact the job has on the lives of others.
3. Employees indicated a strong desire to experience stimulating work and the opportunity to exercise creativity and independent thought; however, their feelings towards the core job dimensions produced a low motivating potential score.
4. When compared to the national norms of the managerial job family, this sample of employees perceived their jobs as less motivating.
5. A job high in motivating potential must be high on at least one of the three job dimensions (skill variety, task significance, task identity) that prompt the psychological state establishing an employee's feelings of meaningfulness in his or her job.
6. A job high in motivating potential must be high on autonomy to instil the psychological state that establishes an employee's feelings of accountability and responsibility in his or her job.
7. A job high in motivating potential must be high on feedback to instil the psychological state that establishes an employee's awareness of how effectively he or she performs the job.
8. Employees with a strong need for professional growth will respond more positively to jobs that are high on the core job dimensions.

These precepts are supported by the descriptions the employees provided regarding their core job dimensions that affected their motivating potential score. As illustrated in the Job Characteristic Model, careful attention should be given to the core job dimensions (skill variety, task identity, task significance, autonomy, feedback) that shape the psychological states (experienced meaningfulness, experienced responsibility, and knowledge of results) and which determine the personal and work outcomes of employees. This study should be viewed as another contribution to the general understanding of employee perceptions by using the Job Characteristics Model and Job Diagnostic Survey in an educational setting

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CAPITAL BUDGETING PRACTICES IN MANUFACTURING SECTOR IN INDIA: A SURVEY ANALYSIS**DR. KARAM PAL**

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ABSTRACT

The present study aims at understanding the behaviour of financial executives of Indian manufacturing sector with respect to their capital budgeting practices. Textiles and pharmaceutical industries are considered for giving a concise representation of manufacturing sector in India. The survey analyses the responses of financial executives of the firms for deriving the details on the characteristics like size, growth, leverage and profitability. Independent sample t-test and Multivariate Probit Regression model are applied to check the significance of the results. The study reveals that firms' size significantly affect the practices of capital budgeting and cost of capital. Large firms frequently use discounted cash flow techniques and CAPM while assessing the financial feasibility of an investment opportunity. The executives of small firms still rely on payback criterion. The IRR method is more popular than NPV method. The large firms are more likely to use sophisticated project risk analysis techniques, such as risk-adjusted discount rate, decision tree, and (Monte Carlo) simulation, than the small firms. High growth firms are more likely to use DCF capital budgeting techniques.

KEYWORDS

Capital budgeting, cost of capital, discount rate, size, growth, leverage, profitability, manufacturing sector

INTRODUCTION

Manufacturing sector is the backbone of our economy. It stimulates productivity, employment, and growth and fortifies agriculture and service sector. India is fast emerging as a global manufacturing hub. Indian textile industry is one of the leading textile industries in the World. Nearly 40 per cent of the textile produced in the country is exported and the textile sector is the biggest employment generator after agriculture. The sector is expected to generate 12 million new jobs by 2010. It is a major export earning industry. For a long time such exports were guided by the Multiple-Fibre Arrangements (MFA) of 1974, which has handled national quotas for exports of textiles. But this act has been dismantled since 2005 (Bhandari *et al.*, 2007). As textile industry is wider in product range and most of the textile production units are composite mills. Hence, all types of textile firms are taken together for the study undertaken. The Indian pharmaceutical industry (IPI) has grown from a mere US\$ 0.32 billion turnover in 1980 to approximately US\$ 21.26 billion in 2009-10. India now ranks 3rd in terms of volume of production (10% of global share) and 14th largest by value. The main activities of the IPI can be broadly classified into two categories: (i) production of bulk drugs and (ii) production of formulations. The bulk drug business is essentially a commodity business, whereas the formulation business is primarily a market driven and brand oriented business. The MNCs have continued to focus only on the formulation business to date. The IPI (including both the MNCs and the domestic firms) meets about 90% of the country's bulk drug requirement and most of the demand for formulations (Saranga and Phani, 2009). Since a majority of the Indian firms are producing both bulk as well as formulations, these are considered together for the purpose of the present study.

Corporate financial practices is a topic of concern and popular among researchers, corporates and academicians. The popular studies about the corporate financial practices are Graham and Harvey's (2001) survey of 392 CFO's about the cost of capital, capital budgeting, capital structure and dividend practices and Anand's (2002) survey of 81 CFO's on corporate finance practices. The present paper aims at understanding the behaviour of 48 financial executives of Indian manufacturing sector with respect to their capital budgeting practices. Textile and pharmaceutical industries are considered for giving a concise representation of manufacturing sector in India. It is expected that the findings of the study in context of Indian manufacturing sector will be of use to academe and practitioners in learning how Indian managers take decisions.

THE REVIEW OF LITERATURE

The decision about which assets to buy is investment decision or capital budgeting decision. Capital budgeting is a significant function because many available investment alternatives compete for the firm's limited resources. Capital budgeting or investment decisions are of considerable importance to the firms since they tend to determine its value by influencing its growth, profitability and risk (Pandey, 2008). Capital budgeting decisions have always been quite programmed due to their irreversible nature and their effect on survival and growth of the firm. But they have become more strategic as a result of liberalization and globalization. One of the innumerable changes that Indian economy has experienced after liberalization and globalization was the entry of MNCs in Indian market. The competition is not only at the market place

which is visible but it is also at the level of planning and control mechanism prevalent in the MNCs and their Indian counterparts. So the environment in which investment decisions are being taken has become quite competitive. Capital budgeting decisions involve certain sacrifice of a present satisfaction in exchange for a future return. It is an arbitrage overtime that involves a degree of risk. A typical investment or capital budgeting decision involves certain sacrifice of resources now in exchange for an uncertain but hopefully larger inflow of resources in the near or distant future (Jain and Kumar, 1998). Perhaps no other area of management is as important to the success of a firm as good decision-making in acquisition and replacement of capital equipment. A number of studies have been conducted in India and abroad on capital budgeting practices being followed by the corporate world. The empirical studies have been divided into two categories. The first category of the studies have primarily analyzed the financial goals pursued by the firms and the second category of the studies have examined the capital budgeting techniques followed by the corporate sector.

RESEARCH ON FINANCIAL GOALS: Bhaskar and McNamee (1983) after conducting a study of top 500 firms observe that financial decision-makers have a single or multiple goals. The survey concludes 'profitability' as primary goal. Pandey and Bhat's (1990) survey of 57 Indian firms finds that, in practice, managers in India do not aim at maximizing the market value of their firms while making financial decisions. Patel (1992) carries out a survey with the sample size of 100 firms the response rate of 23 percent concludes that 40 percent of the firms favour 'Return on investment' followed by 'Earning per share' and 'aggregate earnings'. He further concludes that in spite of the financial objective of firms has undergone a good change over a period of time; they are focusing on objectives related to profitability. The primary aim of corporate management is to maximize shareholders' value in a legal and ethical manner (Friedman, 1970; Rappaport, 1990; Jensen and Meckling, 1999).

STUDIES ON CAPITAL BUDGETING TECHNIQUES AND COST OF CAPITAL WITH RISK ANALYSIS: Brigham (1975) in a survey of 33 large firms finds that 94 per cent firms use NPV, IRR or profitability index criterion in their capital budgeting decisions. 39 per cent of the respondents revise hurdle rates less than once a year and they do not have a system for its review. Ross (1976) developed an alternative to CAPM, known as arbitrage pricing theory (APT). Pareja and Nieto (1986) in their survey suggest that the degree to which capital budgeting tools are used is higher for large firms than for small firms. Larger firms not only have more numerous and complex problems but also more of the resources needed to use scientific approaches. Pandey (1989) in his study of 14 firms examines the capital budgeting policies and practices of firms in India and compares them with those of U.S.A. and U.K. The study reveals that payback period method is most widely used followed by IRR as a capital budgeting technique. The project risk is assessed through sensitivity analysis and conservative forecasts. Dhanker (1995) in an attempt to examine seventy five large scale manufacturing firms in the private sector having paid up capital over one crore through mailed questionnaire, observes that the 16 per cent firms are using DCF methods (i.e. NPV, IRR and PI), while traditional methods (i.e. PB, ARR) are applied by 33 percent of the respondent firms. It is further found out that firms incorporate risk either by 'Adjusting the discount rate' (51 percent) 'shortening the payback period' (45 percent) with the help of methods like 'Capital Asset Pricing Model'. Fama and French (1997) have identified three factors, namely market factor, size factor and book-to-market factor, which determine the expected stock return. They estimate the risk premium for each factor and factor sensitivities based on the study of period 1963 to 1994. Industry-wise expected risk premiums based on three-factor model and the CAPM are reported. Brealey and Myers (2000) observe that a few large corporations use payback period or accounting rate of return as their primary method of project choice. Most use discounted cash flow methods and for many DCF means IRR and not NPV. The preference to high IRR projects may not add much to the value of the firm because highest IRR may be found in short-lived projects requiring little up-front investment. Hall (2000) selected 358 firms and usable response was collected from 65 respondents, which suggests that the most important stages in the capital budgeting process are project definition and cash flow estimation not financial analysis. An important finding of the research is that in evaluation of capital investment projects, South African firms seem to prefer return on investment internal rate of return as method to determine feasibility of a project. Jain and Yadav (2000) examine the corporate practice in India, Singapore and Thailand. The study analyses the secondary data of 238 Indian, 86 Singaporean and 126 Thai firms in addition to primary data obtained through survey. As regard financing pattern of capital investments, firms in India and Singapore uses long-term sources to finance fixed assets whereas Thai firms seem to use short-term debt to finance long-term investments. Vast majority of the sample firms from all the three countries are using combination of traditional and discount cash flow techniques for investment decisions. Another notable finding of the survey is that IRR is preferred to NPV both in India and Singapore. Graham and Harvey (2002) examine capital budgeting, cost of capital and capital structure asking more than 100 questions with a sample study of 392 respondents. They argue that large firms rely heavily on present value techniques and CAPM, while small firms are relatively likely to use the payback criterion. The firms with high debt ratios are significantly more likely to use NPV and IRR than firms with low debt ratios. Large firms are more likely to use risk-adjusted discount rate than small firms. Anand (2002) conducted a survey 500 firms of India to find out corporate financial practices with respect to capital budgeting decisions, cost of capital, capital structure and dividend decisions. He argues that large firms rely heavily on PV techniques and CAPM, while small firms are likely to use payback criterion. The IRR is more popular than NPV. Irala (2006) observes that the results of his survey are very much in line with the propositions of theory. The study concludes that corporate Indian is fast catching the new methodologies. While 40 percent of the respondents considered EVA as the goal of the firm, 44 percent are using CAPM to estimate the cost of equity. However, 44 percent still preferring pay back period as the project selection tool. Verma *et al.* (2008) tried to unveil the status of capital budgeting in India particularly after the advent of full-fledged globalization and in the era of cutthroat competition by conducting a comprehensive primary survey of 30 CFOs/CEOs of manufacturing firms in India to find out which capital budgeting techniques is more preferred, discounted or non-discounted. The survey reveals that with the advent of globalization and mounting competition among manufacturing firms, these firms pay greater emphasis on making sound investment decisions. However, among the traditional techniques, payback period method is still preferred in majority of companies as a supplement to the DCF techniques. Majority of the firms in India, use the Weighted Average Cost of Capital (WACC) to calculate the cost of capital, which is used as a discount or cut off rate. Kapil Deb (2010) from a survey concludes that respondent's preference towards use of internal funds indicates that investment in positive NPV project is the first choice and they rank cash flow streams and profitability of project as most attracted to undertake investment decisions. NPV and payback period methods are found to be the most preferred methods for evaluating the projects.

RESEARCH DESIGN AND METHODOLOGY

The survey is planned to identify financial objective and capital budgeting practices followed by manufacturing sector in India and focused on three areas: financial objectives, capital budgeting and cost of capital. For this purpose, a questionnaire is drafted based on a comprehensive review of the existing literature. The final questionnaire contained 10 questions with 54 sub parts.

The survey asked the financial executives to respond to most of the questions on the Likert scale of 0 to 5 (where 0 means "not used;" 1 means "unimportant;" and 5 means "very important"). This move provided data on the method used and relative importance of each method in the decision-making process.

The sample firms are selected from listed firms of National Stock Exchange during the period 1995-1996 to 2007-2008. The criterion for sample selection was:

1. The company should be continuously listed on stock exchange and should have financial data available for the period under study.
2. The sample firms should have declared the dividend for five or more than five years during the period under study.

The universe consisted of 235 firms (125 textile firms and 110 pharmaceutical firms). Secondary data related to respondent firms is collected from the CMIE database PROWESS. In total, 48 complete questionnaires (31 from textile and 17 from pharmaceutical) are received. For the analysis, the firms have been classified into small and large; low growth and high growth; low levered and high levered and low profitability and high profitability based on the median values. Independent sample t-test is used to compare on the basis of size, growth, leverage and profitability. Multivariate Probit Regression is run for further analysis. In any such survey, it is likely that the firm that does not respond on time may have a non-response bias. Whatever the respondents have said is believed to be their true response and hence, no statistical test has been performed to study non-response bias and the consistency of individuals' responses.

RESULTS AND DISCUSSION

The firms range from small (small firms have sales less than or equal to Rs. 3.43 billion; have assets less than or equal to Rs. 3.73 billion; and have a market capitalization less than or equal to Rs. 1.22 billion) to very large having sales more than Rs. 3.43 billion, assets more than Rs. 3.73 billion and market capitalization more than Rs. 1.22 billion). The median P/E ratio is 9.87 percent it can refer the firms having P/E more than 9.87 percent as growth firms and remaining as non-growth firms. The median growth rate of sales is 13.66 percent and growth rate of assets is 12.56 percent. The median ROCE is 6.78 percent and the long-term debt to total asset ratio is 0.19.

PRIMARY OBJECTIVE OF FINANCIAL MANAGEMENT: It is generally agreed that financial goal of the firm should be shareholder's wealth maximization, which is reflected in the market value of the firm's shares. It is argued that managers are biased by survival, self-government, self-sufficiency and motivation and concludes that the basic financial objective of the managers is maximization of corporate wealth rather than shareholder's wealth. In practice, managers may not necessarily act in the best interest of shareholders. Mainly four important objectives are pursued by Indian firms: maximizing earning before interests and taxes; maximizing net present value; maximizing economic value added and maximizing market value added. The respondents are asked to indicate the relative importance of different objectives of financial management in their organizations on a five point scale, where 0 and 1 are taken as unimportant or not used, 2 and 3 means important and 4 and 5 means very important for organization.

TABLE 1: SURVEY RESPONSE TO THE RELATIVE IMPORTANCE OF OBJECTIVE OF FINANCIAL MANAGEMENT IN ORGANIZATION WITH OTHER FIRM CHARACTERISTICS

| | | % Very Important | Mean | Size (Sales) Small Large | Size (Assets) Small Large | Size (Mkt.Cap) Small Large |
|-------|----------------------|------------------|------|-----------------------------|------------------------------|-------------------------------|
| (i) | To maximize EBIT/EPS | 81.3 | 4.06 | 3.79 4.33* | 3.92 4.21 | 4.00 4.13 |
| (ii) | To maximize NPV | 70.8 | 3.94 | 3.83 4.04 | 3.96 3.92 | 3.75 4.13 |
| (iii) | To maximize EVA | 69.6 | 3.61 | 3.25 4.00** | 3.21 4.05** | 3.64 3.58 |
| (iv) | To maximize MVA | 67.4 | 3.85 | 3.46 4.27* | 3.46 4.27* | 3.82 3.88* |

| | | % Very Important | Mean | P/E Low High | Growth (Sales) Low High | Growth (Assets) Low High |
|-------|----------------------|------------------|------|-----------------|----------------------------|-----------------------------|
| (i) | To maximize EBIT/EPS | 81.3 | 4.06 | 3.79 4.33 | 4.21 3.96 | 4.00 4.17 |
| (ii) | To maximize NPV | 70.8 | 3.94 | 3.63 4.25* | 3.83 3.67 | 3.46 4.04 |
| (iii) | To maximize EVA | 69.6 | 3.61 | 3.36 3.83 | 3.23 3.76* | 3.22 3.83 |
| (iv) | To maximize MVA | 67.4 | 3.85 | 3.64 4.04 | 3.59 3.96 | 3.52 4.04* |

| | | % Very Important | Mean | Leverage Low High | ROCE Low High | Industry Textile Pharma |
|-------|----------------------|------------------|------|----------------------|------------------|----------------------------|
| (i) | To maximize EBIT/EPS | 81.3 | 4.06 | 4.04 4.08 | 4.29 3.83 | 4.00 4.18 |
| (ii) | To maximize NPV | 70.8 | 3.94 | 4.25 3.63 | 3.71 4.17 | 3.48 4.76 |
| (iii) | To maximize EVA | 69.6 | 3.61 | 4.45 2.83** | 2.96 4.26** | 3.03 4.59 |
| (iv) | To maximize MVA | 67.4 | 3.85 | 4.41 3.33* | 3.22 4.48** | 3.45 4.53 |

*, ** and *** show the 10%, 5% and 1% level of significance respectively.

While 81.3 percent of the respondents consider the objective to maximize Earnings Before Interest and Taxes (EBIT) and Earnings Per Share (EPS) as very important. Nearly 71 percent of the respondents consider the objective to maximize Net Present Value (NPV) of their organizations. About 70 percent of the respondents are significantly more likely to use maximization of the spread between Return on Assets (ROA) and Weighted Average Cost of Capital (WACC), i.e. Economic Value Added (EVA).

Analysis is made on the survey responses conditional on each separate firm characteristic. The sample is split into the large firms versus small firms. On each sample the analysis is repeated of the other firm characteristics also such as size, growth, leverage, profitability and industry. Table 1 shows the relative importance of the financial objective of the firm with respect to different characteristics of firms. It can be inferred that large firms (sales and assets basis) are significantly more likely to follow the objective of maximizing EVA as compared to small firms (score of 4.00 versus 3.25 and 4.05 versus 3.21 for EVA and 4.27 versus 3.46 for MVA). The high growth firms (P/E basis) are following the objective maximizing NPV as compared to low growth firms (score of 4.25 versus 3.63). The high growth firms (sales basis) are significantly more likely to use maximizing EVA as their objective of financial management than low growth firms (score of 3.76 versus 3.23). The firms with high growth in assets are giving significantly more importance to the maximization of MVA as a corporate objective than firms with low growth in assets (score

of 4.04 versus 3.52). The firms with low debt ratio are significantly more likely to follow maximizing EVA and MVA as financial objective as compared to the firms with low debt ratio (score of 4.45 versus 2.83 and 4.41 versus 3.33 respectively). High profit firms are giving more importance to EVA and MVA as corporate objective as compared to low profit firms (score of 4.26 versus 2.96 and 4.48 versus 3.22 respectively).

CAPITAL BUDGETING PRACTICES: This part of the paper is related with the capital budgeting tools and techniques being practiced by the manufacturing sector in India and how popular are they? Eighty three percent of respondents consider IRR as very important/important (response of 5 and 4) capital expenditure evaluation criterion (mean 4.02). Nearly seventy three percent of the respondents use NPV (mean 3.6) as shown in Table 2. The pay back period method is also popular (sixty five percent).

TABLE 2: SURVEY RESPONSE TO THE RELATIVE IMPORTANCE OF METHOD FOR EVALUATING CAPITAL EXPENDITURE WITH OTHER FIRM CHARACTERISTICS

| | | % V. Imp. | Mean | Size (Sales) Small Large | | Size (Assets) Small Large | | Size (Mkt.Cap) Small Large | |
|-------|---------------------------|-----------|------|-----------------------------|---------|------------------------------|---------|-------------------------------|---------|
| (i) | Pay back Period | 64.6 | 3.79 | 4.38 | 3.21*** | 4.38 | 3.21*** | 3.79 | 3.79 |
| (ii) | Accounting Rate of Return | 47.9 | 3.75 | 3.79 | 3.71 | 3.79 | 3.71 | 3.54 | 3.96 |
| (iii) | Net Present Value | 72.9 | 3.60 | 2.71 | 4.50*** | 2.83 | 4.38*** | 2.71 | 4.50*** |
| (iv) | Internal Rate of Return | 83.3 | 4.02 | 3.42 | 4.63*** | 3.58 | 4.46** | 3.46 | 4.58*** |
| (v) | Profitability Index | 43.8 | 3.08 | 3.25 | 2.92 | 3.17 | 3.00 | 2.83 | 3.33 |
| (vi) | Break Even Analysis | 50.0 | 3.19 | 2.79 | 3.58 | 2.67 | 3.71 | 3.13 | 3.25 |

| | | % V. Imp. | Mean | P/E Low High | | Growth (Sales) Low High | | Growth (Assets) Low High | |
|-------|---------------------------|-----------|------|-----------------|---------|----------------------------|---------|-----------------------------|---------|
| (i) | Pay back Period | 64.6 | 3.79 | 3.71 | 3.88 | 3.75 | 3.83 | 3.46 | 4.13 |
| (ii) | Accounting Rate of Return | 47.9 | 3.75 | 3.75 | 3.75 | 3.25 | 4.25*** | 3.25 | 4.25*** |
| (iii) | Net Present Value | 72.9 | 3.60 | 3.38 | 3.83** | 3.21 | 4.00 | 3.17 | 4.04** |
| (iv) | Internal Rate of Return | 83.3 | 4.02 | 3.79 | 4.25*** | 3.67 | 4.38** | 3.67 | 4.38** |
| (v) | Profitability Index | 43.8 | 3.08 | 3.29 | 2.88 | 2.54 | 3.63 | 2.83 | 3.33 |
| (vi) | Break Even Analysis | 50.0 | 3.19 | 3.50 | 2.88 | 3.00 | 3.38 | 3.29 | 3.08 |

| | | % V. Imp. | Mean | Leverage Low High | | ROCE Low High | | Industry Textile Pharma | |
|-------|---------------------------|-----------|------|----------------------|---------|------------------|---------|----------------------------|---------|
| (i) | Pay back Period | 64.6 | 3.79 | 4.63 | 2.96*** | 3.08 | 4.50*** | 3.26 | 4.26*** |
| (ii) | Accounting Rate of Return | 47.9 | 3.75 | 4.17 | 3.33 | 3.17 | 4.33*** | 3.19 | 4.76 |
| (iii) | Net Present Value | 72.9 | 3.60 | 2.96 | 4.25*** | 3.58 | 3.63 | 3.39 | 4.00 |
| (iv) | Internal Rate of Return | 83.3 | 4.02 | 3.83 | 4.21 | 3.71 | 4.33** | 3.84 | 4.35 |
| (v) | Profitability Index | 43.8 | 3.08 | 3.38 | 2.79 | 2.58 | 3.58 | 2.90 | 3.41*** |
| (vi) | Break Even Analysis | 50.0 | 3.19 | 2.58 | 3.79 | 3.67 | 2.71 | 3.55 | 2.53 |

*, ** and *** show the 10%, 5% and 1% level of significance respectively.

The most interesting results come from examining the responses conditional on firm size, growth, leverage and profitability. Large firms (sales, assets and market capitalization basis) are significantly more likely to use NPV and IRR than small firms (score of 4.50 versus 2.71, 4.38 versus 2.83 and 4.5 versus 2.71 for NPV and score of 4.63 versus 3.42, 4.46 versus 3.58 and 4.58 versus 3.46 for IRR). Small firms (sale and asset basis) are more likely to use payback period method than large firms (score of 4.38 versus 3.21). High growth firms are significantly more likely to use NPV, IRR and PI as compared to low growth firms (score of 3.83 versus 3.38 and 4.04 versus 3.17 for NPV, score of 4.25 versus 3.79, 4.38 versus 3.67 and 4.38 versus 3.67 for IRR). Growth firms (sales and assets basis) are also significantly more likely to use ARR as method of capital budgeting (score of 4.25 versus 3.25). The firms with low leverage (long term debt to total assets) are significantly more likely to use payback period method (score of 4.63 versus 2.96) than the firms with high leverage, which are significantly more likely to use NPV method (score of 4.25 versus 2.96). High profit firms (on the basis of return on capital employed) whether small or large, use payback period method, accounting rate of return and Internal rate of return method. The pharmaceutical firms are more likely to use payback period method and profitability index method (score of 4.26 versus 3.26 and 3.41 versus 2.90). The study reveals that other than NPV and IRR, the pay back period is the most frequently used capital budgeting technique (mean 3.79).

TABLE 3: SURVEY RESPONSE TO THE METHODOLOGY FOLLOWED TO ASSESS THE PROJECT RISK

| | | % V. Imp. | Mean | Size (Sales) Small Large | | Size (Assets) Small Large | | Size (Mkt.Cap) Small Large | |
|-------|--|-----------|------|-----------------------------|---------|------------------------------|---------|-------------------------------|---------|
| (i) | Shorter payback period | 54.2 | 0.54 | 0.75 | 0.33 | 0.79 | 0.29 | 0.58 | 0.50 |
| (ii) | Higher cut off rate for risky project | 41.7 | 0.41 | 0.54 | 0.29** | 0.50 | 0.33* | 0.46 | 0.37 |
| (iii) | Sensitivity analysis | 72.9 | 0.72 | 0.71 | 0.75 | 0.71 | 0.75 | 0.83 | 0.62*** |
| (iv) | Scenario analysis | 45.8 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 |
| (v) | Certainty Equivalent | 10.4 | 0.46 | 0.00 | 0.20 | 0.04 | 0.17 | .00 | 0.21 |
| (vi) | Decision Tree analysis | 8.3 | 0.10 | 0.00 | 0.17*** | 0.00 | 0.17*** | 0.04 | 0.12 |
| (vii) | Probabilistic (Monte Carlo) Simulation | 6.3 | 0.06 | 0.00 | 0.12*** | 0.04 | 0.08 | 0.00 | 0.12*** |

| | | % V. Imp. | Mean | P/E Low High | Growth (Sales) Low High | Growth (Assets) Low High |
|-------|--|--------------|------|-----------------|----------------------------|-----------------------------|
| (i) | Shorter payback period | 54.2 | 0.54 | 0.42 0.67 | 0.58 0.50 | 0.50 0.58 |
| (ii) | Higher cut of rate for risky project | 41.7 | 0.41 | 0.42 0.42 | 0.50 0.33 | 0.50 0.33* |
| (iii) | Sensitivity analysis | 72.9 | 0.72 | 0.75 0.71 | 0.71 0.75 | 0.75 0.71 |
| (iv) | Scenario analysis | 45.8 | 0.45 | 0.54 0.37 | 0.50 0.42 | 0.50 0.42 |
| (v) | Certainty Equivalent | 10.4 | 0.46 | 0.00 0.20 | 0.12 0.08 | 0.08 0.12 |
| (vi) | Decision Tree analysis | 8.3 | 0.10 | 0.08 0.08 | 0.04 0.12** | 0.08 0.08 |
| (vii) | Probabilistic (Monte Carlo) Simulation | 6.3 | 0.06 | 0.08 0.04 | 0.04 0.08 | 0.08 0.04 |

| | | % V. Imp. | Mean | Leverage Low High | ROCE Low High | Industry Textile Pharma |
|-------|--|--------------|------|----------------------|------------------|----------------------------|
| (i) | Shorter payback period | 54.2 | 0.54 | 0.71 0.37 | 0.50 0.58 | 0.48 0.65 |
| (ii) | Higher cut of rate for risky project | 41.7 | 0.41 | 0.58 0.25** | 0.37 0.46 | 0.45 0.35 |
| (iii) | Sensitivity analysis | 72.9 | 0.72 | 0.67 0.79 ** | 0.79 0.67 | 0.77 0.64* |
| (iv) | Scenario analysis | 45.8 | 0.45 | 0.33 0.58 | 0.46 0.46 | 0.48 0.41 |
| (v) | Certainty Equivalent | 10.4 | 0.46 | 0.08 0.13 | 0.04 0.17 | 0.03 0.23 |
| (vi) | Decision Tree analysis | 8.3 | 0.10 | 0.04 0.13** | 0.08 0.08 | 0.06 0.12 |
| (vii) | Probabilistic (Monte Carlo) Simulation | 6.3 | 0.06 | 0.04 0.08 | 0.04 0.08 | 0.06 0.06 |

*, ** and *** show the 10%, 5% and 1% level of significance respectively.

The respondents are asked to indicate the methodology used by them for assessing project risk in their investment decision process. These techniques are shorter payback period, higher cut-off rate for risky project, sensitivity analysis, scenario analysis, certainty equivalent, decision tree and probabilistic (Monte Carlo) simulation.

The results (Table 3) disclose that sensitivity analysis; shorter payback period; scenario analysis and higher cut off rate for risky projects are most widely used techniques for assessing the project risk. The respondents use more than one technique in analyzing the project risk in investment decisions. Nearly 73 percent of the respondents use sensitivity analysis, 54 percent of the respondents employ shorter payback period and 46 percent of the respondents employ scenario analysis. The small firms (market capitalization basis) use sensitivity analysis for assessing project risk more significantly than large firms (83 percent versus 62 percent). A very few respondents use decision tree analysis and (Monte Carlo) simulation to analyze the project risk. Large firms use the decision tree analysis more than small firms (17 percent). Nearly 42 percent of the respondents use higher cut-off rate for risky projects, while assessing the project risk. Small firms (sales and assets basis) use higher cut-off rate for risky projects than large firms (54 percent versus 29 percent and 50 percent versus 33 percent). High growth firms (sales basis) are significantly more likely to use decision tree analysis as compared to low growth firms (12 percent versus 4 percent) and low growth firms (assets basis) are more likely to use higher cut off rate for risky project (50 percent versus 33 percent). High-levered firms are more likely to use sensitivity analysis and decision tree analysis (79 percent versus 67 percent and 13 percent versus 4 percent), whereas low-levered firms are more likely to use higher cut off rate for risky project (58 percent versus 25 percent). The textile firms are significantly more likely to use sensitivity analysis than pharmaceutical firms (77 percent versus 64 percent).

COST OF CAPITAL: This part of the paper endeavors to find out how firms calculate the cost of capital. The study explores the methods followed to estimate the cost of debt and cost of equity capital of the firm. The study also explores whether firms use the Capital Asset Pricing Model to estimate the cost of equity capital. How do firms find out their estimate of beta? What do they use as risk free rate? Which cost of debt is employed for computing cost of capital? What kind of weights is being used to determine WACC? And how frequently the firms reassess the cost of capital? The respondents are asked about the discount rate employed to discount net cash flows of the firm. The discount rate response lies in 8 percent to 24 percent. The average discount rate (minimum expected rate of return) is found 14 percent in textile firms and 13.59 percent in pharmaceutical firms and overall it is 13.85 percent.

TABLE 4: SURVEY RESPONSE TO THE METHOD OF COMPUTING THE RATE OF DISCOUNT FOR DISCOUNTING CASH FLOWS

| | | % Imp. | Mean | Size (Sales) Small Large | Size (Assets) Small Large | Size (Mkt.Cap) Small Large |
|-------|--|--------|------|-----------------------------|------------------------------|-------------------------------|
| (i) | Single discount rate based on company 's overall weighted average cost of capital (WACC) | 70.8 | 0.71 | 0.62 0.79*** | 0.58 0.83*** | 0.67 0.75 |
| (ii) | Multiple risk-adjusted discount rates are used; (the riskier the investment the higher the rate) | 16.7 | 0.17 | 0.20 0.12 | 0.25 0.08 | 0.20 0.12 |
| (iii) | Cost of specific capital used to finance the project | 22.9 | 0.23 | 0.33 0.12*** | 0.33 0.12*** | 0.29 0.167 |

| | | % Imp. | Mean | P/E Low High | Growth (Sales) Low High | Growth (Assets) Low High |
|-------|--|--------|------|-----------------|----------------------------|-----------------------------|
| (i) | Single discount rate based on company 's overall weighted average cost of capital (WACC) | 70.8 | 0.71 | 0.58 0.83*** | 0.75 0.67 | 0.62 0.79 |
| (ii) | Multiple risk-adjusted discount rates are used; (the riskier the investment the higher the rate) | 16.7 | 0.17 | 0.17 0.17 | 0.12 0.21 | 0.17 0.17 |
| (iii) | Cost of specific capital used to finance the project | 22.9 | 0.23 | 0.37 0.08*** | 0.21 0.25 | 0.33 0.12 |

| | | % Imp. | Mean | Leverage Low High | ROCE Low High | Industry Textile Pharma |
|-------|--|--------|------|----------------------|------------------|----------------------------|
| (i) | Single discount rate based on company 's overall weighted average cost of capital (WACC) | 70.8 | 0.71 | 0.62 0.79 | 0.5 0.67 | 0.65 0.82 |
| (ii) | Multiple risk-adjusted discount rates are used; (the riskier the investment the higher the rate) | 16.7 | 0.17 | 0.25 0.08 | 0.12 0.21 | 0.16 0.18 |
| (iii) | Cost of specific capital used to finance the project | 22.9 | 0.23 | 0.29 0.17 | 0.25 0.21 | 0.32 0.06*** |

*, ** and *** show the 10%, 5% and 1% level of significance respectively.

In sequence to the question about discount rate employed by firm to discount net cash flows, the respondent are asked to indicate as to which method they follow for computation of rate of discount (minimum rate of return) for capital budgeting decisions. The respondents are given three options as single discount rate based on company's overall WACC; multiple risk adjusted discount rates (the riskier the investment, higher the rate) and cost of specific capital used to finance the project (i.e. the discount rate for a project that will be financed entirely with the retained earnings is cost of retained funds). Nearly 71 percent of the respondents use single discount rate based on company's overall WACC to evaluate the projects. Nearly 17 percent of the respondents use multiple risk adjusted discount rates depending on the risk characteristics of the projects and about 23 percent of the respondents use cost of specific capital used to finance the projects. Large firms (on the basis of sales and assets) are more likely to use single discount rate based on company's overall Weighted Average Cost of Capital as compared to small firms (79 percent versus 62 percent and 83 percent versus 58 percent). Small firms are more likely to use cost of specific capital used to finance the project as compared to large firms (33 percent versus 12 percent). High growth firms P/E basis) are more likely to use WACC (83 percent versus 58 percent) whereas low growth firms prefer cost of specific capital used to finance the project (37 percent versus 8 percent). Textile firms are more likely to use cost of specific capital to finance the project as compared to pharmaceutical firms (32 percent versus 6 percent).

Table 5 explores the method followed by manufacturing sector in India to estimate the cost of equity. The results indicate that CAPM is the most popular method (37.5 percent) along with Gordon's dividend model (33.3 percent) of estimating cost of equity capital. The third most popular method is earning yield method. Only a few firms estimate the cost of equity with dividend yield method (mean 1.46) and multiple factor model (mean 1.00). This is sharply in conformity with the findings of Gitman and Mercurio (1982) who find that 31.2 percent of the respondents of the survey use dividend discount model to establish their cost of capital.

The cross sectional analysis is particularly illuminating, large firms is significantly giving more importance to CAPM than the small firms (score of 3.79 versus 2.50). Large firms (Market capitalization basis) are more inclined to use a cost of equity capital that is determined by dividend discount model and CAPM (score of 3.46 versus 2.79 and 3.50 versus 2.79). Low growth firms (P/E basis) prefer to use dividend yield method as compared to high growth firms (score of 1.92 versus 1.00). High growth firms (sales and assets basis) prefer to use Gordon's dividend discount model to estimate cost of equity as compared to low growth firms (score of 3.33 versus 2.92 and 3.71 versus 2.54). Highly profitable firms are giving significantly less importance to CAPM while estimating cost of equity than less profitable firms (score of 3.08 versus 3.21). Very less number of respondents gives importance to multifactor model (mean 8.3) and that also significantly used by profitable concerns. Pharmaceutical firms are significantly more likely to use Gordon's dividend model as compared to textile firms (score of 4.24 versus 2.52).

TABLE 5: SURVEY RESPONSE TO THE METHOD TO ESTIMATE THE COST OF EQUITY FOR REACHING AT THE WACC

| | | % V. Imp. | Mean | Size (Sales) Small Large | Size (Assets) Small Large | Size (Mkt.Cap) Small Large |
|------|-----------------------------|-----------|------|-----------------------------|------------------------------|-------------------------------|
| (i) | Dividends Yield (DPS / MPS) | 16.7 | 1.46 | 1.21 1.71 | 1.33 1.58 | 1.46 1.46 |
| (ii) | Earnings yield (EPS / MPS) | 31.3 | 2.33 | 2.58 2.08 | 2.54 2.13 | 2.67 2.00 |

| | | | | | | |
|-------|------------------------------------|------|------|--------------|-----------|-------------|
| (iii) | Gordon's Dividend discount model | 33.3 | 3.13 | 3.29 2.96 | 3.17 3.08 | 2.79 3.46** |
| (iv) | Capital Asset Pricing Model (CAPM) | 37.5 | 3.15 | 2.50 3.79*** | 2.71 3.58 | 2.79 3.50** |
| (v) | Multi-factor model | 8.3 | 1.00 | 1.29 0.71 | 1.38 0.63 | 1.08 0.92 |

| | | % V. Imp. | Mean | P/E Low High | Growth (Sales) Low High | Growth (Assets) Low High |
|-------|------------------------------------|-----------|------|-----------------|----------------------------|-----------------------------|
| (i) | Dividends Yield (DPS / MPS) | 16.7 | 1.46 | 1.92 1.00** | 1.33 1.58 | 1.67 1.25 |
| (ii) | Earnings yield (EPS / MPS) | 31.3 | 2.33 | 2.42 2.25 | 2.54 2.13 | 2.58 2.08 |
| (iii) | Gordon's Dividend discount model | 33.3 | 3.13 | 3.08 3.17 | 2.92 3.33*** | 2.54 3.71** |
| (iv) | Capital Asset Pricing Model (CAPM) | 37.5 | 3.15 | 3.00 3.29 | 3.17 3.13 | 3.13 3.17 |
| (v) | Multi-factor model | 8.3 | 1.00 | 1.25 0.75 | .83 1.17 | 1.00 1.00 |

| | | % V. Imp. | Mean | Leverage Low High | ROCE Low High | Industry Textile Pharma |
|-------|------------------------------------|-----------|------|----------------------|------------------|----------------------------|
| (i) | Dividends Yield (DPS / MPS) | 16.7 | 1.46 | 1.42 1.50 | 1.71 1.21 | 1.52 1.35 |
| (ii) | Earnings yield (EPS / MPS) | 31.3 | 2.33 | 2.71 1.96 | 2.29 2.38 | 2.39 2.24 |
| (iii) | Gordon's Dividend discount model | 33.3 | 3.13 | 3.42 2.83 | 2.71 3.54 | 2.52 4.24*** |
| (iv) | Capital Asset Pricing Model (CAPM) | 37.5 | 3.15 | 2.96 3.33 | 3.21 3.08*** | 3.16 3.12 |
| (v) | Multi-factor model | 8.3 | 1.00 | 1.33 0.67 | 0.75 1.25*** | 1.16 0.71 |

*, ** and *** show the 10%, 5% and 1% level of significance respectively.

In response to the question on the cost of debt employed by respondent firms to compute cost of capital, the results indicate that 73 percent of the respondents use current market rate at which company can borrow and 27 percent of the respondents use historical cost of debt for computing cost of capital.

TABLE 6 SURVEY RESPONSE TO THE WEIGHTS IN COMPUTING WEIGHTED AVERAGE COST OF CAPITAL (WACC)

| | | % Use | Size (Sales) Small Large | Size (Assets) Small Large | Size (Mkt.Cap) Small Large |
|-------|----------------------------------|-------|-----------------------------|------------------------------|-------------------------------|
| (i) | Book Value Weights | 29.2 | 33.3 5.0 | 33.3 25.0*** | 41.7 16.7 |
| (ii) | Market value weights | 62.5 | 50.0 75.0* | 54.2 70.8*** | 45.8 79.2** |
| (iii) | Target Capital structure weights | 8.3 | 16.7 0.00 | 12.5 4.2 | 12.5 4.2 |

| | | % Use | P/E Low High | Growth (Sales) Low High | Growth (Assets) Low High |
|-------|----------------------------------|-------|-----------------|----------------------------|-----------------------------|
| (i) | Book value weights | 29.2 | 41.7 16.7 | 37.5 20.8 | 41.7 16.7 |
| (ii) | Market value weights | 62.5 | 41.7 83.3*** | 58.3 66.7 | 50 75.0* |
| (iii) | Target Capital structure weights | 8.3 | 16.7 0.00 | 4.2 12.5 | 8.3 8.3 |

| | | % Use | Leverage Low High | ROCE Low High | Industry Textile Pharma |
|-------|----------------------------------|-------|----------------------|------------------|----------------------------|
| (i) | Book value weights | 29.2 | 25.0 33.3 | 41.7 16.7** | 41.9 5.9 |
| (ii) | Market value weights | 62.5 | 62.5 62.5 | 54.2 70.8 | 45.2 94.1*** |
| (iii) | Target Capital structure weights | 8.3 | 12.5 4.2 | 4.2 12.5 | 12.9 0.00 |

*, ** and *** show the 10%, 5% and 1% level of significance respectively.

Manufacturing firms in India uses all possible weights in computation of WACC. These weights are based on book value of the firm, market value of the firm and target capital structure. Table 6 explores the importance of weights used by the respondents in computing Weighted Average Cost of Capital. Market value weights are widely used (62.5 percent) followed by book value weights (29.2 percent). Nearly 8 percent of the respondents use target capital structure weights. Large firms (sales and market capitalization basis) are significantly more likely to use market value weights than small firms (75 percent versus 50 percent and 79.2 percent versus 45.8 percent). The high growth firms (P/E and assets basis) are significantly more likely to use market value weights than low growth firms (83.3 percent versus 41.7 percent and 75 percent versus 50 percent). The less profitable firms use book value weights significantly more than highly profitable firms (41.7 percent versus 16.7 percent). Pharmaceutical firms use market value weights significantly more than the textile firms (94 percent versus 45.2 percent).

Table 7: Survey response to the use of risk free rate and beta for CAPM in estimating cost of equity capital

| | | % Use | Size (Sales) Small Large | | Size (Assets) Small Large | | Size (Mkt.Cap) Small Large | |
|-------|--|-------|-----------------------------|---------|------------------------------|---------|-------------------------------|---------|
| | CAPM followed If yes, what do you use for risk free rate? | 37.5 | 25.0 | 50.0*** | 25.0 | 50.0*** | 29.17 | 45.83** |
| (i) | 91 days GOI Treasury bill rate | 50.0 | 50.0 | 58.3 | 50.0 | 58.3 | 71.4 | 45.5 |
| (ii) | 3 to 7 year GOI Treasury bill rate | 38.9 | 50.0 | 33.3 | 50.0 | 33.3 | 28.6 | 45.5 |
| (iii) | 10 year GOI Treasury bill rate | 11.1 | 00.0 | 8.3 | 00.0 | 8.3 | 00.0 | 9.1 |
| | What do you use as your beta factor? | | | | | | | |
| (i) | Published source | 27.8 | 00.0 | 41.7 | 00.0 | 41.7* | 14.3 | 36.4 |
| (ii) | CFO's estimate | 16.7 | 33.3 | 8.3 | 33.3 | 8.3 | 28.6 | 9.1 |
| (iii) | Self calculated | 27.8 | 16.7 | 33.3 | 16.7 | 33.3 | 28.6 | 27.3 |
| (iv) | Industry average | 38.9 | 66.7 | 25.0* | 66.7 | 25.0 | 57.1 | 27.3 |

| | | % Use | P/E Low High | | Growth (Sales) Low High | | Growth (Assets) Low High | |
|-------|--|-------|-----------------|-------|----------------------------|----------|-----------------------------|-------|
| | CAPM followed If yes, what do you use for risk free rate? | 37.5 | 33.33 | 41.67 | 20.43 | 54.17*** | 33.33 | 41.67 |
| (i) | 91 days GOI Treasury bill rate | 55.6 | 75.0 | 40.0 | 60.0 | 53.8 | 75.0 | 40.0 |
| (ii) | 3 to 7 year GOI Treasury bill rate | 38.9 | 25.0 | 50.0 | 40.0 | 38.5 | 25.0 | 50.0 |
| (iii) | 10 year GOI Treasury bill rate | 5.6 | 00.0 | 10.0 | 00.0 | 7.7 | 00.0 | 10.0 |
| | What do you use as your beta factor? | | | | | | | |
| (i) | Published source | 27.8 | 12.5 | 40.0 | 20.0 | 30.8 | 12.5 | 40.0 |
| (ii) | CFO's estimate | 16.7 | 12.5 | 20.0 | 20.0 | 15.4 | 25.0 | 10.0 |
| (iii) | Self calculated | 27.8 | 25.0 | 30.0 | 20.0 | 30.8 | 37.5 | 20.0 |
| (iv) | Industry average | 38.9 | 62.5 | 20.0 | 40.0 | 38.5 | 37.5 | 40.0 |

| | | % Use | Leverage Low High | | ROCE Low High | | Industry Textile Pharma | |
|-------|--|-------|----------------------|-------|------------------|-------|----------------------------|---------|
| | CAPM followed If yes, what do you use for risk free rate? | 37.5 | 33.33 | 41.67 | 41.67 | 33.33 | 38.71 | 35.29 |
| (i) | 91 days GOI Treasury bill rate | 55.6 | 37.5 | 70.0 | 80.0 | 25.0 | 83.3 | 00.0*** |
| (ii) | 3 to 7 year GOI Treasury bill rate | 38.9 | 62.5 | 20.0 | 20.0 | 62.5 | 16.7 | 83.3 |
| (iii) | 10 year GOI Treasury bill rate | 5.6 | 00.0 | 10.0 | 00.0 | 12.5 | 00.0 | 16.7 |
| | What do you use as your beta factor? | | | | | | | |
| (i) | Published source | 27.8 | 12.5 | 40.0 | 30.0 | 25.0 | 25.0 | 33.3 |
| (ii) | CFO's estimate | 16.7 | 25.0 | 10.0 | 20.0 | 12.5 | 25.0 | 00.0 |
| (iii) | Self calculated | 27.8 | 25.0 | 30.0 | 30.0 | 25.0 | 25.0 | 33.3 |
| (iv) | Industry average | 38.9 | 50.0 | 30.0 | 30.0 | 50.0 | 41.7 | 33.3 |

*, ** and *** show the 10%, 5% and 1% level of significance respectively.

Table 7 investigates the respondents who use CAPM as to what risk free rate they use and how they estimate beta. 50 percent of the respondents who use CAPM consider return on 91 days GOI treasury bills as risk free rate. Textile firms are significantly more likely to use return on 91 days GOI treasury bills as risk free rate as compared to pharmaceutical firms. The results also indicate that industry average beta is the most popular measure of systematic risk presently used by manufacturing sector in India. About 39 percent of the respondents who use CAPM take industry average beta as a measure of their systematic risk. The second and third most popular sources of beta are published source (27.8 percent) and self calculated (27.8 percent). Large firms (assets basis) are more inclined to use published source for beta than small firms (41.7 percent). The small firms do not calculate beta and are more likely to use industry average as compared to large firms (66.7 percent versus 25 percent). Industry difference is not found significant.

Table 8 explores the choice of financial managers of the share price data period for making an estimate of beta. Nearly 72 percent of the respondents consider the last five-year monthly share price data to estimate equity beta. The high growth firms (assets basis) are significantly more likely to use last five-year monthly share price data to estimate their security beta than the low growth firms (90 percent versus 50 percent). The market risk premium as average of historical and implied return on the market portfolio is most widely used by Indian manufacturing sector (50 percent) followed by CFO's estimate of average market risk premium (22.2 percent) as an input while using CAPM. About 17 percent of the respondents use fixed rate of 10 percent as market risk premium in CAPM model. Low growth firms (P/E basis) are

more likely to use fixed rate of 10 percent as market risk premium as compared to high growth firms (37.5 percent). Nearly 39 percent of the respondents revise their estimates of cost of capital quarterly and for 28 percent of the respondents, this process is followed semi-annually. In response to another question on alternative use of cost of capital, nearly 60 percent of the respondents answered in the affirmative. About 52 percent of the respondents who answered in the affirmative use cost of capital for divisional performance measurements, 42 percent use it for EVA computation and 31 use it for deciding dividend output ratio. There is significant difference in the use of cost of capital for divisional performance measurement between the high growth firms and low growth firms on P/E basis (61.5 percent versus 6.3 percent).

TABLE 8: SURVEY RESPONSE TO THE USE OF PERIOD TO CALCULATE BETA AND MARKET RISK PREMIUM IN CAPM FOR ESTIMATING COST OF EQUITY CAPITAL?

| | | % Use | Size (Sales) Small Large | | Size (Assets) Small Large | | Size (Mkt.Cap) Small Large | |
|-------|--|-------|-----------------------------|---------|------------------------------|---------|-------------------------------|---------|
| | CAPM followed If yes, What period do you study to calculate beta of your company? | 37.5 | 25.0 | 50.0*** | 25.0 | 50.0*** | 29.17 | 45.83** |
| (i) | Last 5 years monthly share price data | 72.2 | 83.3 | 66.7 | 83.3 | 66.7 | 71.4 | 72.7 |
| (ii) | Last 5 years weekly share price data | 27.8 | 16.7 | 33.3 | 16.7 | 33.3 | 28.6 | 27.3 |
| | What do you use as market risk premium in a CAPM Model? | | | | | | | |
| (i) | Use fixed rate of 10% | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 00.0 | 27.3 |
| (ii) | Use fixed rate of 7% to 9% | 11.1 | 16.7 | 8.3 | 16.7 | 8.3 | 14.3 | 9.1 |
| (iii) | Use average of historical & implied | 50.0 | 33.3 | 58.3 | 33.3 | 58.3 | 57.1 | 45.5 |
| (iv) | Use CFO's estimate | 22.2 | 33.3 | 16.7 | 33.3 | 16.7 | 28.6 | 18.2 |

| | | % Use | P/E Low High | | Growth (Sales) Low High | | Growth (Assets) Low High | |
|-------|--|-------|-----------------|-------|----------------------------|----------|-----------------------------|-------|
| | CAPM followed If yes, What period do you study to calculate beta of your company? | 37.5 | 33.33 | 41.67 | 20.43 | 54.17*** | 33.33 | 41.67 |
| (i) | Last 5 years monthly share price data | 72.2 | 62.5 | 80.0 | 60.0 | 76.9 | 50.0 | 90.0* |
| (ii) | Last 5 years weekly share price data | 27.8 | 37.5 | 20.0 | 40.0 | 23.1 | 50.0 | 10.0* |
| | What do you use as market risk premium in a CAPM Model? | | | | | | | |
| (i) | Use fixed rate of 10% | 16.7 | 37.5 | 00.0* | 00.0 | 23.1* | 12.5 | 20.0 |
| (ii) | Use fixed rate of 7% to 9% | 11.1 | 00.0 | 20.0 | 20.0 | 7.7 | 12.5 | 10.0 |
| (iii) | Use average of historical & implied | 50.0 | 12.5 | 80.0 | 40.0 | 53.8 | 37.5 | 60.0 |
| (iv) | Use CFO's estimate | 22.2 | 50.0 | 00.0 | 40.0 | 15.4 | 37.5 | 10.0 |

| | | % Use | Leverage Low High | | ROCE Low High | | Industry Textile Pharma | |
|-------|--|-------|----------------------|-------|------------------|----------|----------------------------|-------|
| | CAPM followed If yes, What period do you study to calculate beta of your company? | 37.5 | 33.33 | 41.67 | 20.43 | 54.17*** | 33.33 | 41.67 |
| (i) | Last 5 years monthly share price data | 72.2 | 87.5 | 60.0 | 60.0 | 87.5 | 66.7 | 83.3 |
| (ii) | Last 5 years weekly share price data | 27.8 | 12.5 | 40.0 | 40.0 | 12.5 | 33.3 | 16.7 |
| | What do you use as market risk premium in a CAPM Model? | | | | | | | |
| (i) | Use fixed rate of 10% | 16.7 | 12.5 | 20.0 | 10.0 | 25.0 | 16.7 | 16.7 |
| (ii) | Use fixed rate of 7% to 9% | 11.1 | 12.5 | 10.0 | 10.0 | 12.5 | 8.3 | 16.7 |
| (iii) | Use average of historical & implied | 50.0 | 37.5 | 60.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| (iv) | Use CFO's estimate | 22.2 | 37.5 | 10.0 | 30.0 | 12.5 | 25.0 | 16.7 |

*, ** and *** show the 10%, 5% and 1% level of significance respectively.

The present paper also intends to find out the extent to which Indian managers' use National Economic Profitability Analysis and the tools they use for this purpose. Nearly 29 per cent of the respondents carry out national economic profitability analysis of their projects under consideration. The domestic resource cost of US\$ is widely used (57 percent) followed by the effective rate of protection enjoyed (14 percent) by the respondents, who carry out national economic profitability analysis. Small firms (market capitalization basis) are more likely to use full-fledged social cost-benefit analysis than the large firms. High growth firms (P/E and assets basis) are more likely to use Effective rate of protection enjoyed by the project than low growth firms. Low growth firms (P/E and assets basis) do not use effective rate of protection enjoyed by the project at all.

MULTIVARIATE PROBIT REGRESSION ANALYSIS: In order to take the analysis further a Multivariate Probit Regression is run to compare the impact of various explanatory variables on the two most important capital budgeting issues. This way it is tried to discover which types of firms apply DCF techniques for capital budgeting decisions and which type of firms use CAPM to determine cost of capital? These questions are

answered using two sets of model specifications. In the first model it analyses the significance of industry through the use of industry dummy (1 for textile firm and 0 otherwise). In the second, third and fourth model industry analysis is extended by controlling for the cross sectional variations in firm size (1 for large firm and 0 otherwise) and profitability (1 for high profitability and 0 otherwise) using dichotomous variable. First the use of DCF techniques of capital budgeting is analyzed and the results are displayed in Table 9. The DCF techniques distinguished as NPV, IRR and PI (dummy has value 1 if the response to at least one of these three techniques exceeds 3 and 0 otherwise) opposed to non-DCF techniques. In first set of models in Table 9, model 1 shows that industry dummy reveal significant difference. Textile firms make little use of DCF techniques, while pharmaceutical firms employ these methods significantly more often than the textile firms. When the control variable size is included in model 2, it is found that size significantly attribute to explain cross sectional variations. Size has been calculated on the basis of log value of sales. In the previous analysis, for size, the log value of assets, log value of sales and log value of market capitalization has been considered for detailed analysis. For regression all the proxies for size cannot be taken for the reason of multicollinearity Size is found positively related to the use of DCF methods. This conclusion confirms that the large firms are more likely to use DCF capital budgeting techniques.

TABLE 9: MULTIVARIATE PROBIT REGRESSION OUTPUT FOR CAPITAL BUDGETING DCF TECHNIQUES

| | Model 1 | Model 2 | Model 3 | Model 4 |
|--------------------------|----------------------|----------------------|----------------------|-----------------------|
| Constant | 1.564*** (0.4865) | 0.4307* (0.2646) | 1.242*** (0.5372) | -0.2058 (-0.5537) |
| Industry Dummy | -1.0122* (0.5416) | - | -1.1122* (0.5933) | 0.6767 (0.7254) |
| Size | - | 0.9522** (0.4532) | 1.027** (0.4863) | 1.2598 (0.5358)*** |
| Profitability | - | - | - | 0.9922 (0.5825)* |
| N | 48 | 48 | 48 | 48 |
| McFadden R-squared | 0.084 | 0.09 | 0.185 | 0.249 |
| Akaike info criterion | 1.019 | 1.006 | 0.958 | 0.934 |
| Likelihood ratio p value | 0.04 | 0.02 | 0.01 | 0.006 |

1. Figures in the parenthesis are standard error.

2. *, ** and *** show the 10%, 5% and 1% level of significance respectively.

Model 4, which is extension of model 3 by adding another control variable, profitability (dummy has value 1 if the firm is highly profitable and 0 otherwise), and reveals that highly profitable firms are more likely to use DCF capital budgeting techniques.

In the second set of models given in Table 10, it is explained which firms use CAPM (dummy 1 for firms using CAPM and 0 otherwise) to compute their cost of equity. Model 1 gives insignificant results. When model is extended with control variable (industry, size and profitability) in model 3 and model 4, it shows that only firm size appears to be driving the use of CAPM significantly. Profitability and use of CAPM don't have significant relationship.

TABLE 10: MULTIVARIATE PROBIT REGRESSION OUTPUT FOR USE OF CAPM

| | Model 1 | Model 2 | Model 3 | Model 4 |
|--------------------------|---------------------|------------------------|-----------------------|----------------------|
| Constant | -0.2868 (0.2285) | -0.6744*** (0.2781) | -0.6336** (0.3062) | -0.5791 (0.6514) |
| Industry Dummy | -0.0904 (0.3867) | - | -0.1241 (0.3952) | -0.0030 (0.54610) |
| Size | - | 0.6744* (0.3779) | 0.6801* (0.3766) | 0.6618* (0.3822) |
| Profitability | - | - | - | -0.1764 (0.5228) |
| N | 48 | 48 | 48 | 48 |
| McFadden R-squared | 0.008 | 0.05 | 0.05 | 0.05 |
| Akaike info criterion | 1.40 | 1.33 | 1.37 | 1.417 |
| Likelihood ratio p value | 0.814 | 0.05 | 0.18 | 0.32 |

1. Figures in the parenthesis are standard error.

2. *, ** and *** show the 10%, 5% and 1% level of significance respectively.

The results of Multivariate Probit Regression can be stressed because this approach enables to isolate the impact of variables conditional on other influences. Uses of capital budgeting DCF techniques and CAPM for cost of equity are influenced most by firm size. A measure similar to R^2 available in this model is McFadden R^2 , which is not high in all the models. It should be noted that in binary regression models, goodness of fit is of secondary importance. What matters is, the expected signs of the regression coefficients and their statistical significance. To test the null hypothesis that all slope coefficient simultaneously equal to zero, the F test equivalent to linear regression model is the likelihood ratio statistics (Gujrati and Sangeetha, 2009). The likelihood ratio p value validates the model. The Akaike info criterion provides a measure of

information that strikes a balance between this measure of goodness of fit and parsimonious specification of the model, the lower the value the better the fit of model.

CONCLUSION

The results of survey are consistent with the theory and simultaneously revealing too. The study discloses that the most important objective of the financial management is to maximize earnings before interest and taxes or earnings per share, which is in conformity with the results given by Anand (2002). MVA is the least important objective of management, which is in conformity with the results of Pandey and Bhat (1990). It is supporting that IRR is widely used as a capital budgeting technique despite of its limitations. The NPV method remains very popular. Large firms are more likely to use NPV and IRR. High growth firms are more likely to use DCF techniques. Payback is more popular among small firms and low-levered firms. The firms surveyed find risk to be an important consideration in their capital budgeting decisions. Nearly 41 percent of the respondents adjust the discount rate based on the project risk. The sensitivity analysis and higher payback period are the most widely used techniques for project risk analysis. A very few respondents use decision tree analysis and (Monte Carlo) simulation to analyze the project risk. Most of the respondents use single discount rate based on company's overall weighted average cost of capital. Large and high growth firms prefer to use single discount rate. CAPM is also in use to estimate the cost of equity capital. Large firms are more likely to use cost of equity that is determined by CAPM. The firms, which use CAPM to estimate their cost of equity capital, the industry average beta, are widely used by those firms. The use of 91 days GOI Treasury bill as proxy for risk free rate of return is widely preferred by the manufacturing industry. The use of last five years' monthly share price data to estimate the beta is more popular. Most of the firms re-estimate the cost of capital quarterly. Most of the firms use cost of capital estimates for divisional performance measurement and EVA computation in addition to their capital budgeting decisions. Firm size significantly affects the practice of corporate finance. The firms have moved from the traditional non-discounted techniques towards adoption of the sophisticated discounted cash flow techniques.

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ANALYSIS OF EFFECTIVENESS OF TRADE FAIRS AND EXHIBITIONS AS A TOOL FOR EXPORT MARKETING

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ABSTRACT

International trading environment is passing through a phase of rapid transformation, offering in the process more opportunities and presenting challenges for companies planning to operate offshore. With the wind of globalization blowing across different parts of the world, export activity has become an all-pervasive function of the business enterprise. Because an export order is a project in itself as it involves difference in designing of product for different orders, different packaging specifications, delivery schedule, different mode of payment etc. It becomes more difficult for firms to operate in foreign markets. Firms stated that greatest barrier to export was lack of information on how to do it. But to get only the information is an expensive proposition for the business.

The research paper investigates the effectiveness of trade fairs and Exhibitions as a mode of penetrating international markets by exporters of various categories. These events provide a platform where buyer and sellers can interact directly and facilitate to know each other. There are other various mode of entry into foreign markets but need of the hour is cost effective mode of penetration. The study reveals that trade fairs and exhibition provide the right kind of platform to exporters with its cost effectiveness.

KEYWORDS

Trade Fairs, Exhibitions, Exporter Size, Confirmed Order, Export led Strategy

INTRODUCTION

International trading environment is passing through a phase of rapid transformation, offering in the process more opportunities and presenting challenges for companies planning to operate offshore. With the wind of globalization blowing across different parts of the world, export activity has become an all-pervasive function of the business enterprise. The imperatives of this transformation call for a paradigm shift in operating environment for conduct of export business. The organizations have to follow highly professional managerial approach to meet emerging challenges and take advantage of growing opportunities. But the entrepreneurs and the export manager would need to understand the dynamics of international business environment. Many countries have achieved rapid economic development through export led growth strategies. This strategy involves development of industries with export potential to augment exports, thereby increasing foreign exchange earnings to pay for imports required to achieving the goal of economic development. India has ushered, since June 1991, in an era of economic reforms focusing on liberalization, globalization and privatization to chart out a high growth path for its faster development. This has led to a paradigm shift in her strategy of economic development from import substitution-led growth to export-led growth. This shift in strategy has led to very significant change in planning for the economic development. The growth in exports can be achieved with sustained efforts by both government and business sector. Govt. has to provide facilitating environment in terms of policies and required infrastructure for growth in exports. Emphasis on professionalism and higher productivity is the need of hour on part of business sector. Management of export is sometimes referred as business of managing variety, because an export order is a project in itself as it involves difference in designing of product for different orders, different packaging specifications, delivery schedule, different mode of payment etc. Like any other business activity managing of exports involves managing the complex of non-routine activities through planning, scheduling and controlling.

Planning refers to taking various decisions involved in export business. This relates to efforts by proper marketing entry strategy to get export order. The planning process involves:

- Understanding international trading environment
- Understanding the trends in international trade of chosen product group identifying the fastest item of export in the chosen product group
- Selecting the item of export
- Deciding various terms and conditions of business offer to prospective buyers in target market. The terms and conditions are related to price, payment, delivery schedule, quality specifications, minimum quantity for order, after sale service etc.
- Selection of effective mode of communication, which can take form of a pamphlet, brochure or web site etc.
- Approaching the prospects. This involves market entry strategy. Establishing linkage with prospects may require participation in trade fairs and exhibitions; tie up with overseas market agent.
- Holding business negotiations with the prospects

Scheduling involves developing the logistics for execution of export order, arranging funds, procurement of goods, labeling, packaging, packing, pre-shipment inspection, pre-shipment export documentation to ensure central excise and customs clearance of export shipment. Controlling seeks to ensure whether the activity planned has been completed on time or not and whether various schedules drawn up for execution of orders have been followed.

Marketing opportunities exists in all countries regardless of the level of economic development. To assume that only developed countries offer more market potential is a misconception. A particular market initially seems attractive because of its potential demand and size in terms of number of customers and their purchasing power. Yet the market may be attracting more than its share of competition. Do business in a foreign Lack of knowledge and unfamiliarity with foreign markets usually heightens the risk of company wanting to land. This problem is further complicated by the fact that international marketing research is more difficult, more complex and more subjective than domestic research. Arthur Anderson and company conducted a survey of 6000 American manufacturers in 1992 and found only 5 percent of

small business was involved in international trade. Firms stated that greatest barrier to export was lack of information on how to do it. Trade fairs and exhibitions are generally considered as one of such methods as they provide a platform and a method for international marketing of goods, services and even commercial ideas. These events are well known in the commercial history of nations since long. Trade fairs and exhibitions are temporary markets, usually with a focus on selected product categories, where a large number of buyers and sellers interact to transact a business. These events provide not only a display of goods but also provide an open window to the outside world for the technologies, work culture and innovations of participating countries and their corporate organizations. Trade fairs are time- and (often) sector-defined marketing events at which the fundamental products and innovations of an industry or sector are exhibited by a variety of companies referred to as exhibitors and which are targeted at interested buyers and industry participants- the visitors. These trade fairs are usually organized by government, chambers, industry associations, or by specialized exhibition companies. Trade fairs represent a real-time, interactive environment bringing together supply and demand in a certain industry. However exploration of international market is a costly affair. The present study tries to explore the cheapest mode of penetrating the international market i.e. Trade Fairs and Exhibitions.

REVIEW OF LITERATURE

Anagol Malti (1997), in his study he has shown that there are some specific and measurable characteristics common to all successful exporters. In the area of export management he has identified several firm and managerial characteristics associated with the export activity of manufacturing firms. Export performance or success has been evaluated by a variety of measures, such as export intensity (export sales as a percentage of total sales) or export growth. Although reliance on a single variable as a gauge of export success was shown not to be valid, prior research that measured export performance using a single variable of success reflected an improvement in performance criteria over the categorical approach.

Brad O Hare et.al (1993), have found that trade shows can be crucial components of a firm's marketing mix. This modern day version of the central market is often poorly understood and overlooked by many corporate design makers seeking effective and efficient ways to promote the firm's products and service. Compares non-exhibitors and exhibiting firms, examines major differences between the two groups, and provides a profile of non-exhibiting firms. Finally, offers some tips around when to, and when not to, exhibit and aspects to increase exhibit effectiveness.

Courteas John (1983), In his work found that trade fair's performance measurement has been fragmented in an haphazard manner and, as trade fairs have come under increased scrutiny by researchers in recent years, more attention is warranted (given the substantial budget allocations companies make to these marketing activities) to redress this shortcoming in analysis methodology. In this study he has focused on conceptual and empirical attention in several areas, including visitor motives and interaction with exhibitors; exhibitor management and performance; effectiveness of trade fair expenditures and comparative research on trade fairs across industry sectors and nations. An important feature of this study is the quest for better conceptual foundations and more valid measures.

Dekimpe, Marnik G., Francois (1992), Has Identified five stages from the pre-relationship stage, through the early stage, the development stage, the long-term stage, to the final stage for evaluation of international trade fairs and exhibitions. This process goes beyond the limited time at a trade show. According to the study the relationship dimension in the conceptual framework is therefore the most problematic one. It is questionable that the control system taxonomy captures the relationship-building dimension satisfactorily because the parties interact over a period. Although results can occur quickly, they are more likely to occur after a period.

Douglas and Craig (1992,). According to his study market entry decisions are among the most critical made by a firm in relation to international markets. The choice of which country to enter commits a firm to operating on a given terrain and lays the foundation for its future international expansion. It signals the firm's intent to key competitors and determines the basis for future battles

OBJECTIVES

To determine the purpose, criteria and participation level of different categories of exporters in trade fairs and exhibitions organized in India;
To determine the extent to which trade fairs and exhibitions are effective institutional mechanisms in export marketing

RESEARCH METHODOLOGY

UNIVERSE: In this study universe is finite (number of items to be studied are certain). The present study involves the exploration of two types of population. They are given as below

a) Actual participant: These are the companies which are actually participating in various trade fairs and exhibitions in order to exhibit their product/services. In the present study all international trade fairs and exhibitions organized by India Trade Promotion Organization, New Delhi during calendar year 2008-09 in India.

b) Experts: They are the various officials (Dy. General Managers & above rank) working with various trade promotion organizations located in Delhi like **Federation of Indian Exporters Organization (FIEO)- Federation of Indian Chamber of Commerce and Industry (FICCI) India Trade Promotion Organization (ITPO): National Small Industries Corporation (NSIC)**

Sampling frame: As the universe is finite and a source list is available in the form of "Business Visitors Guide" published by ITPO for each fair. In case of experts official directory of various trade promotion organizations have been used as a source list.

Sampling Unit: It would include actual exporters and experts from various trade promotion organizations.

Sampling technique: Stratified random sampling technique has been adopted to select samples for actual participants from different strata's like small exporter, Medium Exporter, Large Exporter by using source list. Source list is Business Visitors Guide published by ITPO for each fair. This guide publishes all the details like product on display, turnover in last financial year, contact details; stall number in the fair etc.

Simple random sampling technique has been adopted to select experts from various trade promotion bodies by using the source list. The source list is the official directory of that particular trade promotion body.

Source of data: In the present study both primary as well as secondary data has been used. Primary data has been collected through imparting structured questionnaire to the actual participants and experts. Secondary data has been obtained from the literature of various trade promotion organizations

Sample size:

(a) Actual participant: In actual participant category a sample of 200 companies have been taken. The trade fairs and exhibitions organized by ITPO during 2008-09 have been categorized into four categories as given below to draw the sample. 50 companies from each type of fair have been selected randomly for analysis.

(i) General fair: In this category "India International Trade Fair" has been selected. This trade fair is held every year from Nov. 14-27 at New Delhi. In this trade fair all type of companies ranging from manufacturing firms, service providers to trading firms participate. This fair presents a wide spectrum of participation from all type of firms.

(ii) Food and Agro Based Fair: In this category "Aahar" has been selected. This is a specialized fair in which the participating companies are from food and agro sector.

(iii) Handicraft Show: In this category "Indian Handicraft and Gift Fair(Spring)" has been taken. This fair is held every year in February/March. Companies involved in handicrafts participate in this fair.

(iv) Technology intensive fair: In this category "India International Leather Fair" has been included. This fair is held every year from May 20-22. In this fair focus is on all kind of finished leather, machinery for tanning and finishing leather, shoes making, stitching, sewing, leather chemicals, effluent treatment plant and equipment.

Basis of selecting the participants

Only those companies have been selected which have some export turnover in the last financial year. Participants have been divided into three categories

Small Exporter: These are the exporter whose export turnover in the last financial year was <Rs 20 crores. 80 companies in this category have been selected. 20 companies from each fair has been taken randomly

Medium exporter: These are the exporter whose export turnover in the last financial year was Rs 20-50 crores. 60 companies in this category have been selected. 15 companies from each fair have been taken.

Large Exporter: These are the exporter whose export turnover in the last financial year was > Rs 50 crores. 60 companies in this category have been selected. 15 companies from each fair have been taken.

(b) Experts: A sample size of 60 experts has been taken. There are mainly four trade promotion organizations i.e. ITPO, FIEO, NSIC, FICCI. 15 experts have been chosen from each trade promotion organization

To determine the level of participation in trade fairs and exhibitions following variables have been taken and compared with the type of exporters

(a) Space cost incurred for booking space at trade fairs and exhibitions: Larger is the cost incurred for booking space larger would be the level of participation.

(b) Number of events in which participated: Larger the number of events participated, larger would be the level of participation.

(c) Number of people engaged to manage stall

(d) Presence of direct competitors (Whose products are very similar to the participant's)

(e) Type of people engaged to manage the stall (Contractual or company's own staff).

To measure the effectiveness of trade fairs and exhibitions in export marketing following variables have been taken

(a) Total number of visitors visited in pavilion: Number of visitors has been taken as an indicator of effectiveness of these events.

(b) Total number of trade enquiries generated: If number of trade enquiries generated are large then the event is said to be successful.

(c) Number and value of marketing arrangements negotiated/initiated i.e joint ventures, foreign collaborations etc.

(d) Confirmed orders out of enquiry generated

(f) Number of trade delegation visited

(h) Willingness to participate in such next event.

The individual observations are independent which means that occurrence of one individual observation has no effect upon the occurrence of any other observation in the sample under consideration. Further each variable has three or more attributes. In such a situation to draw the inferences about relationships among various attributes chi square test has been used by the researcher. While the chi-square measures may indicate that there is a relationship between two variables, they do not indicate the strength or direction of the relationship. To know the strength of relationship Cramer's V, Contingency coefficient has been used. To analyze the responses of expert's percentage method have been used.

Actual participant's opinion analysis: The opinion analysis has been done by imparting structured questionnaires to the participants.

TABLE 1.1: OBJECTIVES OF PARTICIPATION IN INTERNATIONAL TRADE FAIRS AND EXHIBITIONS: SMALL, MEDIUM AND LARGE EXPORTERS

| Sr No. | Objective of participation | Rank | |
|--------|--|-------|----------------|
| | | Small | Medium & Large |
| 1 | Direct sales promotion | 1 | 8 |
| 2 | Reviving old customers contacts and making new | 2 | 6 |
| 3 | Searching new channel members | 3 | 4 |
| 4 | Market Assessment | 4 | 1 |
| 5 | Introduction of new product | 5 | 2 |
| 6 | Searching partners for foreign collaboration | 6 | 3 |
| 7 | On the spot advertisement | 7 | 7 |
| 8 | Enhancing image of company | 8 | 5 |

Source – Field data

As it is evident from the table 1.1, small exporters put more emphasis on direct sales of their products because they are basically the trading companies which source out the products from their home country and try to generate sales by participating in international trade fairs and exhibitions, thereby earning profits. Second most important factor is reviving old customer's contacts and making new. Apart from generating direct sales these companies try to search new customers and also to make old customers loyal toward their products so that they can sell their products to them round the year. Third most important factor is to search new channel members. So after establishing channel partners in that

country, next time they can concentrate on to some other country to expand their operations by participating in the another target fair in the target country. In this way a business empire can be created. Next important objective is to asses the market size for their products in the destined country. These are the companies which have a new product and interested in testing new markets through these events . If they find it out that market size is appropriate according to their criterion they think of introducing their products in that market. After deciding about the introduction of the product in the market they think over the option of foreign collaboration to introduce their products in foreign markets. Their least important objective of participation is on the spot advertisement and enhancing the company image.

The medium and large exporters being the original producer of the product or services, intends to assess the market size of their product into that country by participating into these fairs. If they are receiving more enquiries about their product on the stall from the visitors then it is inferred that the product may be in large demand. Next important objective is to introduce their product in new market. For introduction of the product into the market they try to search out foreign collaborators. Then next important objective is to search new channel members for logistic purpose in that country. They also participate in these events to enhance the image of the company If their product is already introduced into that country their mere presence in the fairs in that country enhances the image of the company in the eyes of the users of the product. Next important objective is to revive old customer's contacts and making new. The exporters who have already customers in that country and somehow lost them, they try to approach these customers again to bring back with them with the company. On the spot advertisement and direct sales promotion are their least important objectives of participation in these events.

TABLE – 1.2 CRITERIA FOR CHOOSING INTERNATIONAL TRADE FAIRS AND EXHIBITIONS

| Sr. no. | Criteria for selecting Fairs and exhibitions | Rank | |
|---------|--|-----------------|--------------------------|
| | | Small Exporters | Medium & Large Exporters |
| 1 | Visitor's profile and expected number of visitors | 1 | 1 |
| 2 | Custom clearance for products being exhibited | 2 | 7 |
| 3 | Promotion of the fair by organizers | 3 | 3 |
| 4 | Quality of move- in and move -out arrangements | 4 | 11 |
| 5 | Location of the fair (country) | 5 | 5 |
| 6 | Location of the fair within the country(nearest city center) | 6 | 6 |
| 7 | Frequency of the fair | 7 | 9 |
| 8 | Level of international participation | 8 | 2 |
| 9 | Size of the area covered by the fair | 9 | 4 |
| 10 | Easy accessibility to the fair site | 10 | 10 |
| 11 | Size of the stand and other spaces provided by organizers | 11 | 8 |
| 12 | Proximity of hotels and accommodations | 12 | 12 |
| 13 | Mode of transportation to the fair site | 13 | 13 |
| 14 | Lead time for applying for participation | 14 | 14 |

Source – Field data

As is evident from the table 1.2, the small exporter's most important criterion of choosing international trade fairs and an exhibition is visitors profile and expected number of visitors. They try to find out whether business visitors or general visitors visits the fair and in how much number. Small exporters choose the fair in which large number of visitors, irrespective of their profile, visits. Second important criterion is custom clearance procedure in that country. They avoid participating in the fairs of those countries where custom clearance procedures are cumbersome. These cumbersome procedures sometimes make them so helpless that they are not able to ensure the timely availability of exhibits at fair ground. Next important criterion is promotion of fair by organizers as this promotional activity attracts more quality visitors. Quality of move –in and move out arrangements is next important criterion. This is due to the fact that participants want to avoid problems in taking exhibits to the fair site and from the fair site to the nearest sea- port/air-port. Location of the fair i.e. country in which fair is going to be held is next important criterion. Exporters with different product category prefers different countries i.e. Exporters of handicrafts would prefer western countries similarly exporter of electronic items would prefer African or other less developed nations. Location of the fair within the country (nearest city center) is next important criterion. As most of the exporters prefer those fairs which are held in nearest city center because all the facilities required by exporters are easily available in these city centers. The number of times a fair is held round the year is next important criterion. Fairs are also selected on the basis of Level of international participation in the fair. Participants prefer fairs which attracts international participation up to a large extent. The area covered by fair is another important criterion. Participants prefer a fair spread over a large area, with latest world class facilities. The larger area itself speaks a lot about the organizers. Easy accessibility to the fair site, size of the stand and other spaces provided by organizers constitutes another important criterion to choose the fair.

Those fairs which are located in far off places and are not well connected with main business centers of world are avoided by participants. Other but less important criterions to choose the fairs are size of the stand and other spaces provided by organizers, proximity of hotels and accommodations, Mode of transportation to the fair site, Lead time for applying for participation. Participants prefer the fairs where cheap and good accommodation is available and mode of transportation is easily accessible.

The most important criterion for choosing International Trade Fair and Exhibition in case of Large and Medium exporters is same as in the case of small exporters i.e. visitors profile and expected number of visitors. But they mostly concentrate on profile of visitors unlike all type of visitors, as preferred by small exporters. They prefer business visitors

as compared to general visitors. Next important criterion is level of international participation. They prefer those fairs which attracts international participants. This is due to the reason that their direct competitors in these fairs are large and hence can evaluate their own product's standing in the world market. They are of the opinion that a large scale promotion of the fair by the fair organizers attracts more quality audiences. So they put emphasis on this criterion to choose the fair. Next important criterion is size of the area covered by the fair. They prefer a fair spread over a large area. The country in which fair is to be organized and the location of fair within that country (nearest city center) are the next important criterions. They prefer the countries where they feel that they may have potential markets. Within that country they prefer those fair which are in proximity of country's business centers. Custom clearance procedures in that country are next important

criterion. They generally avoid those fairs which are located in the countries whose custom clearance procedure is cumbersome. The next important criterions adopted by these exporters are size of the stand and other spaces provided by organizers, frequency of the fair, Easy accessibility to the fair site, quality of move- in and move -out arrangements, proximity of hotels and accommodations, mode of transportation to the fair site, lead time for applying for participation. They prefer those fairs which have wide choices available for participant regarding the size of space.

Table 1.3(a)

Exporter Size * Space cost Crosstabulation

| | | | Space cost | | | Total |
|---------------|--------|----------------|------------|--------|------|-------|
| | | | Small | Medium | High | |
| Exporter Size | Small | Count | 52 | 17 | 11 | 80 |
| | | Expected Count | 37.6 | 20.4 | 22.0 | 80.0 |
| | Medium | Count | 32 | 18 | 10 | 60 |
| | | Expected Count | 28.2 | 15.3 | 16.5 | 60.0 |
| | Large | Count | 10 | 16 | 34 | 60 |
| | | Expected Count | 28.2 | 15.3 | 16.5 | 60.0 |
| | Total | Count | 94 | 51 | 55 | 200 |
| | | Expected Count | 94.0 | 51.0 | 55.0 | 200.0 |

Size of Exporter

Large- > 50 crores (Avg. of previous three years export turnover in Rs.)

Medium- 20-50 crores

Small - < 20 crores

Space cost

Small - <100,000

Medium - 100,000- 200,000

Large ->200,000

Source – Field data

Table 1.3(b)

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square | 45.469 ^a | 4 | .000 |
| Likelihood Ratio | 46.059 | 4 | .000 |
| Linear-by-Linear Association | 38.073 | 1 | .000 |
| N of Valid Cases | 200 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.30.

Table 1.3(c)

Symmetric Measures

| | Value | Approx. Sig. |
|-------------------------------|-------|--------------|
| Nominal by Nominal Cramer's V | .337 | .000 |
| Contingency Coefficient | .430 | .000 |
| N of Valid Cases | 200 | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Calculated value of Chi-square is more than table value at $\alpha = 0.05$ and $\alpha = 0.01$ significance level with 4 degree of freedom. It leads to rejection of null hypothesis. It means that cost incurred for booking space at these events is associated with size of exporter. The calculated value of C comes out to be 0.430 which if compared to highest value of C for 3x3 table i.e. 0.82 is high, indicating strong association between the variables. It means that size of exporter is strongly related with the cost incurred in booking space for these events. Large exporters incur large cost and small exporters incur low cost on booking the space while participating in these events. {In case of small exporters expected count is more than actual count in the cell representing medium level of space cost meaning thereby that small exporters incur medium space cost while participating in these events. In case of medium exporters expected count is more than actual count in the cell representing high level of space cost. In case of large exporters expected count is more than actual count in the cell representing low level of space cost. It means that large exporters spend less in booking space while participating in these events. As is evident from their objective of participation as depicted in table number 1.1, that their main objective is to assess the size of the foreign market for their product, so they participate only to showcase their product in these events for which even a small space is sufficient}.

Table 1.4(a)

Exporter Size * Number of Direct Competitors Participation Crosstabulation

| | | | Number of Direct competitors participation | | | Total |
|---------------|--------|----------------|--|--------|------|-------|
| | | | Large | Medium | Low | |
| Exporter Size | Small | Count | 10 | 20 | 50 | 80 |
| | | Expected Count | 22.0 | 22.0 | 36.0 | 80.0 |
| | Medium | Count | 10 | 20 | 30 | 60 |
| | | Expected Count | 16.5 | 16.5 | 27.0 | 60.0 |
| | Large | Count | 35 | 15 | 10 | 60 |
| | | Expected Count | 16.5 | 16.5 | 27.0 | 60.0 |
| Total | | Count | 55 | 55 | 90 | 200 |
| | | Expected Count | 55.0 | 55.0 | 90.0 | 200.0 |

Source –Field data
 Number of Direct Competitors Participation
 Large - >10
 Medium - 5-10
 Low - <5

Table 1.4(b)

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square | 47.391 ^a | 4 | .000 |
| Likelihood Ratio | 47.185 | 4 | .000 |
| Linear-by-Linear Association | 39.274 | 1 | .000 |
| N of Valid Cases | 200 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.50.

Table 1.4(c)

Symmetric Measures

| | | Value | Approx. Sig. |
|--------------------|-------------------------|-------|--------------|
| Nominal by Nominal | Phi | .487 | .000 |
| | Cramer's V | .344 | .000 |
| | Contingency Coefficient | .438 | .000 |
| N of Valid Cases | | 200 | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Calculated value of Chi-square is more than table value at $\alpha = 0.05$ and $\alpha = 0.01$ significance level with 4 degree of freedom. It leads to rejection of null hypothesis; thereby establishing alternate hypothesis. It means that number of direct competitors of participant's is associated with exporter size. To know the degree of association between the variables contingency coefficient has been calculated. The calculated value of C comes out to be 0.438 which if compared to highest value of C for 3x3 table i.e. 0.82 is high, indicating strong association between the variables. It means that large exporters have large number of direct competitors. It is because the large exporters participate in specialized fairs where large number of participants have similar products (may differ by name and some features). Direct competitors participation, in case of small exporters, is small as their products are differentiated one. This differentiation of products helps them to get profits by participation in these events.

Table 1.5 (a)

Exporter Size * No. of employees managing the booth Crosstabulation

| | | | No. of employees managing the booth | | | Total |
|---------------|--------|----------------|-------------------------------------|--------|-------|-------|
| | | | Small | Medium | Large | |
| Exporter Size | Small | Count | 10 | 10 | 60 | 80 |
| | | Expected Count | 28.0 | 20.0 | 32.0 | 80.0 |
| | Medium | Count | 20 | 30 | 10 | 60 |
| | | Expected Count | 21.0 | 15.0 | 24.0 | 60.0 |
| | Large | Count | 40 | 10 | 10 | 60 |
| | | Expected Count | 21.0 | 15.0 | 24.0 | 60.0 |
| | Total | Count | 70 | 50 | 80 | 200 |
| | | Expected Count | 70.0 | 50.0 | 80.0 | 200.0 |

Small - <5
 Medium - 5-8
 Large - >8
 Source – Field data
 Table 1.5(b)

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square | 91.310 ^a | 4 | .000 |
| Likelihood Ratio | 89.035 | 4 | .000 |
| Linear-by-Linear Association | 60.199 | 1 | .000 |
| N of Valid Cases | 200 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.00.

Table 1.5(c)

Symmetric Measures

| | | Value | Approx. Sig. |
|--------------------|-------------------------|-------|--------------|
| Nominal by Nominal | Phi | .676 | .000 |
| | Cramer's V | .478 | .000 |
| | Contingency Coefficient | .560 | .000 |
| N of Valid Cases | | 200 | |

- a. Not assuming the null hypothesis.
 b. Using the asymptotic standard error assuming the null hypothesis.

Calculated value of Chi-square is more than table value at $\alpha = 0.05$ and $\alpha = 0.01$ significance level with 4 degree of freedom. It means that size of exporter and number of people managing the booth is associated. The calculated value of C comes out to be 0.560 which if compared to highest value of C for 3x3 table i.e. 0.82 is high, indicating strong relationship between the variables. It means that size of exporter is strongly related with the number of people managing the booth in International Trade Fairs and Exhibitions.

In case of small exporters observed frequency is more than expected frequency for cell showing "Large number of employees managing the booth" option. This is due to the reason that their aim is to maximize sales volume during the limited days of the fair. Large numbers of employee can Handel large number of customers simultaneously with effectiveness. If their customer handling capacity is not effective then they would not be able to generate desired volume of sales. They incur high employee cost but low space cost to lower down their total cost. In case of Medium exporters observed frequency is more than expected frequency for cell showing "medium number of employees" option. This is due to the reason that sometimes they participate in general fare when their product is of general nature catering to the needs of general customers. In this case they need medium number of employees to manage the booth. In case of small exporters observed frequency is more than expected frequency for cell showing "Small number of employees to manage the booth" option. This is due to the reason that large exporters participate in these events for product awareness and company information. They do not participate for retail sale. So a few number of employees also can manage the booth.

Test of effectiveness of International Trade fairs and Exhibitions: Whether these events are effective mode of International Marketing or not, has been tested on the parameters mentioned in research methodology.

Table 2.1(a)

Exporter Size * Number of visitors visited on the stall per day Crosstabulation

| | | | Number of visitors visited on the stall per day | | | Total |
|---------------|----------------|----------------|---|--------|-------|-------|
| | | | Small | Medium | Large | |
| Exporter Size | Small | Count | 10 | 10 | 60 | 80 |
| | | Expected Count | 16.0 | 22.0 | 42.0 | 80.0 |
| | Medium | Count | 10 | 20 | 30 | 60 |
| | | Expected Count | 12.0 | 16.5 | 31.5 | 60.0 |
| | Large | Count | 20 | 25 | 15 | 60 |
| | | Expected Count | 12.0 | 16.5 | 31.5 | 60.0 |
| Total | Count | 40 | 55 | 105 | 200 | |
| | Expected Count | 40.0 | 55.0 | 105.0 | 200.0 | |

Large - >500

Medium - 250-500

Small - <250

Source – Field data

Table 2.1(b)

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square | 36.012 ^a | 4 | .000 |
| Likelihood Ratio | 37.703 | 4 | .000 |
| Linear-by-Linear Association | 27.383 | 1 | .000 |
| N of Valid Cases | 200 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.00.

Table 2.1(c)

Symmetric Measures

| | | Value | Approx. Sig. |
|--------------------|-------------------------|-------|--------------|
| Nominal by Nominal | Phi | .424 | .000 |
| | Cramer's V | .300 | .000 |
| | Contingency Coefficient | .391 | .000 |
| N of Valid Cases | | 200 | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Calculated value of Chi-square is more than table value at $\alpha = 0.05$ and $\alpha = 0.01$ significance level with 4 degree of freedom. It means that size of exporter is related with number of visitors visited on their stall per day. To know the degree of association between the variables contingency coefficient has been calculated. The calculated value of C comes out to be 0.391 which if compared to highest value of C for 3x3 table i.e. 0.82 is low, indicating weak association between the variables. It means that size of exporter is weakly associated with number of visitors visited on their stall per day. Visitors visit the stalls irrespective of the size of exporter, as per the product of their interest.

Table 2.2 (a)

Exporter Size * Number of Enquiry Generated Crosstabulation

| | | | No.of Enquiry Generated | | | Total |
|---------------|--------|----------------|-------------------------|--------|-------|-------|
| | | | Small | Medium | Large | |
| Exporter Size | Small | Count | 10 | 20 | 50 | 80 |
| | | Expected Count | 12.0 | 22.0 | 46.0 | 80.0 |
| | Medium | Count | 10 | 20 | 30 | 60 |
| | | Expected Count | 9.0 | 16.5 | 34.5 | 60.0 |
| | Large | Count | 10 | 15 | 35 | 60 |
| | | Expected Count | 9.0 | 16.5 | 34.5 | 60.0 |
| Total | | Count | 30 | 55 | 115 | 200 |
| | | Expected Count | 30.0 | 55.0 | 115.0 | 200.0 |

Number of enquiry generated

Small - <40

Medium - 40-80

Large - >80

Source – Field data

Table 2.2(b)

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|--------------------|----|-----------------------|
| Pearson Chi-Square | 2.558 ^a | 4 | .634 |
| Likelihood Ratio | 2.551 | 4 | .636 |
| Linear-by-Linear Association | .560 | 1 | .454 |
| N of Valid Cases | 200 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.00.

Table 2.2(c)

Symmetric Measures

| | | Value | Approx. Sig. |
|--------------------|-------------------------|-------|--------------|
| Nominal by Nominal | Phi | .113 | .634 |
| | Cramer's V | .080 | .634 |
| | Contingency Coefficient | .112 | .634 |
| N of Valid Cases | | 200 | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Calculated value of Chi-square is less than table value at $\alpha = 0.05$ and $\alpha = 0.01$ significance level with 4 degree of freedom. It leads to acceptance of null hypothesis. It means that both the variables are independent. They do not have any association. So it means enquiries are generated

irrespective of the size of exporter. In case of Small and large exporters observed frequency is more than expected frequency for the cell representing large number of enquiries generated. So the number of enquiries generated at these events is large.

Table 2.3 (a)

Exporter Size * No. of Orders Confirmed out of Enquiry Generated Crosstabulation

| | | | No. of Orders Confirmed out of Enquiry Generated | | | Total |
|---------------|--------|----------------|--|--------|-------|-------|
| | | | Small | Medium | Large | |
| Exporter Size | Small | Count | 20 | 50 | 10 | 80 |
| | | Expected Count | 38.0 | 30.0 | 12.0 | 80.0 |
| | Medium | Count | 35 | 15 | 10 | 60 |
| | | Expected Count | 28.5 | 22.5 | 9.0 | 60.0 |
| | Large | Count | 40 | 10 | 10 | 60 |
| | | Expected Count | 28.5 | 22.5 | 9.0 | 60.0 |
| Total | | Count | 95 | 75 | 30 | 200 |
| | | Expected Count | 95.0 | 75.0 | 30.0 | 200.0 |

Small - <5
 Medium - 6-10
 Large - >10
 Source – field data

Table 2.3(b)

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square | 37.982 ^a | 4 | .000 |
| Likelihood Ratio | 39.093 | 4 | .000 |
| Linear-by-Linear Association | 9.749 | 1 | .002 |
| N of Valid Cases | 200 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.00.

Table 2.3(c)

Symmetric Measures

| | Value | Approx. Sig. |
|-------------------------|-------|--------------|
| Nominal by Phi | .436 | .000 |
| Nominal Cramer's V | .308 | .000 |
| Contingency Coefficient | .400 | .000 |
| N of Valid Cases | 200 | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Calculated value of Chi-square is more than table value at $\alpha = 0.05$ and $\alpha = 0.01$ significance level with 4 degree of freedom. It leads to rejection of null hypothesis; thereby establishing alternate hypothesis. To know the degree of association between the variables contingency coefficient has been calculated. The calculated value of C comes out to be 0.400 which if compared to highest value of C for 3x3 table i.e. 0.82 is high, indicating strong association between the variables. It means that number of orders confirmed out of enquiry generated is associated with the size of exporter. Large exporters get large number of confirmed orders out of number of enquiries generated.

Table 2.4 (a)

Exporter Size * Type of Visit by Foreign Delegations Crosstabulation

| | | | Type of Visit by Foreign Delegations | | | Total |
|---------------|--------|----------------|--------------------------------------|-------|------|-------|
| | | | 1.00 | 2.00 | 3.00 | |
| Exporter Size | Small | Count | 10 | 50 | 20 | 80 |
| | | Expected Count | 12.0 | 52.0 | 16.0 | 80.0 |
| | Medium | Count | 10 | 40 | 10 | 60 |
| | | Expected Count | 9.0 | 39.0 | 12.0 | 60.0 |
| | Large | Count | 10 | 40 | 10 | 60 |
| | | Expected Count | 9.0 | 39.0 | 12.0 | 60.0 |
| Total | | Count | 30 | 130 | 40 | 200 |
| | | Expected Count | 30.0 | 130.0 | 40.0 | 200.0 |

1.0 - Visit only

2.0 - Visit followed by enquiry

3.0 - Visit followed by order booking

Source – Field data

Table 2.4(b)

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|--------------------|----|-----------------------|
| Pearson Chi-Square | 2.350 ^a | 4 | .672 |
| Likelihood Ratio | 2.330 | 4 | .675 |
| Linear-by-Linear Association | 1.681 | 1 | .195 |
| N of Valid Cases | 200 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.00.

Table 2.4(c)

Symmetric Measures

| | Value | Approx. Sig. |
|--|-------|--------------|
| Nominal by Nominal Cramer's V | .077 | .672 |
| Nominal by Nominal Contingency Coefficient | .108 | .672 |
| N of Valid Cases | 200 | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Calculated value of Chi-square is less than table value at $\alpha = 0.05$ and $\alpha = 0.01$ significance level with 4 degree of freedom. It means that size of exporter and type of visit made by foreign delegations are not associated. Low values of contingency coefficient and Cramer's V also indicates toward their independence. In case of Small exporters observed frequency is more than expected frequency for cell showing "visit followed by enquiry and order booking" option. It means that foreign delegations visits small exporters to see their products and orders are booked on the spot. It is due to the reason that the products exhibited in the fair by small exporters are unique and may not be available to the buyers after the fair is over if orders are not booked. Second reason is that the buyer can see the product in physical form in the fairs. In case of Medium and Large exporters observed frequency is more than expected frequency for cell showing "Visit followed by enquiry" option. It means that foreign trade delegations visit these exporters for searching new technologies and new products in their area of interest. They made enquiries during the fair. Because order booking cannot be done on the spot as it involves huge funds commitment from the side of buyer. As the decisions are

not reversible so they can be taken only after a detailed discussion with other key staff members of the organization. Orders are booked after fair is over, by mutual negotiations and designing acceptable terms and conditions.

Expert Opinion Analysis

Experts from different trade promotion organizations were imparted questionnaire to know their opinion about trade fairs and exhibitions as a marketing event. In the research the researcher tried to find out the opinion of the experts about India's participation level, procedural problems, cost effectiveness of trade fairs and exhibitions. The results which emerged from the analysis of filled up questionnaires are as given below.

TABLE 3.1: OPINION ANALYSIS OF TRADE EXPERTS ON THE LEVEL, PROCEDURAL DIFFICULTIES, AND COST EFFECTIVENESS OF TRADE FAIRS AND EXHIBITIONS

| Opinion Category | Proportion of Experts in Sample Size |
|---|--------------------------------------|
| (a) India's participation level in trade fairs and exhibitions as good/excellent | 83% (58 +25) |
| (b) Cumbersome participation procedure | 58% |
| (c) Trade fairs and exhibitions as an cost effective medium of export promotion | 75% |
| (d) Marketing efforts sufficiency on the part of trade fairs and exhibitions organizers | 33% |

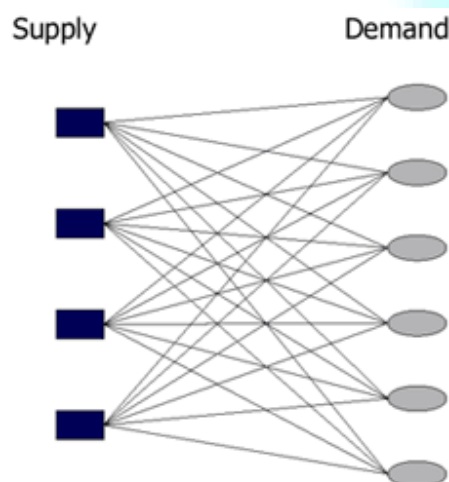
Source – field data

58% experts says that India's participation level in international trade fairs and exhibitions is excellent. 25 % says the participation is good. Only 17% says that participation is poor. As majority of experts are of the opinion that India's participation is excellent. It means that these events are attracting large number of Indian companies which it self speaks a lot about its effectiveness. 58% respondents say that procedure of participating in these events is cumbersome. The procedure requires a lot of paper work on the part of participants. So their lot of time is wasted just in the process of completing formalities of participation. Cost effectiveness here means that cost of participating in these events in comparison of returns incurred. 75% respondents say that they are cost effective medium of export marketing. It means that cost incurred on these events is less than the gains incurred. 67% respondents say that marketing efforts made by organizers to popularize these events are not adequate. . 33 % says that marketing efforts are adequate.

CONCLUSION

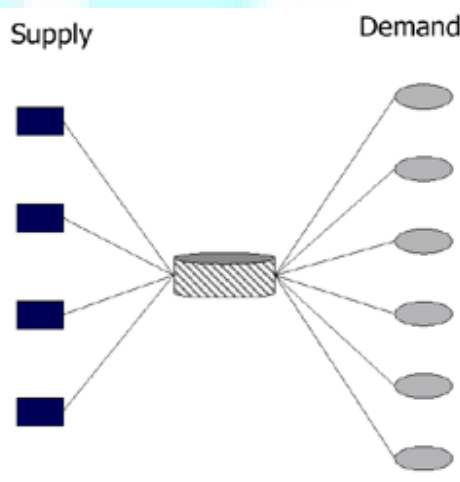
Keeping in view the opinion analysis of experts from various trade promotion organizations and actual participants in these events it can be said that these events provide effective platforms for export marketing for the companies intend to explore foreign markets for their products. Participation level of Indian companies is good but it can still be improved if these companies are made aware about the procedural part of participation in trade fairs and exhibitions. As majority of them are unaware about the process of participation.

Figure -1.1



Situation without Trade Fair

Figure -1.2



Situation with Fair

As shown in the figure the situation without the fair and situation with the fair . Trade Fairs and Exhibitions have great potential to match the customer with the supplier with cost effectiveness. So according to research findings, international trade fairs and exhibitions are one of the best marketing channels available to the exporters. A trade fair represents a one-stop-shop where industry buyers and sellers come together for a few days to show what they have, to see what is available and to do business. There is no other business channel that provides such an intense marketing forum as a trade fairs and exhibitions.

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IMPLICATIONS OF PERCEPTUAL LEARNING STYLE PREFERENCES ON MANAGEMENT PEDAGOGY

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ABSTRACT

Students and teachers have individual learning style preferences in receiving and processing information, which can be assessed using the VARK (Visual, Auditory, Read/Write, Kinesthetic) inventory designed by Neil D. Fleming. In this study which attempted to examine the perceptual learning style preference distribution in management students and teachers and its implications on management pedagogy, and suggest an alternative pedagogical method for management students, the VARK questionnaire containing 13 items was administered to four hundred and eight business management students and two hundred and fifty teachers. The data indicated that there are no gender differences in the percentages of male and female students who presented unimodal or multiple modes of sensory preferences. The data also showed that there is no significant difference between proportions of female students compared to male students in the specific multiple modes preferences. Regarding the effective areas of learning style preferences the data found that the most frequent bi-modal combination is Aural and Read/write (AR) with 10.3% for both students and teachers. The research found that there is a significant difference in multimodal learning preferences with the teaching experience, and that there is a significant association between career preference and learning preferences of students who, as per the research data, prefer multimodal learning styles more than the single-mode. Hence a judicious combination of all the four learning styles may be considered in a diverse learning environment.

KEYWORDS

Aural, Bi-Modal, Kinesthetic, Multimodal, Perceptual.

INTRODUCTION

The dynamics and complexities of management pedagogy, having far reaching consequences on the education and training of management students, pose a challenge to anyone interested in bringing about a paradigm shift in the current management education scenario. The present inter-disciplinary study covering management and education was motivated by this concern on the part of the researcher to explore the implications of Perceptual Learning Style Preferences on management pedagogy. In the present global education scenario, where management culture and management pedagogy have become synonymous with a way of imparting strategies and getting solutions, students, as “netizens”, can access thousands of different topics and titles in a matter of minutes. Yet much of our so called ‘modern’ and current education system is a legacy of the methods and ‘madness’ of schooling/teaching developed and nurtured during the British Rule, a system in which the techniques and strategies used by the teachers to interact with and impart knowledge to the students are amazingly outdated (Narendran V. & Narandran.R.:2004). As such the cure needed for the ailing management pedagogy is: the teachers must look for new styles of teaching and students for new styles of learning. The present study, while trying to do the same, compared and analyzed the learning style preference score among teachers of eighteen educational institutions from kindergarten to post-graduate level based on their gender, learning preferences and years of teaching experience. Similarly, the learning style preference score among different groups of management students belonging to four management institutes affiliated to four different universities was also compared and analyzed based on their gender, effective areas of learning style preferences, and professional preference. In examining and analyzing the learning style preference score among teachers and students, and in studying the current management pedagogy trends and techniques, an inventory questionnaire known in the academia as VARK (Visual, Aural, Read/Write and Kinesthetic) inventory questionnaire containing 13 items designed by Neil D. Fleming (Fleming, 2001) was used, as the researcher is of the firm view that management pedagogy, the art of management teaching, the methods and styles of management teaching and learning depend on the learning style preference of management students as well as management faculty.

CONCEPTUAL FRAMEWORK

The conceptual framework for the present study relies on an examination of learning styles literature including VARK which is a questionnaire that provides users with a profile of their learning preferences. These preferences are about the ways that they want to take-in and give-out information. A learning style has 18+ dimensions (preferences for temperature, light, food intake, biorhythms, working with others, deep and surface approaches). VARK is about one preference -our preference for taking in, and putting out information in a learning context. Fleming (1987) developed this model and complimentary identification instrument. It classifies learners by their preferred mode of interaction with others based on input stimulus and output performance. This model facilitates Multimodal-learning styles for those learners with more than one preference. Fleming accompanies the model with Study Strategies for each style and for Multimodal combinations.

VARK divides Learning Styles into four main categories:

- (i) **Visual** – pictures, diagrams, video, animation, flowcharts, colors, symbols, lecturers’ gestures and graphs.
- (ii) **Aural** – lecturer’s voices, discussions, verbal explanations, tape recordings, stories and jokes, recall to other people.
- (iii) **Read/Write** – lists, headings, dictionaries, glossaries, textbooks, and lecture notes.
- (iv) **Kinesthetic** – real experiences, concrete examples, case studies, field trips, laboratory experiments.

REVIEW OF LITERATURE

Dr. Russell French of the University of Tennessee in Knoxville in the early 1970s formulated a framework of perceptual learning styles. Daryl Gilley, a graduate student of Dr. French, tested students from a classroom within this framework. Another graduate student of Dr. French, Edwin Cherry, revised the framework and then tested others within this refined perceptual learning styles paradigm. The result of this early work in perceptual learning styles was the creation and development of the Multi-Modal Paired Associates Learning Test (MMPALT.). Len Schapier (1983) added yet another study to the body of research on MMPALT, and the instrument and procedures were further refined through research studies conducted at the University of Tennessee, Oklahoma State University, and the University of South Florida over a period of 20 years. By 1995, about 20 graduate students had completed dissertations on the MMPALT and the MMPALT II (a revised version) and Dr. Wayne James (1995) of the University of South Florida in Tampa had published several articles about the MMPALT. Gee (1990) studied the impact of learning style variables in a live teleconference distance education class. The purpose of the study was to examine the influence of student learning style preference, in an on-campus or distance education remote classroom, on student achievement in the following areas: course content, course completion rates, and attitudes about learning. Both distance and on-campus groups were taught simultaneously by the same instructor, received identical course content, and both groups met weekly. Gee administered the Canfield Learning Styles Inventory (CLSI) (Canfield, 1980). James and Gardner (1995) described Kolb's LSI as a cognitive learning style mode. Cognitive processes include storage and retrieval of information in the brain and represent the learner's ways of perceiving, thinking, problem-solving and remembering (p. 20). Dille and Mezack (1991) used Kolb's LSI to identify predictors of high risk among community college telecourse students. Presently there is little literature available on the effectiveness of perceptual learning style and its implications on management pedagogy. Therefore this study could be a significant contribution to knowledge in this area. It is hoped that the research could also contribute more understanding and awareness on the effectiveness of the perceptual learning style preference in a traditional management classroom and help management educators and trainers to better understand student's perceptions of traditional classrooms in terms of their learning achievements and teacher's methods, in terms of performance and pedagogy.

In exploring the management pedagogy the present study attempted to:

- Identify the perceptual learning style preference distribution in management students.
- Compare the specific multiple learning style preference between genders of management students and faculty members.
- Find out the effective areas of learning style preferences of management students and faculty members.
- Establish the relationship between the teachers' learning preferences and their teaching experience.
- Know the significance of learning styles over the students' career preference.
- Suggest an alternative pedagogical method for management students to reduce the difficulty level in understanding the learning concept.

The study intended to answer the following research questions:

1. Are the management student's active learners or reflective learners?
2. Is the learning of management students gender-neutral?
3. How can the different learning styles influence the learning challenges of management students?
4. Does learning depend on management pedagogy?
5. Is there a relationship between teaching experience and the learning preferences of management faculty?

METHODOLOGY

In an attempt to explore management pedagogy the study examined VARK'S Instrument and its four areas of learning styles preferences namely Visual, Aural, Read/Write and Kinesthetic, which were used as tools to assess and analyze the learning style preference distribution of management students and faculty. In order to achieve the objectives and show the interrelationship between the learning preference distribution and management pedagogy the methodology used in the study focused on

- Research population
- Sample size
- Reliability and Validity of VARK inventory
- The data collection procedure and
- Data analyses.

The methodology and the approach involved a comparative study of learning styles adopted by Montessori / primary/higher primary ,high school teachers, teacher trainees, pre-university(junior) college lecturers, under-graduate college and post graduate department professors, management faculty, and management students belonging to different management institutes. A student questionnaire was used to determine the students' / learners' learning preferences. The student questionnaire has 13 items to measure learning preferences. A Scoring Method constituting four steps was used to calculate the scores, which determine the learning preferences. The first step was to calculate the subtotal of responses for each response type for all 13 questions. Then added the four subtotals to obtain the total score $[(a = 3) + (b = 6) + (c = 5) + (d = 9) = 23]$. The second step was to sort the scores in an ascending order. The highest score was usually the first learning preference. In this example, response type (d) which represents Kinesthetic had the highest score followed by (b), (c) and (a). The third step was to locate the range category of the total score (23). Four possible ranges were shown with their associated Stepping Distance. In this case, 23 fell within the third range that represented Stepping Distance of 3. The fourth step was to investigate if a single or multiple learning preferences existed. If the first score minus the second score was larger than the stepping distance, then a single preference was assigned. If the second score minus the third score was larger than the stepping distance, then a Bi-Modal preference was selected. If the third score minus the fourth score was larger than the stepping distance then a Tri-Modal preference was assigned. Otherwise, if the third score minus fourth score was smaller than the stepping distance then All Four Preferences was assigned. The research population for the current study included Management Education students (n=408) in medium-sized (50 - 60 enrollment) groups from four Management Institutes. The teachers (n=250) of eighteen educational institutions constituted the research population of teachers.

LIMITATIONS OF THE STUDY

The topic of this study is very vast but the scope of this research is restricted to determining the perceptual learning style preference distribution in management students and faculty using VARK Inventory Categories and also to compare the learning preferences between

genders among students of four management institutes. As the researcher intended to explore the possibility of finding out an alternative pedagogical method for management students, the data of the student population collected through questionnaire were limited, from the point of view of manageability, to four management institutes belonging to four universities with different syllabi and curriculum. The data collected from the teachers was restricted to the teachers of eighteen educational institutions as the researcher intended to assess the learning style preference of teachers teaching at different levels rather than in greater number of educational institutions. Although students who

DATA ANALYSIS AND INTERPRETATIONS

The following are the analyses and interpretations of the research data. The total number of student responses was tallied for each of the four sensory modalities (V, A, R, K) and for all possible combinations of the modalities (Eg: - VA, VAR, VARK, etc.)

TABLE 1: CROSS TABULATION OF LEARNING PREFERENCES OF MALE AND FEMALE STUDENTS [IN PERCENTAGE]

| | | V | A | R | K | [BM] | [TM] | [MM] | TOTAL |
|--------|---------|-----|------|-------|------|------|-------|------|-------|
| FEMALE | COUNT | 2 | 25 | 21 | 15 | 44 | 31 | 64 | 202 |
| | PERCENT | 1 | 12.4 | 10.4 | 7.4 | 21.8 | 15.30 | 31.7 | 100 |
| MALE | COUNT | 2 | 29 | 21 | 13 | 41 | 24 | 76 | 206 |
| | PERCENT | 1 | 14.1 | 10.20 | 6.30 | 19.9 | 11.70 | 36.9 | 100 |
| TOTAL | COUNT | 4 | 54 | 42 | 28 | 85 | 55 | 140 | 408 |
| | PERCENT | 1.0 | 13.2 | 10.3 | 6.9 | 20.8 | 13.50 | 34.3 | 100 |

$\chi^2 = 2.426$

$p=0.877$

ns

| LEGENDS | |
|---------|------------|
| [BM] | Bi-Mode |
| [TM] | Tri-Mode |
| [MM] | Multi-mode |

participated in the questionnaire emerge from different geographic origins, an attempt was made to maintain accuracy, authenticity and reliability.

SOURCE: FIELD SURVEY 2008-2009

Table 1 identifies the percentages for the dominant unimodal and for the multiple learning modalities for male and female students. A sum of 31.4% of the students was found to have a dominant unimodal sensory learning style. From this group, 1.0% were found to be Visual (V), a percentage of 13.2% presented Aural(A) learning style, 10.3% were found to be Read/Write (R) and 6.9% were Kinesthetic (K). A total of 68.60% of students presented multiple sensory modalities (bi-modal, tri-modal and quad-modal). There were no gender differences in the percentages of male and female students who presented unimodal or multiple modes of sensory preferences. For the aggregate sample of students, the Visual modality was found to be the least frequent, while multiple modalities were the most common. These results indicate the diversity in learning preferences exhibited by the students in the research sample. A total of 20.8% of the students were found to favor two learning styles (10.8% Male Vs 10% Female), 13.5% were found to prefer a combination of three learning styles (8% Male Vs 6.5% Female) and 34.3% were found to be quad-modal (16% Male Vs 19.3% female). Among the male students, 31% were found to be unimodal, while 69% were found to favor a combination of two or more learning modalities. Among the female students, 32% were found to be unimodal, while 68% were found to prefer a combination of two or more sensory modalities.

TABLE 2: CROSS TABULATION OF SPECIFIC MULTIPLE LEARNING STYLES COMBINATION OF STUDENTS BY GENDER [IN PERCENTAGE]

| | | VARK | VAR | VAK | VRK | ARK | VA | VR | VK | AR | AK | RK | TOTAL |
|--------|---------|------|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-------|
| FEMALE | COUNT | 64 | 11 | 5 | 3 | 12 | 3 | 3 | 4 | 15 | 13 | 6 | 139 |
| | PERCENT | 46.0 | 7.9 | 3.6 | 2.2 | 8.6 | 2.2 | 2.2 | 2.9 | 10.8 | 9.4 | 4.2 | 100.0 |
| MALE | COUNT | 76 | 5 | 5 | 1 | 13 | 1 | 6 | 2 | 21 | 3 | 8 | 141 |
| | PERCENT | 53.9 | 3.5 | 3.5 | 0.7 | 9.2 | 0.7 | 4.3 | 1.4 | 15.0 | 2.1 | 5.7 | 100.0 |
| TOTAL | COUNT | 140 | 16 | 10 | 4 | 25 | 4 | 9 | 6 | 36 | 16 | 14 | 280 |
| | PERCENT | 50.0 | 5.7 | 3.6 | 1.4 | 8.9 | 1.4 | 3.3 | 2.1 | 12.9 | 5.7 | 5.0 | 100.0 |

$\chi^2 = 14.92$

$p=0.383$

ns

| LEGENDS | |
|---------|--------|
| V | VISUAL |
| A | AURAL |

| | |
|---|-------------|
| R | READ/WRITE |
| K | KINESTHETIC |

SOURCE: FIELD SURVEY 2008-2009

TABLE 2 shows the percentages of the combinations of specific multiple learning styles of students. For the bi-modal female students, the most frequent combination was the Aural and Read/Write (AR) with 10.8%; followed by the least frequent combination of Visual, Aural (VA) and Visual, Read/Write (VR) with an equal percentage of 2.2%. For the bi-modal male students, the most frequent combination was also the Aural and Read/write (AR) with 15.0% followed by the least frequent combinations of 'VA' with 0.7%. For both male and female tri-modal students, the combination Aural, Read/write and Kinesthetic (ARK) were found to be the most frequent (9.2% for male Vs 8.6% female). And the combination (VRK) Visual, Read/write, Kinesthetic were found to be the least frequent both in male and female tri-modal students. [0.7% for male Vs 2.2% female] However, there was no significant difference between proportions of female students compared to male students in the specific multiple modes preferences. A total of 53.9% of male students and 46.0% of female students were found to be quad-modal, exhibiting no dominant preference for any of the unimodal styles.

TABLE 3: CROSS TABULATION OF SPECIFIC MULTIPLE LEARNING STYLES COMBINATION OF TEACHERS BY GENDER [IN PERCENTAGE]

| | | VARK | VAR | VAK | VRK | ARK | VA | VR | AR | AK | RK | TOTAL |
|--------|---------|------|-----|-----|-----|------|-----|-----|------|-----|------|-------|
| FEMALE | COUNT | 61 | 3 | 2 | 2 | 15 | 1 | 5 | 12 | 10 | 6 | 117 |
| | PERCENT | 52.1 | 2.6 | 1.7 | 1.7 | 12.8 | 0.9 | 4.3 | 10.3 | 8.5 | 5.1 | 100.0 |
| MALE | COUNT | 12 | 2 | 0 | 1 | 0 | 0 | 1 | 7 | 0 | 5 | 28 |
| | PERCENT | 42.9 | 7.1 | 0 | 3.6 | 0 | 0 | 3.6 | 25.0 | 0 | 17.9 | 100.0 |
| TOTAL | COUNT | 73 | 5 | 2 | 3 | 15 | 1 | 6 | 19 | 10 | 11 | 145 |
| | PERCENT | 50.3 | 3.4 | 1.4 | 2.1 | 10.3 | 0.7 | 4.1 | 13.1 | 6.9 | 7.6 | 100.0 |

$\chi^2=17.44$ $P=0.042$ SIG

| LEGENDS | |
|---------|-------------|
| V | VISUAL |
| A | AURAL |
| R | READ/WRITE |
| K | KINESTHETIC |

SOURCE: FIELD SURVEY 2008-2009

TABLE 3 shows the percentages of the combinations of specific multiple learning styles of teachers. For the bi-modal female teachers the most frequent combination was Aural and Read/write (AR) with 10.3% similarly as in the case of students. And the least frequent combination was (VA) Visual and Aural with 0.9%. For the bi-modal male teachers, the most frequent combination was also the Aural and Read/write (AR) with 25% followed by the least frequent combinations of 'VA' and 'AK' with 0%. For the female tri-modal teachers, the combination ARK [Aural, Read/write and Kinesthetic] was found to be the most frequent with 12.8% and the combinations VAK and VRK were equally least frequent with 1.7%. For the male tri-modal teachers, the combination VAR [Visual, Aural and Read/write] was found to be the most frequent with 7.1% and the combinations VAK and ARK were equally least frequent with 0%. A total of 52.1% of female teachers and 42.9% of male teachers were found to be quad-modal learners.

RESEARCH FINDINGS

The data indicated that there are no gender differences in the percentages of male and female students who presented unimodal or multiple modes of sensory preferences. For the aggregate sample of students, the Visual modality was found to be the least frequent, while multiple modalities were the most common. These results indicate the diversity in learning preferences exhibited by the students in the research sample. There was no gender difference in the percentage of male and female students who preferred bi, tri or quad-modal learning styles. Both male and female students were less likely to prefer a unimodal learning style, conversely more likely to prefer multimodal learning style. There was no significant difference between proportions of female students compared to male students in the specific multiple modes preferences. For female tri-modal teachers, the combination ARK [Aural, Read/write and Kinesthetic] was found to be the most frequent with 12.8% and the combinations VAK and VRK were equally least frequent with 1.7%. But there was a significant difference between proportions of female teachers compared to the male teachers in the tri-mode learning preferences. A total of 52.1% of female teachers and 42.9% of male teachers were found to be quad-modal learners.

Regarding the effective areas of learning style preferences the data found that the most frequent bi-modal combination was Aural and Read/write (AR) with 10.3% for both students and teachers. Among students, a total of 53.9% of male students and 46.0% of female students were found to be quad-modal, exhibiting no dominant preference for any of the unimodal styles. A total of 20.8% of the students were found to favor two learning styles (10.8% Male Vs 10% Female), 13.5% were found to prefer a combination of three learning styles (8% Male Vs 6.5% Female) and 34.3% were found to be quad-modal (16% Male Vs 19.3% female). Among teachers, a total of 52.1% of female teachers and 42.9% of male teachers were found to be quad-modal learners. A total of 18.8% of the teachers were found to favour two learning styles, (14% female Vs 4.8% male), 10% were found to prefer a combination of three learning styles (9% female Vs 1% Male), and 29.2% were found to be quad-modal (24% female Vs 5.2% male).

There was a significant difference in multimodal learning preferences with the teaching experience. In the unimodal category Read/write was the only one which was pre-dominant irrespective of the teaching experience. In the bi-modal category, the most frequent combination was the 'AR' (Aural, Read/Write). Similarly in the multi-modal category, teachers with 5-10 years of teaching experience had a high dependency on the quad-modal learning styles with 37.5% and teachers above 25 years of experience were least frequent with 7.7%.

A chi-square test for independence was performed to investigate whether an association existed between the professional preference and the categorical variables of single dominant and multimodal learning modalities. Consequently, a significant association between career preference and learning preferences was found among students.

Further, it was found that students prefer multi-modal learning styles more than the single-mode. The multimodal students have a choice when they are taking in and giving out information. Some students who are multimodal can consciously switch over from mode to mode. Since the management students come from diverse background with different level of complexity in understanding the learning concept, two pedagogical methods were suggested namely, Method for retention (VAR) and Method for participation. (VAK) designed by Fleming and Bonewell (2002).

IMPLICATIONS

According to the results of this study,

- Management faculty encounter a broad variety of learning styles in today's classrooms.
- Both male and female students prefer multimodal learning preferences more than unimodal learning preferences.
- There is no significant difference between proportions of female students compared to male students in the specific multiple modes preferences.
- The majority of the students present multiple sensory modalities (tri-mode and multi-mode).
- There is a great variation in learning preferences in the management classrooms. This has important implications and consequences for instruction in management schools.
- There is a significant difference in multimodal learning preferences with the teaching experience.
- Management classrooms are populated with diverse unimodal and multi-modal learners.
- Students prefer multi-modal learning styles more than the single-mode.
- There is a significant association between a student's career preference and his learning preferences.

These implications throw light on the pedagogical challenges that the management faculty has to face in the current management education scenario. As the management encounters a broad variety of learning styles in today's classrooms they have got to find newer and newer techniques of receiving and processing information and imparting knowledge. The fact that both male and female students prefer multimodal learning preferences more than unimodal learning preferences points at the fact that management teacher's instructional methods should also be multimodal and cannot afford to be unimodal. The great variation in learning preferences in management classrooms speaks volumes for the need for an equally great variation in the teaching modes in management classrooms. The significant difference in multimodal learning preferences with the teaching experience of the faculty suggests the need for special and different faculty development programs for Junior and senior management faculty to be conducted regularly before the introduction of new management curriculum and updated courses. When the management classrooms are populated with diverse unimodal and multi-modal learners, the same level of diversity in instructional methods could make the process of learning on the part of the students a pleasure and not a matter of pressure, and a celebration and not a matter of suffocation. And the fact that there is a significant association between a student's career preference and his learning preferences suggests the significance of job-oriented and career-oriented courses to be updated depending on the global job market and the local recruitment requirements.

CONCLUSION

As the global management education scenario is changing rapidly, management students should try to adapt visual and kinesthetic learning style preferences, as these would make them less dependent on the faculty and the library of the institute. At the same time, they can get the practical exposure to be self-equipped before entering any real-time working environment. Hence it will be a pre-defined preparation to approach the modern competitive business world. By considering only the Aural and Read/write learning preferences, students can gain more and more information but will not gain practical experience and latest industrial exposure if the other two learning style preferences are overlooked. This may, in turn, affect their own career development. Hence, a judicious combination of all the four learning styles may be considered in a diverse learning environment. Research in Management pedagogy has not kept pace with research on other areas of management like human resource management, marketing or finance. This study was an attempt to contribute to this area with its focus on the implications of perceptual learning style preferences of management students and faculty on management pedagogy. After going through the data analyses and research findings the following remarks are made: According to the results of this study, management faculty encounter a broad variety of learning styles in today's classrooms. This is an academic challenge for them as they have to adapt multimodal instructional methods to match the variety of their learning styles, as both male and female students prefer multimodal learning preferences more than unimodal learning preferences and present multiple sensory modalities (tri-mode and multi-mode). A great variation in learning preferences is found in the management classroom and this has important implications and consequences for instruction in management schools. Moreover, the significant difference found in multimodal learning preferences with the teaching experience could have important implications for the planners of faculty development programs, just as the significant association between a student's career preference and his learning preferences is an important factor to be considered in curriculum design and choice of pedagogical spaces. Today's modern classrooms enhance the learning styles of students with the advent of laptop computers, networks, video conferencing, distance learning through VSAT, the Internet and wireless technologies. The role of technology has become quite significant in a constantly changing management educational scenario. Computer technology provides students and teachers with unprecedented opportunities to transform the teaching and learning process. Whether it has positive implications on the learning or not remains incomplete. This is a point to be taken up for discussion by future scholars and research students who work in a global academic environment where marketability of certain topics taught in the management courses changes at a very fast pace and where the faculty have to work hard to keep themselves updated academically, pedagogically and intellectually with the latest trends in management education.

RECOMMENDATIONS

A study of relationships between student's career preference and their learning preferences may be taken up to examine how management pedagogy could be modified to suit the learning demands of career-oriented students.

A demographic study of management students could be pursued to find out if students coming from different regions show different perceptual learning style preferences, and if they do, then, how can pedagogic strategies be suitably modified to facilitate learning in such demographically diverse groups.

The relationships between students' perceptual learning style preferences, pedagogical methods and student performance are to be researched. For example, if students are placed in groups, how might performance and learning outcomes differ between groups with a unimodal learning style and those with a multimodal learning style.

What about the significant difference in multimodal learning preferences with the teaching experience of the faculty? A study of how faculty development programs can be designed and executed depending on the difference in multimodal learning preferences of the faculty with their teaching experience could prove to be useful for future researchers.

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GREEN MARKETING: A NEW ROADMAP FOR ORGANIZATION SUCCESS**RAJEEV KUMAR RANJAN**

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ABSTRACT

Green Marketing has emerged as an important concept in India as in other parts of the developing and developed world, and is seen as an important strategy of facilitating sustainable development. As, Environmentalism has fast emerged as a worldwide phenomenon, Business firms too have risen to the Occasion and have started responding to environmental challenges by practicing green marketing strategies. Green consumerism also has played a catalytic role in ushering corporate environmentalism and making business firms green marketing oriented. But most of our green activities are hinged on a set of dos and don'ts. There are three reasons why we must rethink the idea of green Marketing. First, the impact of the products on environment Second, the after-life of these green products is always not very environmental –friendly and thirdly, the hardest of all, is the question whether they are really green or not. This Paper aims at finding out what actually green Marketing is all about and how can a business firm be more competitive by using green marketing strategies to gain a competitive edge over others. It explores the main issues in adoption of green marketing practices.

KEYWORDS

Environment, Green Marketing, Business Firms & Consumers.

INTRODUCTION

According to the American Marketing Association, green marketing is the marketing of products that are presumed to be environmentally safe. Thus green marketing incorporates a broad range of activities, including product modification, changes to the production process, packaging changes, as well as modifying advertising. Yet defining green marketing is not a simple task where several meanings intersect and contradict each other; an example of this will be the existence of varying social, environmental and retail definitions attached to this term. Other similar terms used are Environmental Marketing and Ecological Marketing. Thus "Green Marketing" refers to holistic marketing concept wherein the production, marketing consumption and disposal of products and services happen in a manner that is less detrimental to the environment with growing awareness about the implications of global warming, non-biodegradable solid waste, harmful impact of pollutants etc., both marketers and consumers are becoming increasingly sensitive to the need for switch in to green products and services. While the shift to "green" may appear to be expensive in the short term, it will definitely prove to be indispensable and advantageous, cost-wise too, in the long run. The first wave of Green Marketing occurred in the 1980s. Corporate Social Responsibility (CSR) Reports started with the ice cream seller Ben & Jerry's where the financial report was supplemented by a greater view on the company's environmental impact. In 1987 a document prepared by the World Commission on Environment and Development defined sustainable development as meeting "the needs of the present without compromising the ability of future generations to meet their own need", this became known as the Brundtland Report and was another step towards widespread thinking on sustainability in everyday activity. Two tangible milestones for wave 1 of green marketing came in the form of published books, both of which were called Green Marketing. They were by Ken Peattie (1992) in the United Kingdom and by Jacquelyn Ottman (1993) in the United States of America. One of green marketing's challenges is the lack of standards or public consensus about what constitutes "green," according to Joel Makower, a writer on green marketing. In essence, there is no definition of "how good is good enough" when it comes to a product or company making green marketing claims. This lack of consensus—by consumers, marketers, activists, regulators, and influential people—has slowed the growth of green products, says Makower, because companies are often reluctant to promote their green attributes, and consumers are often skeptical about claims.

Despite these challenges, green marketing has continued to gain adherents, particularly in light of growing global concern about climate change. This concern has led more companies to advertise their commitment to reduce their climate impacts, and the effect this is having on their products and services. According to a survey of marketing and communication leaders completed by St. Louis-based public relations firm Fleishman-Hillard Inc. and the American Marketing Association, 58% believe their companies will increase their environmental sustainability efforts in the months ahead. Further, 76% of U.S. consumers surveyed by Esty Environmental Partners, Landor Associates, Cohn & Wolfe, and Penn, Schoen & Berland for the 2009 Global Green Brands Survey said they will spend the same or more on green products in the next year.

LITERATURE REVIEW

Green marketing has been an important academic research topic since it came.(Coddinton.1993;Fuller;1999;Ottman,1994).Attention was drawn to the subject in the late 1970's when the American Marketing Association organized the first ever workshop on "Ecological marketing" in 1975 which resulted in the first book on the subject entitled "Ecological Marketing" by Henion and Kinnear in 1976.The first definition on "green Marketing according to Henion (1976) was "the implementation of marketing programmes directed at the environmentally conscious market segment".Peattie and Crane (2005) claims that despite the early development, it was only in the late 1980's that the idea of Green Marketing actually made an appearance because of the consumers growing interest in green products. As per fuller (1994);Green marketing can be defined as a process of planning, implementing and controlling the development ,pricing, promotion and distribution of products in a manner that satisfies the three following criteria:

- Customer needs are met
- Organizational goals are attained

- The process is compatible with ecosystems

Furthermore, Green marketing was given prominence in the late 1980s and 1990s after the proceedings of the first workshop on Ecological marketing held in Austin, Texas (US), in 1975. Several books on green marketing began to be published thereafter. According to the Joel makeover (a writer, speaker and strategist on clean technology and green marketing), green marketing faces a lot of challenges because of lack of standards and public consensus to what constitutes "Green". The green marketing has evolved over a period of time. According to Peattie (2001), the evolution of green marketing has three phases. First phase was termed as "Ecological" green marketing, and during this period all marketing activities were concerned to help environment problems and provide remedies for environmental problems. Second phase was "Environmental" green marketing and the focus shifted on clean technology that involved designing of innovative new products, which take care of pollution and waste issues. Third phase was "Sustainable" green marketing. It came into prominence in the late 1990s and early 2000. In India green Marketing is a relatively new topic introduced by few multinational companies operating in India like Philips India limited, Avoiding Green Marketing Myopia (By: Jacquelyn A. ottoman, Edwin R. Stafford and Cathy L.Hartman, 2006).

GREEN MARKETING AND CONSUMERISM: INTERTWINED

Green Marketing is of no use if the consumers are not willing to purchase the green products so it becomes imperative for the green marketing companies to market the benefits of using the green products which would be useful for both the consumers and the environment. This would give a definite edge to the green marketing companies over other companies which are not using green marketing in the long run. So, green marketing becomes all the more useful and widely accepted if its uses and benefits are clearly communicated to the consumers. Polanski (1994) defines Green marketing as 'All activities designed to generate and facilitate any exchanges internal to satisfy human needs or wants, such that the satisfaction of these needs and wants occurs with minimum detrimental impact on the environment. Or more simply it comprises of all those marketing activities which the firm undertake to create a positive impact on the environment. Green marketing has been in existence since decades and has been used without been formally recognized (Kuhre 1997). But after the excessive media exposures and strict government environmental regulations firms have started thinking of acting in a more eco responsible- manner. Companies used green marketing by way of redesigning their products and packaging and advertising to increase consumer awareness about green marketing. Environmental protection is today one of the essentials items on the agenda of consumers, this growing concern among consumer for the environment is known as green consumerism. Elkington (1994) defines green consumer as one who avoids products that are likely to cause significant damage to the environment, health of the consumer, use of disposal, cause unnecessary wastes and adversely affect other countries. Rise of environmental concern among consumers has been viewed as perhaps the biggest opportunity for the enterprise the industrial world has ever seen.

Following are the reasons which are responsible for the growth of green consumerism. They are:

- Heightened awareness of green issues among people.
- Increased level of information.
- Emergence of an increasing number of green substitutes.
- Increased Marketing activity among social charities. (Peattie 1992; Strong 1992).

Because of this green consumerism, green marketing has gained prominence over the years and will continue to be the much talked about concept in the corporate world.

WHY GREEN MARKETING?

After discussing about what Green Marketing is all about it is important to find out why any company should adopt Green Marketing and what the benefits of using Green Marketing are. The first indication of consumer interest in green products came through a survey. The survey stated that more than 92% of European MNCs claimed to have changed their products in response to green concerns and 85 % claimed to have changed their product systems. Green products introduced by more than double to 11.4% of all new household products in the U.S.A 1989 to 1990 and continued to rise to 13.4% in 1991. As the figure suggests that the interest of the consumers in Green Marketing is considerably increasing so the companies should try to satisfy the needs of the consumers and seriously think of adopting Green Marketing strategies. Grant (2007, pp.20-24) claims that Green Marketing is at a tipping point and that what the companies do next will decide if Green Marketing continues to develop and gain momentum. In the present times when the government regulations around the globe are very strict and the whole world is talking about global warming, climate change and environment protection the companies would be left with no option but to adopt green marketing otherwise it might be too late to survive in the greener world.

The consumer's world over in general and India in particular are increasingly buying energy efficient products. The 5-Star rated products sales in 2009-10 witnessed a 31 % increase over the preceding year. The 5-Star rated products are 30% more energy efficient than products with 1-Star rating. Consumers are buying these products even when they have to pay a little extra. The star rating for white goods was introduced in 2007 on a voluntary basis. It now covers the entire white goods category. In financial terms India saved Rs-8000/- crores, which is 1/6th of country's annual food subsidy thanks to the sale of 5 star appliances. The popularity of such marketing approach and its effectiveness is hotly debated. Supporters claim that environmental appeals are actually growing in number—the Energy Star label, for example, now appears on 11,000 different companies' models in 38 product categories, from washing machines and light bulbs to skyscrapers and homes. The difference is, however, that green—rightfully so—is on the wane as the primary sales pitch for products. On the other hand, Roper's Green Gauge shows that a high percentage of consumers (42%) feel that environmental products don't work as well as conventional ones. Given the choice, all but the greenest of customers will reach for synthetic detergents over the premium-priced, proverbial "Happy Planet" any day, including Earth Day. New reports however show a growing trend towards green products.

ENERGY EFFICIENT

| | |
|---------|--|
| 2007-08 | 0.2% of total star rated products sold |
| 2008-09 | 1.4% of total star rated products sold |
| 2009-10 | 44% of total star rated products sold |

(Source: Bureau of Energy Efficiency)

Higher sale of 5-Star rated appliances helped save 2,000 MW of power in 2009-10 compared to 600 MW in 2008-09.

One major challenge for green marketers -- old and new -- they are likely to face as green products and messages become more common are confusion in the marketplace. "Consumers do not really understand a lot about these issues on Green marketing, and there's a lot of confusion out there in the minds of the customer about what actually green marketing is all about," says Jacquelyn Ottman (Author of "Green Marketing: Opportunity for Innovation.") Marketers sometimes take advantage of this confusion, and purposely make false or exaggerated "green" claims. Critics refer to this practice as "green washing" which means trying to sell the customers those products which are not environmental friendly but the company claims them to be environmental friendly.

In a nutshell most of the companies are venturing into green marketing because of the following reasons:

OPPORTUNITY

In India, around 25% of the consumers prefer environmental-friendly products, and around 28% may be considered healthy conscious. Therefore, green marketers have diverse and fairly sizeable segments to cater to. The Surf Excel detergent which saves water advertised with the message and the energy-saving LG consumers durables are examples of green marketing. We also have green buildings which are efficient in their use of energy, water and construction materials, and which reduce the impact on human health and the environment through better design, construction, operation, maintenance and waste disposal for example what ONGC have done it in case buildings called Green Buildings as an initiative of Green Marketing some other examples in India can be of, the green building movement, spearheaded by the Confederation of Indian Industry (CII) - Godrej Green business Center.etc

SOCIAL RESPONSIBILITY

Many companies have started realizing that they must behave in an environment-friendly fashion. They believe both in achieving environmental objectives as well as profit related objectives. The HSBC became the world's first bank to go carbon-neutral last year. Other examples include Coca-Cola, which has invested in various recycling activities.

GOVERNMENTAL-PRESSURE

Various regulations recently framed by the government to protect consumers and the society at large led to the adoption of Green marketing as an compulsion rather than a choice. The Indian government too has developed a framework of legislations to reduce the production of harmful goods and by products. These reduce the industry's production and consumers' consumption of harmful goods, including those detrimental to the environment; for example, the ban of plastic bags in many parts of the country, and prohibition of smoking in public areas, etc.

COMPETITIVE-PRESSURE

Many companies take up green marketing to maintain their competitive edge. The green marketing initiatives by niche companies such as Body Shop and Green & Black have prompted many mainline competitors to follow suit.

COST-REDUCTION

Reduction of harmful waste may lead to substantial cost savings. Sometimes, many firms develop symbiotic relationship whereby the waste generated by one company is used by another as a cost-effective raw material. For example, the fly ash generated by thermal power plants, which would otherwise contributed to a gigantic quantum of solid waste, is used to manufacture fly ash bricks for construction purposes.

PATHS TO GREENNESS

Green marketing involves focusing on promoting the consumption of green products. Therefore, it becomes the responsibility of the companies to adopt creativity and insight, and be committed to the development of environment-friendly products. This will help the society in the long run. Companies which embark on green marketing should adopt the following principles in their path towards "greenness."

- Adopt new technology/process or modify existing technology/process so as to reduce environmental impact.
- Establish a management and control system that will lead to the adherence of stringent environmental safety norms.
- Using more environment-friendly raw materials at the production stage itself.
- Explore possibilities of recycling of the used products so that it can be used to offer similar or other benefits with less wastage.

MARKETING STRATEGIES

The marketing strategies for green marketing include:-

- Marketing Audit (including internal and external situation analysis)
- Develop a marketing plan outlining strategies with regard to 4 P's
- Implement marketing strategies
- Plan results evaluation

CONCLUSION

The popularity of such marketing approach and its effectiveness is hotly debated. Supporters claim that environmental appeals are actually growing in number--the Energy Star label, for example, now appears on 11,000 different companies' models in 38 product categories, from washing machines and light bulbs to skyscrapers and homes. On the other hand, Roper's Green Gauge shows that a high percentage of consumers (42%) feel that environmental products don't work as well as conventional ones. New reports however show a growing trend towards green products. Moreover a clever marketer is one who not only convinces the consumer, but also involves the consumer in marketing his product it has to adapt to the requirements of the market and it has to be done sooner rather than later. Green marketing should not be considered as just one more approach to marketing, but has to be pursued with much greater vigor, as it has an environmental and social dimension to it which is going to rule the world in coming times. With the threat of global warming looming large on the world, it is extremely important that green marketing becomes the norm rather than an exception or just a fad. Recycling of paper, metals, plastics, etc., in a safe and environmentally harmless manner should become much more systematized and universal. Marketers also have the responsibility to make the consumers understand the need for and benefits of green products as compared to non-green ones and the benefits they can reap in the future. In green marketing, consumers are willing to pay more to maintain a cleaner and greener environment. Finally, consumers, industrial buyers and suppliers need to pressurize effects so as to minimize the negative effects on the environment. Green marketing assumes even more importance and relevance in developing countries in the world like India and others.

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POTENTIAL OF VMI APPLICATION IN COMMERCIAL VEHICLE MANUFACTURING INDUSTRY- A CASE STUDY**M.NAGALATHA**

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ABSTRACT

Various cost reduction techniques are involved in the management of inventory. VMI model is one of the ways to cut inventory related costs and keep inventory levels low. VMI model helps companies to reduce the inventory-associated costs by shifting the responsibility of managing and replenishing inventory to vendors. It has been intensively discussed as an innovative technique for increasing economic potentials by reducing the inventory cost in real time. However, a systematic application in different industries has not yet been achieved. This paper reveals the potential of the use of VMI in a leading commercial vehicle manufacturing company. This approach has been implemented to illustrate how VMI model can minimize the inventory associated costs. The findings may be generalized to a variety of other manufacturing industries.

KEYWORDS

Case study, Manufacturing operations, Vendor managed inventory

INTRODUCTION

Inventory management is primarily about specifying the size and placement of stocked goods. Inventory management is required at different locations within a facility or within multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials or goods. The scope of inventory management also concerns the fine lines between replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods and demand forecasting. Balancing these competing requirements leads to optimal inventory levels, which is an on-going process as the business needs shift and react to the wider environment.

VENDOR MANAGED INVENTORY

Some firms have successfully improved their supply chain performance by implementing an approach known as Vendor Managed Inventory (VMI). Business models, including Just in Time (JIT) Inventory, Vendor Managed Inventory (VMI) and Customer Managed Inventory (CMI) attempt to minimize on-hand inventory and increase inventory turns. VMI is a supply chain practice where the supplier is responsible for maintaining the clients inventory levels (Peter Kahn 2007). The supplier has access to clients' stock levels and generates the stock replenishment orders based on agreed inventory levels, fill rates and transaction costs. Orders are usually sent automatically by the stock monitoring software, but they can be overridden by both supplier and the client. VMI and CMI have gained considerable attention due to the success of third-party vendors who offer added expertise and knowledge that organizations may not possess. With VMI, the vendor specifies delivery quantities sent to customers through the distribution channel using data obtained from EDI. Vendor Managed Inventory, Just-in-Time Distribution (JITD), and Efficient Consumer Response (ECR) all refer to similar concepts, but applied to different industries. For example, the grocery and apparel industries tend to use ECR, whereas the automobile industry tends to use VMI and JITD.

BRIEF LITERATURE REVIEW

Narayanan and Raman (1998) focus on the effects of brand switching and the use of supply chain contracts, such as VMI to mitigate the misalignment of retailers and manufacturers incentives regarding stock outs. Few empirical studies investigate VMI relationship. Clark and Hammond (1997) assess the relationship between Business Process Reengineering and channel performance when EDI (i.e., Electronic Data Interchange) is in place. Johnson, Davis and Waller (1997) use simulation to examine VMI benefits under several scenarios including volatile demand, partial adoption and limited manufacturing capacity. All these studies suggested that VMI leads to operational and economic benefits. Daniel Nowak, Robert Nyman, Marie Lundberg, (2006) indicates that the benefits from a VMI implementation will be greater for Kongsberg Automotive, than for the suppliers. Specifically, a reduction in inventory value can be attained by KA, while the suppliers only can obtain minor improvements within the areas of inventory, production, and order processing. The conclusion of this study is that a VMI strategy, in

supplement with a consignment stock policy, is possible for KA. Mette Eisenso, Liselott Dahl, (2007), concluded that in order to have a successful collaboration and implementation, it is important to know what basis to choose suppliers and understand what needs to be in place, internally and externally, before starting either a JIT or VMI relationship with different suppliers. Erica Henningson, Therese Linden, (2005), indicate that there is a risk of an increase in inventory levels at Ikea's distribution centers. However, this can be avoided if the manufacturer follows its routines and jointly with the supplier set maximum and minimum inventory levels.

Many references study the benefits of a VMI system over other inventory management system. Waller (1999) studies the effect of the VMI in several environments. He states that, in this relationship buyers relinquish control of key supply decisions and sometimes even transfer financial responsibility for the inventory to the supplier. Some advantages of VMI are pointed, for example reducing costs for each partner, reducing demand volatility, mitigating uncertainty of demand and solving the dilemma of conflicting performance measures. Aichlymayr (2000) shows some benefits of VMI and collaborative planning, forecasting and replenishment. Disney (2002) defines VMI as a production, distribution and inventory control system where stock positions and demand rates are known across more than 1-echelon of the supply chain. Cheung and Lee (2002) studied a VMI policy where the objective was to minimize the average daily distribution cost during the planning period without causing stock-outs at any of the customers' location. The motivation of this work was based on the advantages that seen to exist when using a VMI system in the operational level of inventory management.

ASHOK LEYLAND

Ashok Leyland (AL) is a commercial vehicle manufacturing company based in Chennai, India. Founded in 1948, the company is one of India's leading manufacturers of commercial vehicles, such as trucks and buses, as well as emergency and military vehicles. Operating six plants, Ashok Leyland also makes spare parts and engines for industrial and marine applications. Spread over 135 acres, Ashok Leyland, Ennore is a highly integrated mother plant accounting for over 40% all production. The plant manufactures a wide range of vehicles and house production facilities for important aggregates such as engines, gear box, axles and other key in-house components. It sells about 60,000 vehicles and about 7,000 engines annually. It is the second largest commercial vehicle company in India in the medium and heavy commercial vehicle (M&HCV) segment with a market share of 28% (2007-08). The company claims to carry over 60 million passengers a day, more people than the entire Indian rail network.

FIGURE 1: INVENTORY CONTROL MEASURES IN ASHOK LEYLAND

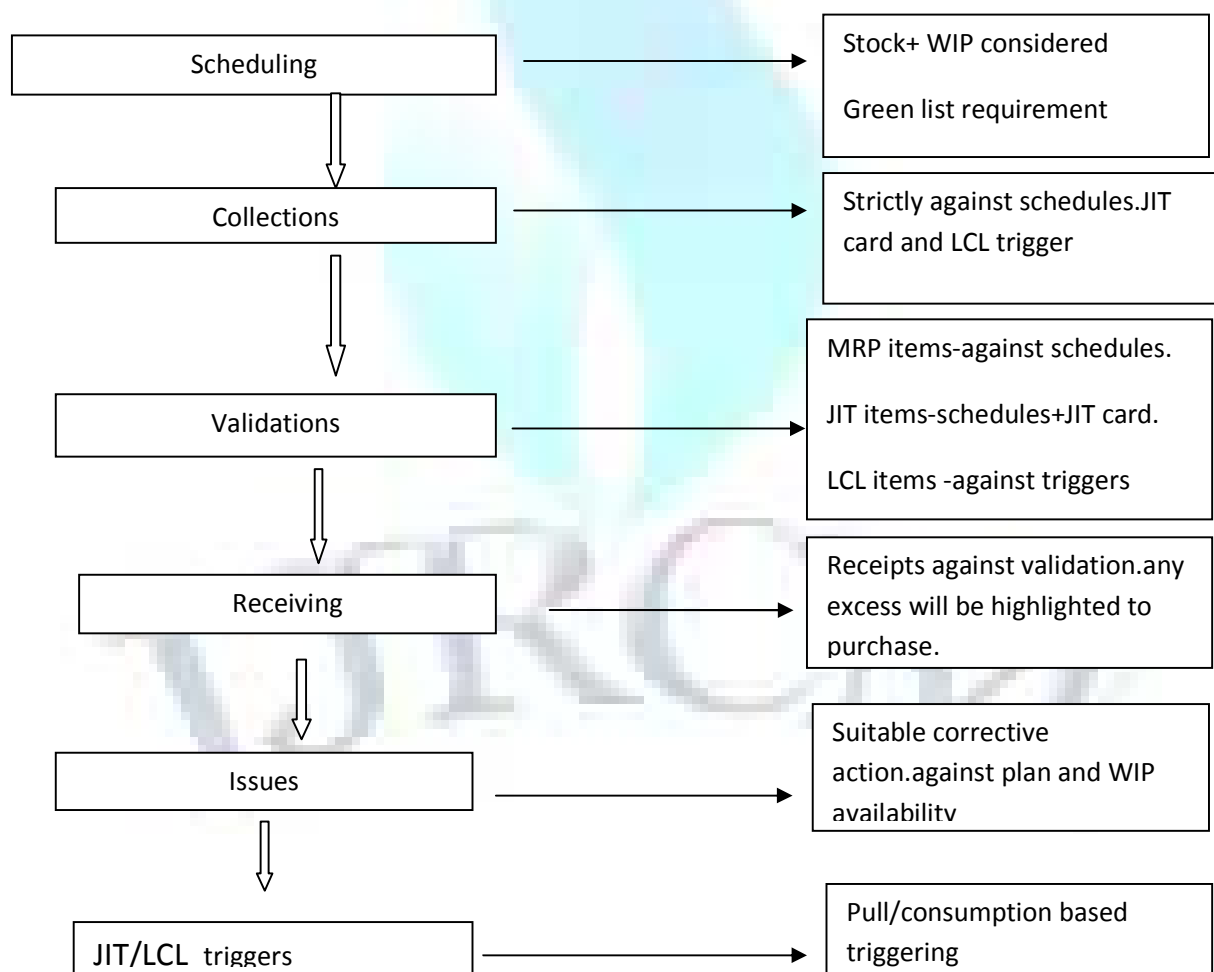


TABLE 1: TREND ANALYSIS OF INVENTORY MANAGEMENT IN ASHOK LEYLAND (RS. IN MILLIONS)

| Year | Inventory | Estimated | Year | Forecasted |
|------|-----------|-----------|------|------------|
| 2001 | 5176.74 | -2330.73 | 2010 | 7944.84 |
| 2002 | 5953.44 | -1189 | 2011 | 9086.57 |
| 2003 | 4104/56 | -47.27 | 2012 | 10228.3 |
| 2004 | 5069.41 | 1094.46 | | |
| 2005 | 5680.81 | 2236.19 | | |
| 2006 | 9025.61 | 3377.92 | | |
| 2007 | 10703.21 | 4519.65 | | |
| 2008 | 12239.14 | 5661.38 | | |
| 2009 | 13300.14 | 6803.11 | | |

Source: Annual report of Ashok Leyland

SUGGESTED PROCESS OF VMI

The stock information was retrieved to implement VMI in the first phase. The following table depicts the chosen components for VMI implementation

STOCK INFORMATION SYSTEM

| SI NO | AL PART NO | XX PART NO | DESCRIPTION | STOCK SIZE | LOT SIZE | SAFETY STOCK |
|-------|------------|------------|------------------|------------|----------|--------------|
| 1 | OE1090 | O987891 | RADIATOR | 40 | 20 | 36 |
| 2 | NP098N | OP2901B | BATTERY | 40 | 20 | 36 |
| 3 | O9NIU2 | OP09823 | POWER STEERING | 64 | 32 | 49 |
| 4 | OJ34913 | O451032 | PROPELLER SHAFT | 64 | 32 | 80 |
| 5 | 9034NG | IO524J36 | GEAR BOX | 52 | 32 | 64 |
| 6 | N7893L | O34190H | AIR CYLINDER | 52 | 25 | 60 |
| 7 | N4109N | O384TU8 | TYRE | 40 | 40 | 43 |
| 8 | IO9214 | OP0342N | BRAKES | 40 | 40 | 58 |
| 9 | 9HU438 | O5432M1 | FRONT/REAR LIGHT | 40 | 20 | 54 |
| 10 | 35OI12 | O43NBG4 | SEATS | 70 | 35 | 24 |

TABLE 2: SELECTED COMPONENTS FOR VMI IMPLEMENTATION

A VMS display board was established which shows the VMS items which should be segregated from other components.

VMS DISPLAY BOARD

PART NO :
 PART NAME :
 BIN LOCATION :
 BUFFER QUANTITY :
 MAX QTY :
 SUPPLIER :
 SUPPLIER LOCATION :
 XXXX CONTACT PERSON :
 CONTACT NO :
 TRIGGERING MODE :
 TRISSELIN TIME :

Table 3: VMS display board

To make VMI system practically possible in a trial basis, the below mentioned measures were expected:

Step 1: All the identified items should be stored in designated locations.

Step 2: Identified components stock to be sent to supplier by 9.00am everyday through email.

Step 3: Days plan given by PPL should be sent along with stock by 9.00am every day.

Step 4: All components selected for VMS should be under green channel.

Step 5: Priority to be given for VMS vehicle in gate entry & unloading.

Step 6: No other material should be carried in VMS truck. Quantity of the material to be supplied will exactly match to the current day's plan.

Step 7: Suppliers to be educated about the process.

For ease of operation, two phases have been identified and components were selected for both the phases to implement the process. Both the phases comprised of 5 components each. A comparison could be made of the stock level, before and after the implementation of VMI in Ashok Leyland.

| STOCK LEVEL BEFORE THE IMPELEMENTION OF VMI IN AL | | | | | |
|---|------------|------------|------------------|------------|-------------|
| SI NO | AL PART NO | XX PART NO | DERCRIPTION | STOCK SIZE | STOCK VALUE |
| 1 | 0E1090 | 0987891 | RADIATOR | 40 | 260000 |
| 2 | NP098N | OP2901B | BATTERY | 40 | 260000 |
| 3 | 09NIU2 | OP09823 | POWER STEERING | 64 | 416000 |
| 4 | OJ34913 | O451032 | PROPELLOR SHAFT | 64 | 416000 |
| 5 | 9034NG | I0524J36 | GREAR BOX | 52 | 338000 |
| 6 | N7893L | O34190H | AIR CYLINDER | 52 | 338000 |
| 7 | N4109N | O384TU8 | TYRE | 40 | 260000 |
| 8 | I09214 | OP0342N | BRAKES | 40 | 260000 |
| 9 | 9HU438 | O5432M1 | FRONT/REAR LIGHT | 40 | 260000 |
| 10 | 350I12 | O43NBG4 | SEATS | 70 | 455000 |
| | | | | | 3263000 |

Table 4: Estimated stock level before implementation of VMI

| STOCK LEVEL AFTER THE IMPLEMENTATION OF VMI IN AL | | | | | |
|---|------------|------------|------------------|------------|-------------|
| SI NO | AL PART NO | XX PART NO | DESCRIPTION | STOCK SIZE | STOCK LEVEL |
| 1 | 0E1090 | 0987891 | RADIATOR | 40 | 220000 |
| 2 | NP098N | OP2901B | BATTERY | 40 | 220000 |
| 3 | 09NIU2 | OP09823 | POWER STEERING | 64 | 352000 |
| 4 | OJ34913 | O451032 | PROPELLOR SHAFT | 64 | 352000 |
| 5 | 9034NG | I0524J36 | GREAR BOX | 52 | 286000 |
| 6 | N7893L | O34190H | AIR CYLINDER | 52 | 286000 |
| 7 | N4109N | O384TU8 | TYRE | 40 | 220000 |
| 8 | I09214 | OP0342N | BRAKES | 40 | 220000 |
| 9 | 9HU438 | O5432M1 | FRONT/REAR LIGHT | 40 | 220000 |
| 10 | 350I12 | O43NBG4 | SEATS | 70 | 385000 |
| | | | | | 2761000 |

Table 5: Estimated stock level after implementation of VMI

CONCLUSION

VMI programs should be done with strategic partners who supply high and predictable volumes and with whom there is already an established long-term relationship. It gives the visibility to respond quickly to both increases and decreases in demand influenced by the economy. This allows the manufacturer to work with the distributors to refine replenishment to accurately mirror the actual market demand. Inventory level has been considerably reduced to 5.37 Lakhs from 16.51 Lakhs during phase-I. Since the Vendor Managed Inventory is held to be efficient and effective, which has been implemented in the components like radiator, battery, power steering, propeller shaft and gear box after the approval from the stores the inventory amount has been considerably reduced. Inventory level has been reduced to 12.78 Lakhs from 28.72 Lakhs during phase-II. The components chosen for implementation of VMI for the second phase were air cylinder, tyres, brakes, front/rear lights, and seats. An additional positive effect is the reduction in number of store rooms. At present the store rooms which are utilized for the storage of implemented components are 3. But after the implementation of the VMI, the store rooms could be reduced to 2 due to the condensed inventory level. The area space for operations can be drastically abridged to 100 sq. meters from 500 sq. meters. Area space is the main perspective of an organization to improve its production efficiently, especially in Ashok Leyland which is a vehicle manufacturing company, area space plays a crucial role. VMI plays a great role in reducing the area space. The carrying cost can be considerably reduced since the whole cost incurred for carrying the stocks will be taken by the vendor who is supplying the materials. VMI is still just the beginning in the industry, and will grow.

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HOW TO GET TACIT KNOWLEDGE AND THE STRATEGIES TO MANAGE TACIT KNOWLEDGE

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ABSTRACT

Tacit knowledge has been defined as one's personal, internal or interior knowledge as opposed to the external, physical knowledge that has been written down or recorded as an artifact. Stephen Gourlay presents a clear definition of tacit knowledge as "a form of knowledge that is highly personal and context specific and deeply rooted in individual experiences, ideas, values and emotions". The philosopher Michael Polanyi was the first to differentiate between the tacit, or personal knowledge, and the explicit, or external knowledge domains. Polanyi drew upon ideas originating from Plato to argue that knowledge is internally processed, and is embodied in one's self. The French philosopher Philippe Baumard has provided the most extensive treatment of tacit knowledge for knowledge management and organizations. According to Baumard, tacit knowledge is important because expertise rests on it, and because it is the source of competitive advantage, as well as being critical to daily management activities.

KEYWORDS

Tacit Knowledge, Strategies, Employee- Tacit Knowledge, Organizations

INTRODUCTION

What is Tacit Knowledge?

Unwritten, unspoken, and hidden vast storehouse of knowledge held by practically every normal human being, based on his or her emotions, experiences, insights, intuition, observations and internalized information. Tacit knowledge is integral to the entirety of a person's consciousness, is acquired largely through association with other people, and requires joint or shared activities to be imparted from one to another. Like the submerged part of an iceberg it constitutes the bulk of what one knows, and forms the underlying framework that makes explicit knowledge possible. Concept of tacit knowledge was introduced by the Hungarian philosopher-chemist Michael Polanyi (1891-1976) in his 1966 book 'The Tacit Dimension' also called informal knowledge.

Tacit knowledge has been defined as one's personal, internal or interior knowledge as opposed to the external, physical knowledge that has been written down or recorded as an artifact. Stephen Gourlay presents a clear definition of tacit knowledge as "a form of knowledge that is highly personal and context specific and deeply rooted in individual experiences, ideas, values and emotions". The philosopher Michael Polanyi was the first to differentiate between the tacit, or personal knowledge, and the explicit, or external knowledge domains. Polanyi drew upon ideas originating from Plato to argue that knowledge is internally processed, and is embodied in one's self. The French philosopher Philippe Baumard has provided the most extensive treatment of tacit knowledge for knowledge management and organizations. According to Baumard, tacit knowledge is important because expertise rests on it, and because it is the source of competitive advantage, as well as being critical to daily management activities.

It is probably easier to say what tacit knowledge is not. It will not generally be found in books and journals or written down in particulars. It often incorporates the habits and cultures of organizations but it is also the 'stuff' only known by individuals. Before tacit knowledge can become explicit it has to be codified or articulated, the problem here is that most tacit knowledge is incapable of being codified or articulated and it's very difficult to communicate even if people felt they wanted or needed to. As Polanyi (1958) puts it 'we can know more than we can tell'. Much tacit knowledge is without boundaries and seldom properly formulated or formalized in our brains. As O Dell (1998) puts it; "if only we knew what we know". In the limited instances

when it can be transferred to other active listeners, it calls for trust, face to face transaction and lots of time to do it. A considerable part of traditional apprenticeships were about inculcating unspoken norms and values.

Tacit knowledge is that knowledge learned over extended periods of time, through frequent exposure and reinforcement, giving us a depth of knowledge or skills on a topic or concept that is natural, yet difficult to codify into an explicit list of knowledge or skills. Tacit skills and knowledge allow us to go beyond the simple rote learning of a topic or skill, allowing us to understand the theory or concepts behind the task. A person with strong tacit knowledge or skills is able to quickly identify and react to change, respond to emergencies, and use their knowledge to exploit new or emerging opportunities.

Tacit knowledge is often ignored when Knowledge Management Systems are planned, designed, and implemented. Nevertheless it represents the most valuable and significant amount of knowledge in any organization. Managing it is hard, but possible.

I. How Tacit Knowledge is important in Organizations?

Tacit Knowledge is very important to any organization because

- It is not copied i.e. original generated by his / her own mind
- It is expressed whenever is required
- It is unique
- It is the treasure and asset of the company
- It is available immediately from the employees of the organization
- The cost of the Tacit knowledge is comparatively low because to solve any problem if any organization called the third party , consultation charges will be high.

II. How Tacit Knowledge is different and important compare to other Knowledge?

We can define three different types of knowledge: tacit, explicit, and embedded knowledge. **Tacit** knowledge is what we own as human beings. Sometimes we are not aware that we have tacit knowledge. **Explicit** knowledge is what is represented on media. It is often immediately recognizable as "knowledge". **Embedded** knowledge is an implicit sort of knowledge, enclosed in processes and handmade goods. It is necessary to perform some reengineering to extract such knowledge. In an organization, usually tacit knowledge is **three up to five times** the amount of explicit and embedded knowledge.

Since tacit knowledge cannot be always captured, someone may think that it cannot be managed at all. Technologies led us to think that we can manage only what we can touch: **data**. This is not true. **Human relationships** can be managed as well, and they are the main mechanism to deploy tacit knowledge. Telecommunication technologies can facilitate relationships and deployment of tacit knowledge. The ensemble of tacit knowledge, culture and human relationships is a relevant capital for an organization: the **Social Capital**.

The interplay of tacit and explicit knowledge is a critical factor in organizational learning. It is the role of managers to contribute to this interplay of tacit and explicit knowledge, and to act as "knowledge brokers" within the organization. The primary task of managers is the conversion of tacit, human capital into explicit, structural capital. Communities of practice have been identified as the site where this alchemy can occur.

III. How to get or manage Tacit Knowledge from the Employee or Public?

Managing tacit knowledge is a significant challenge in the business world – and it requires more than mere awareness of barriers. During the new idea generation – divergent thinking – phase, people create a wealth of possible solutions to a problem. "Chaos succeeds in creating newness because it takes place in a system that is non-linear". In a well-managed development process, where a group of diverse individuals addresses a common challenge, varying perspectives foster creative abrasion, intellectual conflict between diverse viewpoints producing energy that is channeled into new ideas.

Tacit knowledge can only be captured when it is found. Therefore the key to successfully leveraging tacit knowledge within an organization is to accurately find the right people to solve that particular situation. Expertise management becomes a central tenet of tacit knowledge. Organizations that can identify and link experts who can share their tacit knowledge benefit by providing higher quality solutions that are delivered faster and at a lower overall cost. It's applicable in markets that are challenged with business-critical situations, including customer support, IT help desk, strategic account management, team selling, professional services, and R&D. So just how is tacit knowledge captured? Channeling informal discussions into a collaborative workspace--behind the scenes--is a great way to begin. It replaces ad-hoc interactions like shouting over the cube and blasting email threads with a single, well-organized place where people can work together as teams that may extend to customers and partners. Here they can share information about a current issue, problem, or topic. Workspaces nowadays have become much more integrated into communication channels typically used throughout the day, such as email and instant messaging, so ease of adoption concerns have been dramatically reduced. Sometimes it is possible to capture a certain amount of tacit knowledge and convert it to explicit or embedded knowledge. However, not always all tacit knowledge can be explicitly captured.

There are few possible reasons for that. Some knowledge cannot be elicited because the person is not completely aware of it. Some knowledge cannot be physically represented, since it is tightly related to attitudinal characteristics. Some knowledge cannot be captured because the individual is not able to word it, is not aware of its value, or is not motivated to do it.

Managing tacit knowledge requires understanding how it is shared and who are the facilitators and the inhibitors of sharing mechanisms. Technology can help, especially in geographically distributed environments, but does not suffice. Managing tacit knowledge involves an integrated approach to strategic, organizational, cultural, procedural, and technological aspects.

IV. Strategies to Manage Tacit Knowledge

Defining a strategy means to become aware of how knowledge can be used to pursue an organization's purposes, and which is the leverage to be used to plan and control management of knowledge. There are two success factors when developing a knowledge strategy: **alignment** to organization objectives, and care to **human factors**. The fundamental human factors involved in knowledge management are: attitude, intelligence, experience, and motivation.

Implementing a knowledge strategy requires appropriate organizational structures and roles, that is, individuals and functions that have knowledge-oriented objectives. Advocates, evangelists, leaders, influencers: a dynamic mix of official and natural roles, where the organization behaves as a knowledge provider, an out-and-out sponsor of communities of practice. It is also necessary to identify and set-up physical and virtual places to take people to meet and know each other, a foundation of any kind of collaboration.

• Communities of Practice

One approach to manage the creation and exchange of tacit knowledge is communities of practice. The primary task of managers is the conversion of tacit, human capital into explicit, structural capital. Communities of practice have been identified as the site where this alchemy can occur. A community of practice has been defined in simple terms as "a group that shares knowledge, learns together, and creates common practice. Communities of practice share information, insight, experience, and tools about an area of common interest". A community of practice, as differentiated from other kinds of communities or groups, manifests coherence among three dimensions of its practice: a joint enterprise, mutual engagement of its members, and a shared repertoire of resources (Wenger, 1998). A community of practice is therefore different from a team or taskforce, which focuses on specific and/or temporary problems. Communities of practice are not goal driven, like tasks and projects, nor are they necessarily deadline driven. According to Davenport and Hall, communities of practice provide a means of constructing "recipes" for knowledge development. It is just a matter of building certain structures, such as an intranet, and allocating personnel to those communities, where they will work together to facilitate knowledge development and sharing.

Another approach to managing the creation and exchange of tacit knowledge is the creation of a shared workspace, or environment, for the elicitation and sharing of knowledge. Ikujiro Nonaka writes about the concept of "ba" (a Japanese concept meaning "place"). According to Nonaka, "ba" can be thought of as a shared space for emerging relationships. This space can be physical (an office, dispersed business space), virtual (e-mail, teleconference), mental (shared experiences, ideas, ideals) or any combination of them. What differentiates "ba" from ordinary human interaction is the concept of knowledge creation. According to Nonaka, "ba" provides a platform for advancing individual and collective knowledge. Knowledge is embedded in "ba" where it is then acquired through one's own experience or reflections on the experiences of others. To managers, this means providing an environment, whether it is physical or virtual, that will lend itself to the creation and sharing of tacit knowledge.

It is the role of managers to encourage and support the creation and exchange of tacit knowledge. Managers should act as “knowledge brokers,” contributing to the diffusion of knowledge across and between communities. Nonaka and Konno suggest that the role of the broker is essential to the interplay of tacit and explicit knowledge. It is the role of top management to be providers of “ba” for knowledge creation. Several ways that tacit knowledge can be managed have already been offered. For example, managers can offer assistance in the creation and continuation of communities of practice, they can provide a shared work environment that is conducive to the advancement of individual and collective knowledge, they can utilize the “double-knit” strategy that McDermott proposes, and managers should be aware of the observed behaviors that indicate how knowledge is being shared in the organization. These are all ways that a manager can facilitate the conversion of human capital into structural capital by turning the internal, tacit knowledge into external, explicit knowledge.

- Build on natural networks. Since communities of practice arise naturally in most organizations, utilize those existing networks of people who already share knowledge about a particular topic.
- Develop community coordinators and core groups that will organize and maintain the community.
- Support communities – managers need to give people the time and encouragement to reflect and share ideas with other teams.
- Be patient – communities of practice are organic, and take time to develop
- **Creation of Shared workspace or environment**

Another approach to managing the creation and exchange of tacit knowledge is the creation of a shared workspace, or environment, for the elicitation and sharing of knowledge. Ikujiro Nonaka writes about the concept of “ba” (a Japanese concept meaning “place”). According to Nonaka, “ba” can be thought of as a shared space for emerging relationships. This space can be physical (an office, dispersed business space), virtual (e-mail, teleconference), mental (shared experiences, ideas, ideals) or any combination of them. What differentiates “ba” from ordinary human interaction is the concept of knowledge creation. According to Nonaka, “ba” provides a platform for advancing individual and collective knowledge. Knowledge is embedded in “ba” where it is then acquired through one’s own experience or reflections on the experiences of others. To managers, this means providing an environment, whether it is physical or virtual, that will lend itself to the creation and sharing of tacit knowledge.

- **Tacit Knowledge by creating a Cultural Environment**

It is often necessary to **encourage** people to interact and share their knowledge. Those initiatives may involve a significant organizational **change**. Sometimes knowledge is perceived as a power of sort, sometimes people is embarrassed to admit they do not know how to search, sometimes individuals are measured only on their own results and not on their availability to collaborate and share. It is a precise responsibility of organization to create a **cultural environment** for exchanging tacit knowledge

- **Personnel Training**

More specifically, there are several techniques that managers can use in managing tacit knowledge. One way is for managers to offer personnel training and exercises to allow the individual to access the knowledge realm of the group and the entire organization. For example, training programs in larger organizations help trainees to understand the organization and their roles in the whole. Teaching people new concepts or methods for how to share knowledge can be useful.

- **Knowledge Sharing Activities**

Managers need to provide motivation for knowledge sharing activities. The willingness to share anything usually depends on reciprocity. Therefore, “knowledge management strategies need to be linked to people by building reward and recognition programs to encourage employees to share best practices, strategies, and ideas”. A manager may explicitly reward an individual who participates in knowledge sharing activities in the form of a tangible benefit, such as increased pay or bonuses in the forms of cash or stock options. Instead, employees may be rewarded in more subtle ways, such as enjoying the personal satisfaction of holding membership in a thriving, knowledge sharing community. Human concerns about reputation and status lies behind an important “soft” reward for knowledge sharing activities, such as acknowledgement from peers.

- **Incentives to encourage knowledge sharing**

In addition to rewards, organizations can set up a range of other types of incentives to encourage knowledge sharing. These include making knowledge sharing part of the job of each individual, encouraging employees to work in groups as communities, allowing experimentation and risk-taking, and providing tools for these activities. In the C-Nox study, employees used a self-developed intranet as a tool for collaboration and communication. Managers are responsible for providing these types of incentives and tools that are needed to facilitate knowledge sharing activities.

- **Time spent in working hours on knowledge sharing activities should be regarded as legitimate.**

Also, time spent in working hours on knowledge sharing activities should be regarded as legitimate. This may require a significant change in mindset on behalf of managers and their employees. In fact, time should be set aside specifically for individuals to learn, share, and help one another. Leading by example can also have a positive impact on knowledge management. Managers should be positive role models in the knowledge sharing process. This will help to build trust, which is critical in the knowledge sharing environment. Each contribution to knowledge sharing increases not only the amount of knowledge, but also trust among community members. As trust increases, more participants will become willing to share, and further contributions will be made.

- **The knowledge sharing depends upon social interactions**

Further, the knowledge sharing depends upon social interactions. The easier it is for individuals to interact, the more likely those interactions will occur. Managers can use the following techniques to improve the ease of social interaction: clear rules on the operation of the community, a shared language, social events, and physical co-location of staff. In addition to how easy it is to interact, the perceived usefulness of interacting is also a primary motivation. The provision of a suitable technological infrastructure, such as an intranet, for knowledge creation and sharing is thus important.

- **Tacit Knowledge Thru Strong facilitator**

Strong facilitators to knowledge sharing are the **models** and **representations** of tacit knowledge and contextual information, as well as knowledge **taxonomies** and **classification** techniques.

Similarly, it is necessary to design and implement **processes** to create, acquire, identify, collect, capture, adapt, organize, apply, and share knowledge within the organization, and sometimes across different organizations. **Education** is a terrific driver, not only to teach techniques and deploy a culture of collaboration, but also to make people **aware** of what they know and how they can share it.

- **Tacit Knowledge thru Computer Supported Co-operative Working systems**

A fundamental initiative, especially in geographically distributed environments, is to develop technologies that foster human interaction for exchanging tacit knowledge through mediating

Computer Supported Co-operative Working systems. Such technologies should allow for fluent information exchange, be **non-intrusive**, and encourage the creation of **social networks** in which knowledge would float seamlessly.

- **Focus on Individual**

Individuals are the most valuable resource in any organization, more valuable than processes, technologies, and physical assets. Those organizations which are able to lever on social capital and tacit knowledge have a relevant advantage with respect competitors.

- **Focus on a few important topics**

In order to leverage knowledge effectively, companies should begin with a few communities of practice that are focused on topics strategically important to the organization.

- **Tacit Knowledge thru modern Information and Communication Technology**

Modern ICT (Information and Communication Technology) solutions may be also very useful in the area of tacit knowledge. Portal is an advanced solution for knowledge-content businesses. Portals use Internet technology, but basically a portal is very different from simple Internet or intranet pages. A big quality related opportunity in portal solutions is to get the use of business related knowledge and information appearing in many forms and in different locations in the organization more effective and efficient. Web-based group work environments promote collaborative learning and innovation in organizations and networks. These issues have become most significant factors in modern successful quality management systems

Although information systems were originally developed for the needs of explicit data and information, the modern ICT solutions may, however, be useful also in the area of tacit knowledge. That is based on the fact that new technology makes possible effective cooperation and collaboration between knowing individuals and collaborating groups even around the world.

Portal is a modern solution for knowledge-content businesses. Portal is a single, Web-based interface into the world of heterogeneous and incompatible information and knowledge sources distributed across the telecommunication network. The key quality management related solution is an organizational portal with quality management applications: "A cutting-edge gateway to quality-related business reality for enhancing quality awareness, improved use of expertise, performance management and interested party confidence." This kind of portal provides automatic services for quality management to the members of an organization as well as to its partners. Portals use Internet technology, but basically a portal is very different from simple Internet or intranet pages of organizations. Portal has general features that are beneficial for all kinds of knowledge-based activities including:

- A consistent view of the relevant business community
- Information organizing and searching capabilities
- Direct access to knowledge and resources
- Direct links to relative data and knowledge experts
- Individual identity and personalized access to content

In the Internet age we are not only competing within our local communities and markets, we are competing within a global economic community. Electronic commerce puts all inefficient business or activity at risk - regardless of the service or geographic location. As examples just look at the impact companies such as Amazon.Com and Travelocity have had on their industries - it is a new world that is very foreign to those of us from prior generations.

To have the knowledge and skills needed to not only compete, but to function in the Internet age, young people need a strong base of tacit knowledge in the concepts and use of computers, networks, Internet, and communications. After a young person enters the work force, requiring special training in basic office automation tools, networks, or Internet skills is simply not acceptable. In the Internet age our young people need these skills as tacit skills before they leave the basic education system - or they will represent a burden on our ability to compete as an economy and society.

An interesting topic is to enhance the effectiveness and efficiency of the use of knowledge and information via a portal. The biggest challenge for these solutions is the poor use of business related knowledge and information that may appear in many forms. Important knowledge may be missing. It may be unused because the needed knowledge is not available or accessible when needed or is not in a useful form. It may be used but not appropriately or at opportune time and place, or it may be misused. As one can see, a greater challenge than to stretch the usefulness of explicit knowledge, information and data to its extreme is to bring about a radical improvement of utilization of tacit knowledge. Internet technology makes it possible to create multifarious access interfaces to the business information and knowledge, and related shared services. Especially information security aspects should be emphasized when developing the quality management of information and knowledge.

Modern Web-operated social networking applications based on simple and cheap solutions of disruptive innovations have a wide variety of quality management related uses such as personal management, collaborative learning, carrying out cooperative projects, and supporting networked communities. Their main strengths include customizable group systems that allow many groups to work simultaneously on sharing individual knowledge and to create new mutual knowledge. This may be done with appropriate new tools for projects, calendar, tasks, forums, conferencing, information / knowledge links, chat, reviews, voting, files, instant messages, resource profiles, etc. Designed to ease problems solving with group based working, the solutions make it possible to work in groups, inside and outside the organization. This gives advantages to organizations which have a lot of work groups that have to be in contact with each other around the globe. E.g. a virtual network of quality managers of a corporation or a larger business community may be created on this basis.

- **By applying Problem solving Techniques**

- ✓ Brainstorming
- ✓ Reverse Brainstorming
- ✓ Brainwriting
- ✓ Gordon Method
- ✓ Checklist Method
- ✓ Free Association

- ✓ Forced Relationships
- ✓ Collective Notebook Method
- ✓ Attribute Listing
- ✓ Big-Dream Approach
- ✓ Parameter Analysis
- **By Understanding the Employee**

Employer has to understand the psychology of the Employee or the human beings. Healthy mind, Healthy body, Satisfied salaries & rewards. Treating employee as a shareholder of the company, involving all categories of employees while implementing and solving the problems make to solve the problems in the easiest and fastest way.

- Know the problems of employee as a person, understand their problems and help to solve.
- By having Entertainment programs.
- By arranging periodical Tours so that they will be out of premises for a while.
- By conducting the parties even by offering the Drinks and high Dinner so that their mind will become free to give the better ideas.
- By conducting Yoga & Meditation programs so that the employee will increase concentration and memory power.
- By treating Employee with respect.
- By providing the loans for solving their financial problems.

PITFALLS TO AVOID

This tacit knowledge is automatically captured and immediately usable. So, the next time there is a similar critical business situation, knowledge workers can tap into time-saving, relevant information to increase the quality of resolution while reducing resolution time. When done properly, capturing and sharing knowledge becomes an effortless by-product of the normal issue resolution dialogue.

CONCLUSION

As Tacit Knowledge is hidden knowledge of the person, it would be revealed when the person is happy. The companies have to create /make the healthy working environment where the employees get peace, happiness and satisfaction. When the Employee is happy then automatically his Tacit Knowledge will come out and gives the better ideas to solve the problem.

Tacit Knowledge will be applied to the Organization by the Employee when the employee is loyal to the company only, so to have the loyalty the company has to treat employees with respect and as a part of the family.

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**RELATIONSHIP STUDY OF SELECTED INDIAN COMPANIES TRADED IN BOMBAY STOCK EXCHANGE WITH
REFERENCE TO COST OF CAPITAL AND COMPANIES PERFORMANCE
(AN APPLICATION OF CORRELATION MATRIX & MULTIVARIATE REGRESSION MODEL)**

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ABSTRACT

Finance is the supply of funds, which regulates the activities and operations of the industry. Adequate finance is required besides the requirement of fixed and working capital for undertaking the program of extension, reorganization or expansion. Since, now a day market is open, finance are raising through issue of shares, debenture/bond from domestic as well as international capital market in the form of GDR (Global Deposit Receipts), ADR (American Deposit Receipts) and FCCB (Foreign Currency Convertible Bonds) and from the wide range of financial institutions. However, the finance is not free of cost. The suppliers of various sources of funds have a charge on the income of organization, like; dividend for shareholders, interest for bond/debenture holders; dividend /interest for non-banking financial companies, foreign investors and so on. This charge on each source capital is known as cost of capital. The present study focuses on whether cost of capital has any relationship with financial performance of companies like capital structure. For this purpose we have selected 151 top Indian companies on the basis of market capitalization 2007 and classified under different industrial groups. The statistical tools of ANOVA, correlation and multiple regression method have been applied. The study found that change of cost of capital affects the company's profitability position. The higher cost of capital adversely affects the profitability position of the companies. Specially, Indian larger companies should necessary to give proper emphasize at the time of procuring the funds. Again the relationship between cost of capital and companies performance is not specific rather depends on nature of industry as different companies are regulating under different regulations.

KEYWORDS

BSE, cost, capital, performance, market

INTRODUCTION

Finance regulates the activities and operations of the industry. Adequate finance is required besides the requirement of fixed and working capital for undertaking the program of extension, reorganization or expansion. In fact, the existing industrial units require substantially large amount of the capital to meet their reconstruction, modernization, expansion and diversification program so also the new industrial project. Finance can be raised through issue of shares, debenture/bond from domestic as well as international capital market and from the wide range of financial institutions. But finance is not free of cost. The suppliers of various sources of funds have a charge on the income of organization, like; dividend for shareholders, interest for bond/ debenture holder, dividend /interest for non-banking financial companies, foreign investors and so on. This charge on each source capital is known as cost of capital.

Cost of capital is regarded as one of the most important factors in the evaluation and comparison of investments to be made by the firm. From a firms perspective cost of capital is an important tool to measure the future financial performance. It determines the acceptability of investments opportunity, providing a rate that may be used to discount the future cash flows accepted for new investments.

Investments decisions are distinct from financing decisions and firms seek to obtain funds from a combination of sources that lowers its overall cost of capital. This involves consideration not only of individual cost of each source of funds, but also how the use of one source would affect the availability and the cost of other source. The optimum capital structure is therefore the combination of financing sources that minimizes the overall cost of capital.

STATEMENT OF THE PROBLEM

However, in case of Indian companies the concept of the cost of capital is to some extent has not received much attention over the years. Different survey witnessed that concept of cost of capital is misunderstood in Indian economy. Industry like chemical, fertilizer, toothpaste, diversified believed that the calculation of cost of capital is academic and impractical, so they do not consider cost of capital for any of business decisions.

Therefore, the thrust of the present study lies with to see the nature of cost of capital of different industries along with the different firms and its impact on capital structure and on companies' financial performance.

REVIEW OF LITERATURE

A comprehensive review of literature in respect of the parameters pertaining to financial performance, determinants of capital structure and interrelationship between cost of capital and companies' performance both in the domestic and international level was carried out. The major observations are summarized as under:

Cost of capital declines with leverage due to the tax deductibility of interest charges, (Modigliani and Miller, 1962). The cost of capital is affected by debt apart from its tax advantages (Sarma and Rao, 1968). Age, retained earnings, and profitability were negatively correlated while total assets and capital intensity was positively related to debt- equity ratio (Chakroborty, 1977). Cost of capital of Indian firms increased from 7.36 percent to 12.36 percent over years. The average cost of capital for all consumer goods industry firms taken together was the highest while; it was lowest for the firms of intermediate goods (Chakroborty, 1977). There is an impact of size, growth, business risk, dividend policy, profitability, debt service capacity and the degree of operating leverage on the leverage ratio of the firm (Bhat, 1980). The weighted average

cost of capital of a company will fall with the increased borrowing until a point is reached where the higher cost of share and loan capital force the average up. The optimum-earning ratio is achieved only when the weighted average cost of capital is at the lowest point (Knott, 1991). The cost of capital is playing significant role for determining the capital structure of multi National Corporation also. The multi national corporation is assumed to finance its foreign subsidiaries in such a way as to minimize its incremental weighted cost of capital (Bhalla, 2000). The firms are mainly concerned about financial flexibility and credit ratings when issuing debt and per share dilution and recent stock appreciation when issuing equity. The most firms have target debt-equity and issue-equity to maintain a target-debt ratio (Graham and Harvey, 2001). A project that requires highly specific assets would initially be financed by equity. However, as the debt to equity ratio decreases in line with agency theory, the demand for debt falls and equity rises (Vialasuso and Minkler, 2001). Cost of capital is a central concept in financial management linking both investment and financing decision. The Indian companies faced a high relative cost of capital as compared to their international counterparts (Chadha, 2003).

The foregoing studies attempted to examine the relationship between cost of capital and companies performance. In most of the studies it is been seen, emphasis is given on effects of capital structure on cost of capital and on determinant of capital structure. However, no serious and systematic efforts have been made by the researcher in regard to relationship between cost of capital and companies financial performance.

OBJECTIVES

The major objectives of the study are framed in below

- i) To examine the existence or non existence of inter company variation within different sector in respect of cost of capital.
- ii) To examine the existence or non existence of inter company variation within different sector in respect cost of equity.
- iii) To examine the existence or non existence of inter company variation within different sector in respect cost of debt capital.
- iv) To study interrelationship between Cost of capital and variables determining companies performance.

MAJOR HYPOTHESES

- Cost of capital of different companies within an industrial sector is similar with each other.
- Costs of equity capital of different companies within an industrial sector are similar with each other.
- Costs of debt capital of different companies within an industrial sector are similar with each other.
- Cost of capital is not influenced by size, growth, liquidity, profitability and dividend payout of the companies.

RESEARCH METHODOLOGY

- **Sampling Designing:** Top 500 companies were selected on the basis of rank of market capitalization as on March 2007. Finally on the basis of availability of comparable data 151 companies included in the study and classified under 13 industrial groups.
- **Study Period:** The study covers a period of 5 years from the year 2004 to 2008. For the brevity of the analysis and make in comparison of financial data pertaining into individual firm and also maintaining the parity we restrict our analysis for five years.
- **Collection of Data:** The study based on secondary data. The data mainly collected from Capitalline database 2007, website entitled to www.indiaonline.com and annual reports of companies has also been used.
- **Tools & Techniques:** To analyse the data financial as well as statistical tools has been used. The financial tools like ratio analysis and statistical tools such as average, ANOVA, correlation coefficient and multiple regressions were used. The statistical results were verified by applying t-test, F-test, Z-test in appropriate cases

METHODOLOGY OF COMPUTATION COST OF CAPITAL

Following are the steps that are used in evaluating the Cost of capital for the companies taken for study.

*Estimation of the cost of the specific sources of funds. Due to the non availability of data Earning Price method is applied to evaluate **cost of equity**.

Cost of Equity (K_e) = (EPS/ MPS)+Growth of EPS

Where, EPS= Earning per Share, MPS= Market price per share

The Cost of Equity of both sample companies and the industry as a whole pertaining to individual year has been calculated at first and then simple average of the same has been taken. **Cost of debt** is calculated in the following way.

Cost of Debt (K_d) = $r(1-t)$

Where, t = tax rate of the firm and r = interest payable.

Where discounts or premium and flotation are involved, the cost of debt capital was computed as under, $K_d = (C/I)(1-t)$

Where, C = fixed interest cost, I = net processed of the issue, t = applicable tax rate of the firm

*Then, their respective proportions in the capital structure are multiplied by these costs of sources. The book value weight of each source of finance used in calculating cost of capital because in practice, the firm are using book value weight due to the book values are readily availability from the published records of the firm. (Khan & Jain, 2004)

Weighted Average Cost of capital (cost of capital) =

$$\frac{E}{V} K_e + \frac{D}{V} K_d + \frac{R}{V} K_r$$

Where, V = (equity capital+ debt capital+ retained earnings), K_e = cost of equity, K_d = Cost of debt capital, K_r = cost of retained earnings, E = equity capital, D = debt capital R = retained earnings.

CONCEPTUAL FRAMEWORK (VARIABLES OF MEASURING COMPANIES' PERFORMANCE)

Financial Leverage: Financial leverage is usually measured by the ratio of long term debt to the long term capital. The debt equity ratio is calculated to measure the extent to which debt financing has been used in business. Geometric Mean of debt-equity ratio calculated for the period of 2004-2008.

Growth (G) – Growth of companies measures the rate at which a firm is growing. It is one of the determinants of financial performance of the company. Due to the non availability of data, we used only growth of profit after tax (RPAT) for measuring growth of companies. The rate of growth is the simple annual growth rate over the previous year of profit after tax. Geometric Mean of the ratio calculated for study period.

Size: The "capital employed" at the balance sheet value is used as a measure of the firm size. Capital employed comprises share capital plus reserves and surplus, long term debt, plus short-term loans. This measure is preferred over other measures of size, viz total assets, fixed assets, or employment and also, its magnitude indicates the confidence and attitude of investors towards the firm in providing financial resources. In other words, a firm can grow only when investors provide finance to it. For study purpose average value of the capital employed for the period considered.

Profitability: Profitability implies profit-making ability of business unit. Howard (1961) articulated that the term profitability is a combination of two ward profits and ability. Profitability may be defined as the ability of a given investment to earn a return from its use. We used return on net worth (RNW) as determinants of profitability and Geometric Mean of the ratio considered for study period.

Liquidity: Liquidity refers to the ability of a concern to meet its current obligation as and when these become due. Therefore to account for the short-term risk of the firms, liquidity ratio has been included in the models. It is calculated by dividing current assets by current liabilities. Geometric Mean of the current ratio calculated for the study period.

Dividend pay out ratio: - It measures the relationship between the earnings belonging to the ordinary shareholders and the dividend paid to them. Dividend pay out ratio is calculated by using the following formula. $DPR = (Equity\ Dividend / Adjusted\ Profit\ after\ Tax - Preference\ Dividend - Dividend\ Tax) \times 100$. Geometric Mean of the ratio calculated for the period 2004-2008.

ANALYSIS & FINDINGS

Inter company variation within different sector in respect cost of capital

To study the inter companies variation in respect of cost of capital within the industry we used ANOVA technique. We considered the null hypothesis that there is no significant difference between the overall costs of capital of companies within a particular industry. The calculations were performed for each of industry separately and the result of all such ANOVA is compiled into the table-1. The observed F-values for all the selected industrial sectors were found to be greater than the table values. Therefore the null hypothesis that the cost of capital of firm in an industrial sector is similar was rejected. This implies over all cost of capital of different companies are varying with each other due to variation of nature of industry and different components of cost of capital are not similar.

Inter company variation within different sector in respect cost of equity

We considered the null hypothesis that there is no significant difference between the costs of equity capital of companies within a particular industry. The calculations were performed for each of industry separately. The result of all such ANOVA is compiled into the table-2. The observed F-values for all the selected industrial sectors were found to be greater than the table values. Therefore the null hypothesis that the cost of equity of firm in an industrial sector is similar was rejected. So the companies are different in regard to cost of equity capital.

Inter company variation within different sector in respect cost of debt capital

We considered the null hypothesis that there is no significant difference between the costs of debt capital of companies within a particular industry. Again the calculations were performed for each of industry separately; the result of all such ANOVA is compiled into the table-3. The observed F-values for all the selected industrial sectors were found to be greater than the table values. Therefore the null hypothesis that the costs of debt capital of firm in an industrial sector are similar was rejected; implying that cost of debt capital of different companies is varying although belongs to same industrial group.

Interrelationship between cost of capital and variables determining companies' performance

To study whether the performance of the company is affected by the cost of capital, we calculated the correlation coefficient between cost of capital and the parameters representing the financial performance. The table-4 exhibits the result of the correlation coefficient.

The table-4 exhibited that there is a linear relationship between size and cost of capital and leverage and cost of capital. The sample of 151 companies as a group representing Indian industry shows that the correlation coefficient between size and cost of capital is 0.366 and leverage and cost of capital is -.320, and cost of capital and profitability is -.355, statistically significant at 5% level implying that size, leverage and profitability is affected by overall Cost of capital of the companies. The value of correlation coefficient between the variable established that with the increase of size the over all cost of capital is also increasing and with the increase of leverage the over all cost of capital decreasing or vice versa. It means cost of capital is affected by capital structure decision. On the other hand Indian companies having larger amount of capital are not given proper emphasize on the selection of source of capital resulting into enhance of over all cost of capital of the companies. The relationship between profitability and cost of capital suggesting that overall cost of capital affect the companies' profitability. Again no relationship has been seen in between cost of capital with other explanatory variables like liquidity, growth, and dividend of the companies as value of correlation coefficient are not found as statistically significant. But when we classified the data over different industrial group on the basis of nature of industry the table of correlation coefficient shows that the relationship is not specific. The relationship varies because of nature of industry are not same. However in most cases of the sample we have seen capital structure decision is more important for the companies. The result shows that leverage is negatively affected the overall cost of capital of the companies.

Now to confirm the correlation result, multiple regression equation has been fitted taking cost of capital as dependent variable. The results exhibited in table-5.

$$Y = x + b_1 \text{size} + b_2 \text{leverage} + b_3 \text{liquidity} + b_4 \text{growth} + b_5 \text{dividend} + b_6 \text{profitability}$$

Y= cost of capital, an independent variable

From the table-5, it is observed that, leverage becomes the major factor or influential factor of the cost of capital. Except Construction, Electricity, Engineering, Steel, Auto, Personal Care and Financial Service, it has been seen that leverage is negatively related with the cost of capital and statistically significant. It signifies the cost of capital declines with the inclusion of debt capital in the capital structure. The sectors of Construction, Electricity, Steel, Auto group are including almost two times of equity capital in form of borrowed capital in the capital structure. Where as the sector like Engineering and personal care are maintaining least level of borrowed capital in the capital structure resulting into no affect on cost of capital. It implies capital structure decision is playing important role for declining overall cost of capital of the companies. But the companies must have to maintain optimum level of capital structure based on nature of industrial group. On the other hand the relationship with growth, dividend, liquidity and profitability in regard to Indian sample companies are not be confirmed since their beta coefficients are not statistically significant. The regression coefficient of Size and cost of capital is 3.65 implying that there is positive association between the variables. The positive beta value of size implies that the larger Indian firms are not able to use their resources effectively compare to small size companies and possibly not being able to raise funds at cheaper rate by taking the advantage of their large scale funds collection.

It is evident from the above exhibits table a few, not all variables were detected as explanatory for the cost of capital across industrial sectors. Much of this is accountable to the nature of the industry.

Cost of capital and Size

There is no relationship between the cost of capital and size of the companies across industrial sectors. The companies when classified under different industrial group, no relationship has been found in between cost of capital and size of the companies.

Cost of capital and Growth

The aggregate result suggests that correlation between the costs of capital and growth is not significant. So, there is no relationship between the cost of capital and the growth of companies. Where as under the diversified sector, the table showed that the correlation coefficient between growth and cost of capital is -.511, statistically significant and the beta value between them is -.576, statistically significant implying, there is negative association between the variables of diversified companies. One unit of cost of capital changes due to change of .576 unit of growth of companies. On the other hand the overall cost of capital of diversified companies is declining because of constant growth of profit of the companies.

Cost of capital and Dividend

In the sector of IT and financial service of industries, dividend becomes the significant factor of the cost of capital. In the sector of computer, the dividend is negatively and in the financial service sector, the dividend is positively related with the cost of capital. The positive relationship signifies that the investors have no preference for current dividend in general; rather they prefer future growth of their investment on shares, where as, the negative coefficient of the payout variable suggests that investors have preference for current dividend.

Cost of capital and Liquidity

In the sector of energy and cement group of industries the overall cost of capital and liquidity is negatively related with each other. This implies that highly liquid companies are procuring the funds by incurring less amount of cost. On the other hand less risky companies in terms of liquidity are spending less amount of money for mobilizing the capital for their survival and growth. It is theoretically true that the investors generally prefer to invest their funds in less risky companies.

Cost of capital and Profitability

The aggregate result suggests that there is relationship between cost of capital and profitability of the companies. The relationship between the cost of capital and profitability has been found in the sector of energy, electricity and chemical. A negative relationship observed in case of energy, electricity and chemical. The negative relationship is theoretically true because the profitable companies are expected to procure the funds with cheaper cost. On the other hand with the increase of overall cost of capital the companies' profitability is decreasing.

SUMMARIZATION OF THE STUDY

1. By employing ANOVA analysis, it was found that the cost of capital of different companies vary with each other due to variation of nature of industry.
2. The components of cost of capital that is cost of equity and cost of debt capital are also varying from company to company and industry to industry.
3. The study observed among the variables of financial performance; size, leverage and profitability become significant factor of affecting cost of capital. The positive relationship of size and cost of capital implies the Indian larger companies are not able to procure the capital at cheaper cost by taking the advantages of large resources. The negative relationship between cost of capital and leverage signifying that with the increase of leverage (proportion of debt equity capital), the overall cost of capital declining. But the maintenance of optimum level of debt capital is mandatory; otherwise, the excess level of debt capital further leads to increase of overall cost of capital. Whereas the existence of negative relationship between cost of capital and profitability indicating the cost of capital have negative impact on profitability of the companies. With the increase of cost of capital, profit of the companies will automatically fall.
4. The cost of capital of diversified companies are negatively related with the growth of companies implying cost of capital are declining because of constant growth of companies.
5. The I.T. sector companies cost of capital is negatively related with the dividend whereas dividend is positively related with the cost of capital for finance and investments sector. The positive relationship signifies that the investors have no preference for current dividend in general; rather they prefer future growth of their investment on shares, where as, the negative coefficient of the payout variable suggests that investors have preference for current dividend
6. In the study liquidity taken as for measuring the risk of the companies from the point of view of shareholders investment concerned. It has been observed in case of energy and cement industries the cost of capital is negatively related with liquidity. It implies less risky companies that is keeping larger amount of funds in form of liquidity able to procure the funds at cheaper cost.
7. The study observed overall cost of capital has negative impact on the firm's profitability that is with the increase of overall cost of capital the companies' profitability is decreasing. The companies under energy sector with high cost of capital are earning comparatively lower amount of profit whereas companies under chemical and electricity sector earning optimum or satisfactory level of profit because of maintaining a standard level of cost of capital.

CONCLUSION

The overall cost of capital is affected by the designing of capital structure of Indian industries. Therefore, maintenance of optimum level of capital structure irrespective of nature of industries is mandatory for a firm. Hence, the corporate executive should give due attention for attaining optimum level of capital structure for sustainable growth of the firm. The optimum level of capital structure depends on nature of each industry.

The change of cost of capital affects the company's profitability position. Again the higher cost of capital adversely affects the profitability position of the companies. The Indian larger companies should necessary to give proper emphasize at the time of procuring the funds.

We never deny that the cost of capital has no relationship or affect on other explanatory variables for determining the financial performance like companies growth, liquidity, dividend pay out although the relationship is industry specific.

TABLE 1: RESULT OF ANOVA ANALYSIS

| Industry | F value | F _{.05} | No. of companies in the sample |
|----------|---------|------------------|--------------------------------|
|----------|---------|------------------|--------------------------------|

| | | | |
|----------------------|-----------------|----------|----|
| Energy | 3.23456 | 2.347878 | 12 |
| IT | 5.765123 | 2.347878 | 12 |
| Construction | 1.694329 | 2.347878 | 12 |
| Pharmaceutical | 6.09875 | 2.063541 | 16 |
| Cement | 3.907564 | 2.591096 | 10 |
| Electric | 3.710589 | 2.347878 | 12 |
| Engines | 3.709453 | 2.591096 | 10 |
| Steel | 4.90865 | 2.119166 | 15 |
| Auto | 5.09865 | 2.258518 | 13 |
| Chemical | 2.90845 | 2.456281 | 11 |
| Personal Care | 3.067432 | 2.99612 | 8 |
| Finance & Investment | 2.643278 | 2.591096 | 10 |
| Diversified | 2.64289 | 2.591096 | 10 |

Figures in bold indicate significant at 5% level, k = Number of companies

TABLE 2: RESULT OF ANOVA ANALYSIS

| Industry | F value | F _{.05} | No. of companies in the sample |
|----------------------|-----------------|------------------|--------------------------------|
| Energy | 3.88961 | 2.347878 | 12 |
| IT | 2.817856 | 2.347878 | 12 |
| Construction | 2.940628 | 2.347878 | 12 |
| Pharmaceutical | 4.205632 | 2.063541 | 16 |
| Cement | 3.219052 | 2.591096 | 10 |
| Electric | 2.81652 | 2.347878 | 12 |
| Engines | 4.725904 | 2.591096 | 10 |
| Steel | 2.843857 | 2.119166 | 15 |
| Auto | 5.789304 | 2.258518 | 13 |
| Chemical | 3.178042 | 2.456281 | 11 |
| Personal Care | 3.873041 | 2.99612 | 8 |
| Finance & Investment | 4.782618 | 2.591096 | 10 |
| Diversified | 3.88961 | 2.591096 | 10 |

Figures in bold indicate significant at 5% level, k = Number of companies

TABLE 3: RESULT OF ANOVA ANALYSIS

| Industry | F value | F _{.05} | No. of companies in the sample |
|----------------|-----------------|------------------|--------------------------------|
| Energy | 3.142905 | 2.347878 | 12 |
| IT | 3.111723 | 2.347878 | 12 |
| Construction | 4.762941 | 2.347878 | 12 |
| Pharmaceutical | 2.975298 | 2.063541 | 16 |
| Cement | 4.102752 | 2.591096 | 10 |
| Electricity | 3.741381 | 2.347878 | 12 |
| Engineering | 3.289652 | 2.591096 | 10 |
| Steel | 3.029284 | 2.119166 | 15 |
| Auto | 3.889273 | 2.258518 | 13 |
| Chemical | 3.554409 | 2.456281 | 11 |
| Personal Care | 3.458169 | 2.99612 | 8 |
| Finance & Inv. | 3.852059 | 2.591096 | 10 |
| Diversified | 3.142905 | 2.591096 | 10 |

Figures in bold indicate significant at 5% level, k = Number of companies

Table 4: Correlation Coefficient Results: COST OF CAPITAL Vs Variables

| Industry | size | leverage | liquidity | growth | dividend | Profitability |
|----------------|-----------------|------------------|------------------|-----------------|-----------------|------------------|
| Aggregate | .366* (.042) | -.320* (.042) | -.090 (.272) | .004 (.595) | .030 (.716) | -.355* (.034) |
| Energy | -.107 (.742) | -.447* (.024) | -.522* (.042) | -.186 (.564) | .478 (.116) | -.516* (.036) |
| IT | .169 (.599) | -.528* (.048) | -.090 (.782) | -.231 (.470) | -.137 (.315) | .361 (.240) |
| Construction | .385 (.217) | -.066 (.840) | -.086 (.791) | -.080 (.805) | -.186 (.562) | .295 (.354) |
| Pharmaceutical | .088 (.745) | -.508* (.045) | -.157 (.560) | .116 (.668) | .251 (.347) | -.065 (.812) |
| Cement | -.049 | -.591* (.045) | -.538* (.045) | -.289 | -.191 | .267 |

| | (.892) | (.042) | (.039) | (.417) | (.597) | (.455) |
|----------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|
| Electricity | -.270 (.395) | -.123 (.704) | .387 (.214) | -.166 (.606) | -.360 (.250) | -.596* (.041) |
| Engineering | .197 (.586) | .115 (.753) | .125 (.731) | -.540 (.1070) | -.138 (.703) | -.446* (.036) |
| Steel | -.032 (.909) | .074 (.792) | -.029 (.918) | -.186 (.506) | -.213 (.446) | -.001 (.998) |
| Auto | .018 (.954) | -.425* (.038) | .010 (.975) | .101 (.742) | -.286 (.343) | .004 (.991) |
| Chemical | -.366 (.268) | -.419* (.041) | -.195 (.567) | -.019 (.955) | .492 (.125) | -.405* (.001) |
| Personal care | .232 (.580) | -.075 (.859) | -.070 (.870) | -.530 (.177) | .651 (.080) | .003 (.994) |
| Finance & Inv. | -.228 (.527) | .489 (.151) | .119 (.744) | .347 (.326) | .529* (.016) | .058 (.873) |
| Diversified | .389 (.237) | -.205* (.048) | .428 (.189) | -.511* (.012) | .221 (.514) | -.186 (.585) |

Figures in () indicate p value

Table 5: Regression Result: COST OF CAPITAL as dependent variable

| Industry | size | leverage | liquidity | growth | dividend | profitability | R ² | F |
|----------------|-----------------------------|------------------------------|------------------------------|-----------------------------|------------------------------|------------------------------|----------------|------------------|
| Aggregate | 3.65* (1.970) [.041] | -.108* (-1.227) [.024] | -.069 (-.810) [.419] | .034 (.418) [.677] | .029 (.346) [.730] | -.490* (-1.061) [.041] | .452 | 1.334* [.024] |
| Energy | -.557 (-2.57) [.052] | -.677* (-2.993) [.030] | -.614* (-2.717) [.042] | -.342 (-1.46) [.202] | .121 (.551) [.605] | -.267* (-1.263) [.039] | .834 | 4.195* [.049] |
| IT | -.193 (-.504) [.636] | -.786* (-1.748) [.041] | -.127 (-.406) [.701] | .444 (.869) [.424] | -.581* (-1.798) [.032] | .382 (1.240) [.270] | .616 | 1.334* [.049] |
| Construction | .543 (1.634) [.163] | -.603 (-1.656) [.159] | -.154 (-.424) [.690] | -1.041 (-1.97) [.105] | -.545 (-1.522) [.189] | 1.134 (2.235) [.076] | .413 | 1.320 [.449] |
| Pharmaceutical | .188 (.543) [.600] | -.910* (-2.952) [.016] | -.761 (-2.226) [.053] | .494 (1.530) [.160] | -.148 (-.393) [.704] | .391 (1.275) [.234] | .593 | 2.189* [.040] |
| Cement | -.095 (-.287) [.793] | -.701* (-1.791) [.045] | -.408* (-.883) [.042] | -.244 (-.720) [.524] | -.424 (-.806) [.479] | -.129 (-.228) [.834] | .746 | 1.466* [.036] |
| Electricity | -.096 (-.332) [.753] | -.082 (-.286) [.788] | .463 (1.491) [.196] | -.094 (-.299) [.777] | .034 (.103) [.922] | -.669* (1.996) [.048] | .617 | 1.343* [.049] |
| Engineering | -.116 (-.333) [.761] | -.107 (-.207) [.849] | .462 (1.260) [.297] | -.878 (-2.26) [.108] | -.388 (-.833) [.466] | -.443* (1.438) [.046] | .332 | 1.492* [.049] |
| Steel | -.119 (-.356) [.731] | .549 (1.008) [.343] | -.524 (-1.024) [.336] | -.430 (-1.15) [.281] | -.380 (-1.110) [.299] | -.067 (-.174) [.866] | .221 | 1.379 [.749] |
| Auto | -.105 (-.310) [.767] | -.535 (-1.736) [.133] | -.577 (-1.277) [.249] | .039 (.101) [.923] | -1.040 (-1.904) [.106] | .417 (.949) [.379] | .523 | .997 [.649] |
| Chemical | .020 (.122) [.909] | -.296* (-1.451) [.042] | -.197 (-1.393) [.236] | -.097 (-.429) [.690] | .271 (1.175) [.305] | -.987** (4.740) [.009] | .732 | 9.096* [.025] |
| Personal care | -.519 (-1.545) [.682] | -.488 (.722) [.602] | -1.307 (-1.586) [.662] | -1.482 (-.769) [.583] | .076 (.056) [.964] | -.255 (-.450) [.731] | .343 | .559 [.844] |
| Finance & Inv. | -.476 (-1.563) [.613] | .134 (.296) [.786] | .396 (.392) [.721] | .251 (.292) [.789] | .601* (1.505) [.048] | .080 (.142) [.896] | .421 | 1.284* [.047] |
| Diversified | .507 (1.948) | -.700* (-1.129) | .985 (1.530) | -.576* (-2.05) | -.161 (-.481) | -.257 (-.861) | .542 | 2.395* [.044] |

| | | | | | | | | |
|--|--------|--------|--------|--------|--------|--------|--|--|
| | [.123] | [.037] | [.201] | [.039] | [.656] | [.438] | | |
|--|--------|--------|--------|--------|--------|--------|--|--|

Figures in () indicate t value and figures in [] indicate value at $t_{.05}$

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PHARMA SECTOR: PROBLEMS AND PROSPECTS

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ABSTRACT

Pharmaceutical industry operates under natural oligopoly due to of technological requirements and needs for inbuilt knowhow over a long period. Here returns on R & D investment has got a long gestation period and uncertain as one in ten experimental drugs has the probabilities of getting into market. Human capital is to be built in house through learning by doing over a long period of time. Once the capabilities are built up Pharma cos acquire natural advantage provided through patenting. This is used as market power to prevent competitors entering into business. Even distribution of drugs to the end users is capital intensive. Human resources need both marketing as well as scientific knowledge. In the industry fringe cos operate at the lower level of the ladder, suffer from lack of capital, infrastructural constraints and high attrition among the skilled personnel.

After 53 years of building capabilities in the Pharma sector and India's compliance to patent law, TRIP, many Global players are keen to include Indian cos in the value chain in R&D segment. India also has a number of competitive advantages in this sector with pool of science graduates and the scope for cheap clinical research facilities. Though India's domestic market itself is growing at 8 to 9 percent and sector has made foray into the global market, this is dominated by 250 large and medium size firms. Nearly 8 thousand small Pharma firms are operating at a low value chain. They are facing severe constraints which are even threats to their survival.

Successful big cos are operating in the field of genetic drugs and can grow further if only they make use of global opportunities being part of R&D value chain. Private Public Partnership could be successful in grabbing favourable global opportunities and making use of India's comparative advantage in this sector. The research is based on secondary published materials and information available in the internet.

KEYWORDS

Natural Oligopoly, Technological requirements, infrastructural constraints, Trip Genetic Drugs

INTRODUCTION

Pharma products have the characteristics of public goods which provide vast social benefits from usages. For hundred years, drug discoveries and availability of preventing medicine have increased average longevity of population and improved their productive lives worldwide. Products of these industries have more or less markets all over the world without any product differentiation/adaptation. Yet challenges for the industry are enormous and have been increasing in the recent years due to regulatory mechanism and technology enabled drug testing methods. Pharma industry is basically R&D oriented and the process of R & D is complex, costly and involves long time in this industry. This industry being a knowledge based, a firm in the industry has always to be involved in building up research and development capabilities for maintaining market share. This requires large and uncertain investment. Moreover returns on investment on R & D have got a long gestation period and uncertain as one in ten experimental drugs have the probability of getting market access. Once the capabilities are built up over one or two decades, Pharma cos acquire natural advantages through economies of scale and scope. Also specific human resources need to be built in house through learning by doing over a long period of time.

There is a dichotomy in pharma industry in more than one ways. For example, the producer needs patent right for a long period to realize the expenditure incurred in drug development. Yet its full social potency could be achieved only when they are accessible by the lingerer population for which price should be reasonably low. This causes constant conflicts between the corporate, the market forces and the interests of general public. This makes the role of regulators to protect the interests of all stakeholders. The expiry of the patent causes a sharp drop in the price. However, the driving force of the industry being R&D, there is always a tension in the market economy between the need to preserve incentives for innovation by granting temporary monopoly power to the firm. The distribution systems of drugs are often complicated due to complexities of management of supply chains and existence of multiple end users with different objectives e.g. hospitals, medical practitioners and stores. Indian market developed spurious drugs prior to the regime of product patenting. Also there are the possibilities of building nexus between companies, drug distributors and medical practitioners and group interests at the costs of social cause of prevention and cure of disease could suffer. All these call for committed and effective regulatory system

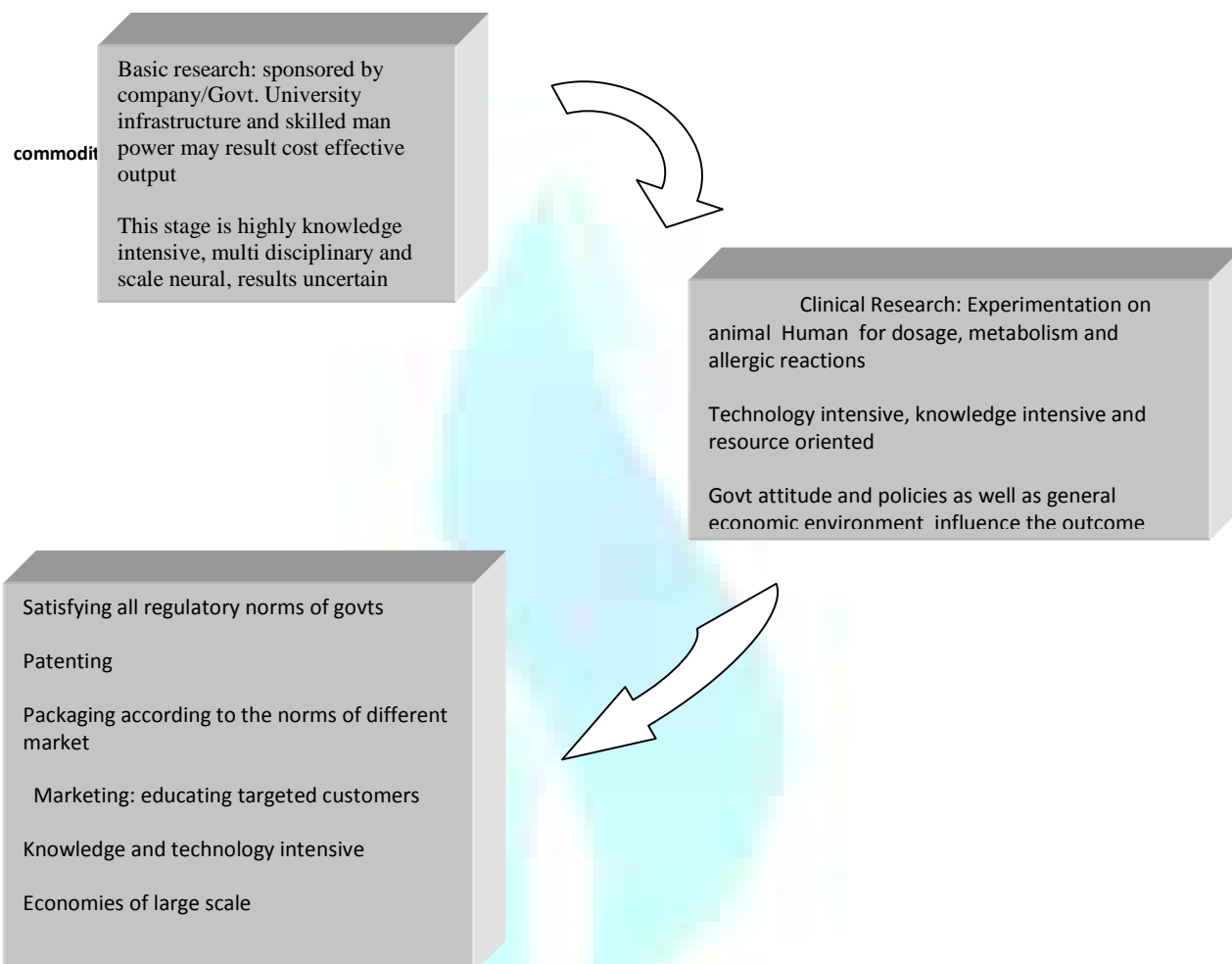
The paper will analyse various characteristics of pharma industry including the problems of drug development, and explain the strategies of firms in the industry, role of govt. The paper will also look into the present global demand for drugs and role of other participants in the market. Then the paper analyses challenges that Indian Pharma sector has been undergoing in the overall optimistic environment that has arisen through globalization and changes that pharma sector in the developed economies

RESEARCH AND DEVELOPMENT: AN ESSENTIAL PART OF THE SURVIVAL OF THE FIRM

R&D in Pharma sector: Problems and General practices: Development of new molecules for medicine is long drawn process. It takes at least sixteen years to complete the process of R & D and consequent drug development to bring the product to the market. Process involves financial commitments which may not result into profitable venture.

New Chemical Entities (NCEs) also known as New Molecular Entities, NMEs) are compounds which emerge from the process of drug discovery (Wikipedia). After successful development of molecule, this has to be tested on animals to ascertain safety, toxicity and metabolism in humans. Drug development process also makes recommendations of the doses and schedule to be used. Thus R&D in Drugs needs to pass through following stages.

DIAGRAM 1: INNOVATION (NEW CHEMICAL ENTITY)



R&D in the pharma industry is multi-faceted and draws upon the expertise of molecular biologists, synthetic and analytical chemists, genomics and proteomics specialists, pharmacologists and medical practitioners. In the process of R & D, first the target for the development of Molecules are fixed up, then in the next step of drug development, experimentation on animal and human go through three stages before the formulation is consideration for registration on the basis of statistical trial data. After successful registration the product is launched in the market for which awareness campaign among the prescribers are to be launched. According to Zinnov report, of 5 thousand to one million drugs entering into discovery process only one enters into the final marketing process and it costs one billion US\$ in the developed market.

Clinical trials are conducted to allow safety and efficiency data to be collected for health interventions (e.g., drugs, devices, therapy protocols). These trials can only take place once satisfactory information has been gathered on the quality of the non-clinical safety, and Health authority / Ethics Committee approval is granted in the country where the trial takes place. Depending on the type of product and the stage of its development, investigators enroll healthy volunteers and/or patients into small pilot studies initially, followed by larger scale studies in patients that often compare the new product with the currently prescribed treatment. As positive safety and efficacy data are gathered, the number of patients is typically increased. Clinical trials can vary in size from a single center in one country to multicenter trials in multiple countries. Due to the sizable cost a full series of clinical trials may involve, the burden of paying for all the necessary people and services is usually borne by the sponsor who may be a governmental organization, a pharmaceutical company. A clinical trial is often managed by an outsourced partner such as a contract research organization or a clinical trials unit in the academic sector. After drug development, these drugs need to be packaged in accordance to the specification of the regulatory authorities and submit DMF documents to make an entry into the market. Break up costs during different stages of Drug R&D as observed by Zinnov report.

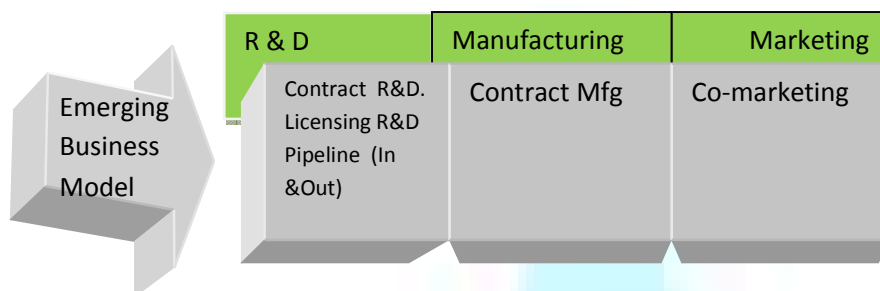
Table 1

| Stage of R&D | Percentage of cost |
|--------------------|--------------------|
| Discovery stage | 26.9 |
| Non Clinical stage | 19.5 |
| Regulatory stage | 4.1 |

| | |
|---|------|
| Other | 11.3 |
| Clinical Development stage Phase I, II, III, IV | 38.2 |

Since three different parts of Pharma products are characterized by three different management and technical styles, it is possible to break them in different organizational set up which improves the efficiency of operation and this also. Thus the industry has developed the following model of Business to cope up with challenges at all levels.

Diagram 2

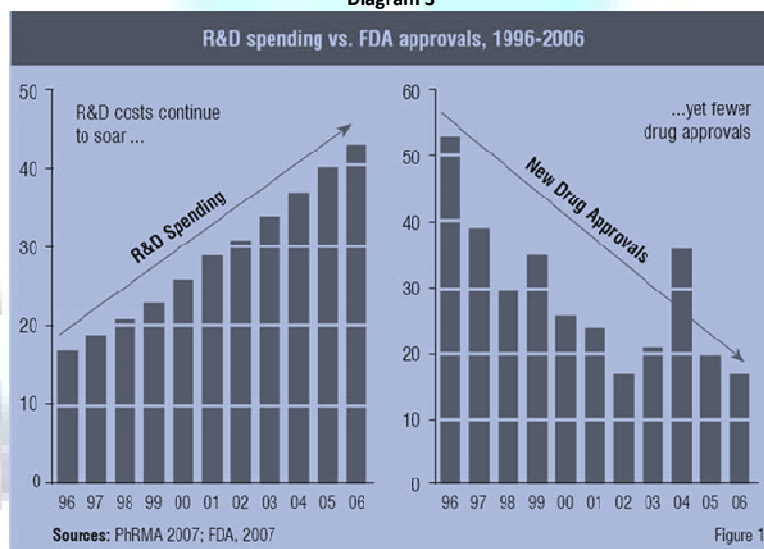


Source: Frost & Sullivan

Change in the Pharma Research Environment and need for looking into global opportunities Costs and time of new Drug discovery

A major concern is that compliance to regulations by the FDA has turned low returns to investments in R&D. For instance, the rate of return in the late 1970s fell by a third to its 1960 levels, and the cost of discovering and developing new drugs increased 18-fold (Business Week, February 21, 1977). During the 1980s, the pharmaceutical industry received a boost from the Reagan administration that lengthened the patents on prescription drugs and hastened the pace of approving generic drugs to substitute for drugs with expired patents. The immediate result in the 1980s was that R&D expenditure in drugs was about 10% of the industry's sales, versus 3% for all manufacturing industries. (S&P Industry Survey, January 1985, H16). But the FDA's Center for Drug Evaluation and Research (CDER) still regulates the industry brand name, generic prescriptions and OTC drugs, placing a heavy time delay on production. The time it takes to develop a new drug has almost doubled from its 1960 levels. The actual trend is 8.1 years in the 1960s, 11.6 years in the 1970s, 14.2 years in the 1980, and a stable 14.9 years during 1990-1996 (Pharmaceutical Industry Profile, 2000, VI). CDER claimed that with the user-fee approach in the mid-1990s, where the applicant pays the government for its review, they have doubled the number of new drugs approved and halved the review time (FDA Consumer, September-October 1997, 21). Other policies such as the streamlining of the IND and the International Conference on Harmonization also reduced review time. However, the review time continues to generate concern. Diagram below shows how R&D spending has been increasing over time while new drug approvals have been declining.

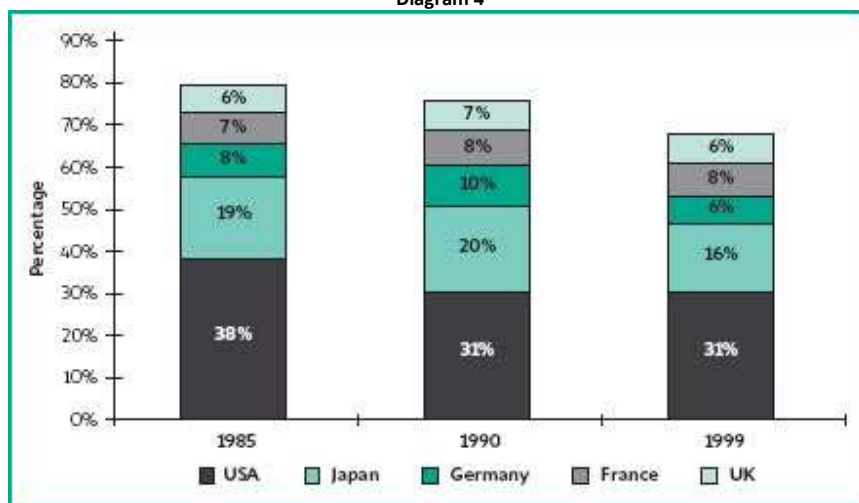
Diagram 3



Expiry of most of the patents: Pharma cos are facing another challenge in recent years due to expiry of large number of patent. Between 2007 to 2012 the top fifty companies would face loss of \$115 billion worth of drugs due to expiry of patent. The industry needs cost effective way to produce drugs at the same time keeps privacy of its formulation and bring a drug faster by six months which can reduce the cost considerably. Pharma giant Bristol Myer Squibb lost 85% of its market share on Glucophage, after its patent expired in 2002. Pfizer is also facing the same problem for its anti cholesterol drug Lipitor which fetches it's a third of revenue. Patent expiry is a beneficial thing for the developing countries as these drugs are available at a cheaper price through development of generic drugs.

Change in the International Economic Environment and Pharma Industry: Two-thirds of the value of medicines produced globally is accounted for by firms with headquarters in just five countries - the USA, Japan, Germany, France and the UK. Production is also concentrated in a few key products and in a relatively small number of companies, which often have factories and offices in many countries other than five centres. Concentration is also apparent when the medicines market is analysed by therapeutic class and individual medicines or products. Sales of medicines in the top 10 therapeutic classes account for over 30% of global sales, and sales of the 10 best-selling medicines account for US\$ 40.2 billion or 13% of global market share.

Diagram 4



In value terms, therefore, 10 countries account for 85% of all pharmaceutical production and 10 companies for about half of all sales. The medicines in the top 10 therapeutic classes account for one-third of all sales and the 10 best-selling medicines for one-eighth of the world pharmaceutical market. (<http://apps.who.int/medicinedocs/documents/s6160e/p007a.jpg>.) The combined share of these countries fell from 78% of total pharmaceutical production in 1985 to about 67% in 1999 while both Switzerland and Italy increased their output to about 4.5% each, just behind Germany and the UK, and just outside the top five. Since 1985, the top 10 medicines producing countries have accounted for 84%-88% of world production. The USA remains the biggest single producer (by value), accounting for almost one-third of total production, and Japan the second biggest. Together, these two countries produced 57% of the world's pharmaceuticals in 1985 and 47% in 1999. The USA lost some of its market share to Japan and Germany between 1985 and 1990. During the period 1985 to 1999, the market share of the UK was 6%-7%, while that of France remained at 7%-8%.

Challenges for MNCs in recent years:

1. FDA has become very, very strict in approving new molecules. The trend shows that the number of new molecules approved by the FDA every year has been falling
2. Huge cost due to expiry of most of patents in coming years. Many pharmaceuticals with high sales histories fear losing their patent protection and face competition from generic copies. There has been evidence that sales can decrease by as much as 75 percent in the year preceding patent expiration
3. So 1/6 of the global sales, or more importantly 1/4 of the US sales for large pharmaceutical companies, will vanish in the next three to four years. That's one challenge in three or four years.
4. A second challenge is the rising cost of health care, which most developed countries can't afford. US has 15-16% of GDP is spent on healthcare. In Europe, in Australia, in Canada, the government pays for healthcare and they are broke too. All across the developed world, Japan, Europe, even the US, the population is aging. And aging population means less productive people contributing to the pool and more people using the healthcare services, which insurance companies or the government have to pay for. This means that there will be some kind of a control on costs, which will include pharmaceutical industry, either the pressure on prices or in Europe it's very difficult to get new products on the formulary which the government reimburses.
5. Developing nations in their compliance to WTO has entered into new patent laws (TRIP) from 2005. This has made these countries an attractive destination for R&D specially clinical research and get patenting. Firstly clinical research is less costly and less time taking due to availability of people ready for trial medicine.
6. Developing economies in their earlier process patenting regime have developed capabilities of producing formula and genetic drugs. In the situation of most of recent patent being on the brink of expiry and high bleak prospects of new drugs being coming to the market MNCs are attracted to forge ties with Pharma cos of developing nations to produce genetic drugs.
7. On the other side, developing economies through liberalization and globalization introduced economic reforms encouraging foreign firms to enter into domestic market. Though developed economies concentrated in some of the medicine, they were too costly for the developing economies. Moreover, drug development in the tropical diseases such as malaria, typhoid, Polio, aids were costly and time taking in the developed countries due to inaccessibility and difficulties of clinical trial. While drug development for diseases of developed nation has reached point of saturation, there is expanding market for drugs for tropical diseases. These drugs can finally be developed only in the developing countries. Developing economies such as India, China, Brazil have developed resources to attract Pharma MNCs entering into these countries to collaborate with domestic companies.

Entry strategies of MNCs in the Pharma sector of developing economies: Usually MNCs enter into a country through four routes: Trade, Single venture and Joint Venture and Merger and Acquisition. Of these four, a firm chooses one strategy whichever is more cost effective. When MNCs initially were looking for markets in the developing region, traded drugs through licensed agents. Pharma MNCs in the developed

economies traded drugs in India and China by providing distributional rights of drugs to the local agents (linsence). As these economies started growing, demands for medicine expanded and foreign companies found it profitable to start production base in these economies mainly to cater to the domestic market.

Following table gives the summary of entry strategies of Pharma MNCs in the developing countries.

Table 2

| Strategies | Challenges |
|--|---|
| Launching their own genetic version of patented drugs through their own genetic subsidiary or by giving exclusive rights to their preferred manufacturer | Genetic version will have face competition across the globe especially from India and China |
| Filling for an incremental by altering ingredient or delivery mechanism | Additional time and cost involved |
| Introducing Line extension or repositioning drugs | Consumer's association with successful brand names diminishes and hence gaining acceptance in the market will take time |

Indian Pharmaceutical sector:

Indian Pharma sector have been a dynamic sector after 53 years of building capabilities. The patent law TRIP have given them leverage and many Global players have been offering to include Indian cos in the value chain in R&D segment. India also has a number of competitive advantages in this sector. India has a pool of science graduates who are capable of learning through in house experience. India has scope for cheap clinical research facilities. Though India's domestic market is itself is growing at 8 to 9 percent and Indian Pharma sector has made foray into the global market. Yet structure of the industry is oligopolistic nearly 250 firms controlling 70 per cent of the market. While leaders of the industry controls 7 per cent of the market. Nearly 80 thousand small Pharma firms are operating at a low value chain. Even at that stage they are facing severe constraints which are threats to their survival. Most of the big cos are successfully operating in the field of genetic drugs. These cos would do well if they make use of global opportunities being part of R&D value chain. Private Public Partnership usually has been successful in those sectors which results scale economies in the long run and needs heavy capital investment over a long period

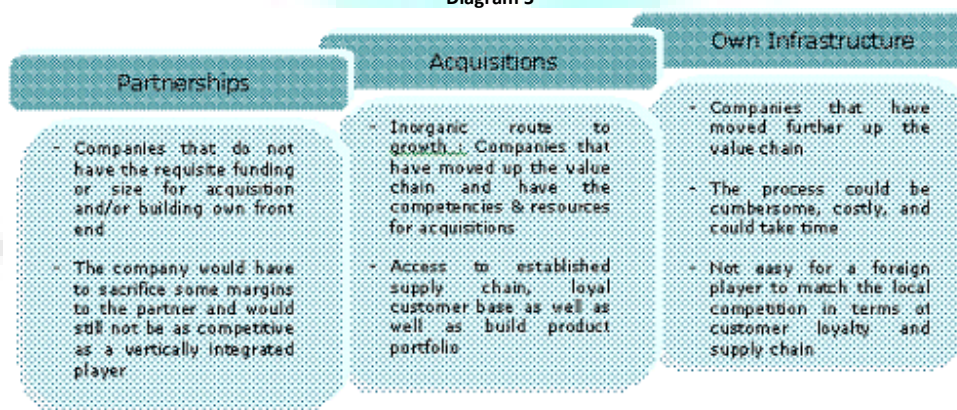
There are three levels of integration that are currently being sought in Indian Pharma industry

- Back-end manufacturing capability (API/formulation)
- Product integration (ANDA pipeline), and
- Front-end (marketing and distribution) in the developed world

The US and European generics companies are scouting for alliances/buyouts at the back end of the chain, which would allow them to offset any manufacturing cost advantage held by companies in the developing markets. The Indian companies are looking at the front-end integration as building a front-end distribution set-up from scratch could take significant time. The product side integration is common to both sides, with weaker US/European generics companies looking at anyone that could offer a basket of products. This is because the US/European pipeline is weak while Indian companies are aspiring to grow rapidly, want to achieve critical mass quickly, and are looking for geographic expansion.

The Indian companies excel as far as the back end of the pharmaceutical value chain is concerned i.e. manufacturing APIs and formulations. Over the past few years the Indian pharmaceutical companies have also stepped up their efforts in product development for the global generic market and this is visible with the DMF filings at the US FDA. About 30% of the new DMF filings at the US FDA are being filed by Indian companies. What the Indian companies are short of the front-end distribution and marketing infrastructure in the developed world. The current stress is on bridging this gap through any / or all of the following strategies. The type of strategies employed would depend on the companies' existing capabilities, available resources, nature and scale of expansion planned and on the targeted geographical market.

Diagram 5



Indian companies have preferred to stay away from NMC business segment, which entails substantial investment in terms of money, time and other resources coupled with very high risk of failure. The Indian companies also lack experience in developing their own molecules, especially the experience to take the molecules through the advanced stages of development. The Collaborative Research model can mitigate the risks of failure and bring in the required investment.

CRAMs is expected to go through cycles. Indian Cos should make use of these opportunities of collaboration with ethical cos to improve their research capabilities and finally become self sufficient. This approach coupled with govt.'s assistance can usher in a new era of drug discovery. The Key here is to reduce the costs of production through alternative avenues of production. The contract research and manufacturing services provide this opportunities. MNCs can reduce the costs of drug production by 30 to 50 per cent of the original cost. Low cost nations like India

and China have been growing CRAMS by 40%. India has 75 drug manufacturing facilities approved by FDA. Companies like GSK, Pfizer, Aventis and Novartis have started crucial trial and R&D activities in India. According to Indian Patent office 80 per cent of Indian patent were registered by foreign cos of which 33 per cent was pharma cos.

R&D Initiative in India by Major MNCs

GSK want to make India as the hub of R & D. They want to emphasize on collaborative research with GSK-R&D U.K. already it has centres in India which carries out research in the following areas such as technology absorption, process improvements development of in house technology and development of in house capabilities of clinical trial. Pfizer has already invested more than \$ 13 million on R & D in India for clinical trial. It has conducted more than 20 clinical trials.

Aventis plans to make India as research hub and shift the major part of research of its global R&D operations to India and has a plan for setting up base for clinical trial and already developed infrastructure for clinical trial.

AstraZeneca has already R&D in Bangalore for infectious disease in the developing countries. It wants to scale up R&D facilities with investment of \$ 40 million. It also has base for clinical trial for various diseases.

Eli Lilly plans to make India as the primary hub for R&D. This co. has been involved in clinical trial since 1995..it conducts Phase II, III and IV .

Novartis exploring collaboration with Indian firms in R&D

Roche is considering to make its clinical trial base for cancer drugs.

Reasons for looking for India as the hub of clinical trial: Some industry outlook

Bristol-Myers to reduce research and development costs and improve patient recruitment rates. It is very difficult to achieve unless the clinical development shifts to India. Pfizer finds it important to reduce time for drug development as this co is cancer research and time is important for patients cure. GSK sees outsourcing R&D to achieve the goal to improve service and reduce costs.

The Indian pharma industry is still trying to come to terms with the new patent regime. It is estimated that the Indian companies will lose close to USD 1 billion in potential revenues, since many of the drugs currently produced will become protected by patents. A curious phenomenon has also resulted, with the industry clearly divided into two segments – Indian manufacturers and MNCs. The Indian companies continue to play to their traditional strengths in generic and bulk drugs, and focus on the medium and lower ends of the consumer market. On the other hand, the MNCs have chosen to maintain their focus on the high end of the market

There are three ways in which Big Pharma is playing its hand in India, while working with an assortment of partners.

- **Generic takeovers** Why let Indian generic companies launch cheap versions of Big Pharma's drugs going off-patent? Partner or buy them, and keep the spoils in the family.
- **Product-development partnerships** With Bill Gates and others picking up the research tab, there's insulation from failure. And manufacturing and supply contracts, though low- or no-margin, are huge and assured.
- **Vaccines** India has the market (a few trans-Yamuna colonies in Delhi equal the population of Finland) and the R&D (at least 25 outfits are engaged in world-class research)

Already, Big Pharma is circling other generic majors, including Wockhardt and Dr Reddy's Laboratories. Sanofi-Aventis has acquired a controlling stake in vaccine maker Shantha Biotechnics. And Pfizer has reportedly sent feelers to a bouquet of generic companies. "Big Pharma is eyeing only those generic companies with a global market and high quality standards. Not just any company," says Arun Bhatt, President, Clininvent Research, a leading contract-research organisation.

According to analysts, the stage for Pharma MNCs to enter into Indian market through Strategic Partnerships has opened through tie up of joint venture/ in licensing deals and marketing / research and manufacturing. Mumbai base Glenmark 's tied up with Shasun Chemicals and drugs Ltd to develop, register and sell 12 genetic drugs in US.

The strategy being followed by Indian Pharma companies, prior to implementation of product patent in India, was to launch their brands of existing molecules patented before 1995. In case of molecules patented between 1995 & 2005, Indian Pharma companies have launched their brands. The MNC's holding patents for molecules discovered during 1995 to 2005 have filed patents under the Exclusive Marketing Rights (EMR) mailbox provision. These applications are being scrutinized by Indian patent office and if it grants patents to these molecules, then Indian Pharma companies selling their brands of these molecules may have to withdraw their brands or pay some 'royalty' to the MNC Pharma companies. Thus there has been a great change in the marketing strategy of pharma companies. Before 2005 there was a mad rush of Pharma companies to launch as many brands possible of patented molecules, but now after 2005 patented molecules cannot be copied hence Indian companies are trying to introduce new molecules. This, they are trying to do so by various means like in licensing, collaborations & joint ventures, purchase of MNC companies.etc. Introduction of new molecules is also a preferred strategy because Pharma companies in order to enhance their image in the eyes of Doctors want to introduce latest molecules so that they are seen as progressive R&D focused companies.

CONCLUSION

This paper after reviewing the world wide challenges of the Pharm industry, attempted to highlight reasons for high concentration of this industry in few developed economies. Recent economic down turn, changes in the regulatory frame works and saturation of production of medicines for developed economies along with costs of drug development in America and European Economies are reasons for MNC to look for collaborative efforts in the developing economies. Favorable environment created through liberalization and WTO compliant patent rules in the developing economies have attracted MNCs to enter into Contract Research and production of genetic drugs as well as getting patents for new drugs.

Some developing economies such as India have developed capabilities in those fields. Collaboration with MNCs has been helping domestic cos to enter into international market with brand names though Indian cos are only operating in the genetic drugs and bulk formulations. Though Indian Pharma cos are responding to the favourable environment, success of this sector is possible only if govt. proactive in providing partnership, support providing infrastructure for millions of small Pharma cos to survive and grow. India is a better place to invest on Drug development of Communicable diseases and some NGOs are active in this endeavor.

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With sincere regards

Thanking you profoundly

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