Chapter - II

REVIEW OF LITERATURE
2.1 Introduction

Conceptual foundations are the vital part of all systematized body of knowledge and applications on a continuous basis helping to develop formal concepts for applications. Further these formal concepts are continuously tested forever and the resulting observations are recovered and analyzed in a systematic fashion to develop the same as a study. It becomes essential for any doctoral work to look back to gain knowledge of different applications and orientations in a field of study. The technology, capital and innovative marketing practices thrust embarked upon by the ministry of industries Provides an opportunity for academicians to develop a Information Technology and Information System orientation which also enables the organization to carry on or experiment with innovative marketing practices. In the proposed study an effort is made to observe the extent of awareness of Technology Needs, Technology Changes, Technology availability, Technology Operability, and Technology Feedback all these provides us a detailed information essential for analysis of cement industries with an MIS orientation.

2.2 Research Studies in MIS

Bhadada, B.M\textsuperscript{1}, appraised the needs for designing and setting up a management control system in functional area of production, marketing, and finance which facilitate the timely collection, analysis and reporting of the information required for exercising control over these fields.

Briggs, Robert O., Nunamaker, Jay and Sprague, Ralph\textsuperscript{2} explained that management information systems are by its very nature an eclectic discipline. It is the study of providing
information to people who must make choices about the disposition of valuable resources in a timely, accurate, and complete manner at a minimum of cognitive and economic cost for acquisition, processing, storage, and retrieval. It therefore sits at the crossroads of many other disciplines—psychology, economics, computer science, business, communication, engineering, aesthetics, and the list goes on.

Cappiello, Cinzia et al\textsuperscript{3} explained that modern organizations offer services through multiple channels, such as branches, ATMs, telephones, and Internet sites, and are supported by multifunctional software architectures. Different functional modules share data, which are typically stored in multiple local databases. Functional modules are usually not integrated across channels, as channels are implemented at different times within independent software projects and are subject to varying requirements of availability and performance.

Chakrabarthy S. K\textsuperscript{4}, found that the management Reporting System in selected enterprises was distinguished. Suitable formats were not devised for reporting about the performance of the undertakings in specific field such as production, marketing, finance and personnel.

Chaudhury, A., Nam, Kichan and Rao, H. Raghav\textsuperscript{5} explained that outsourcing is the contracting of various information systems' sub functions by user firms to outside information systems vendors. A critical factor in the outsourcing process is the bidding and vendor selection mechanism. This paper describes the process of outsourcing and identifies the various stages involved. Subsequently, considering that cost reduction is a riving force of outsourcing for user-firms, this paper proposes a bidding mechanism to reduce expected outsourcing costs in the final bidding and vendor selection process.
Clemons, Eric K and Row, Michhael C\textsuperscript{6} Explained that the current interest in business reengineering is significant both as part of the ongoing evolution of business and as a discontinuity unique to this time and place in history. Reengineering involves both a change in concepts and perspective, from functions to processes, and the development of tools and techniques. But reengineering is also a discontinuity brought on by changes in the business environment and by new capabilities made possible by information technology.

DL Desai of Builder's Association\textsuperscript{7} of India takes the cement industry to task over the recent rise in cement prices and discusses his related concerns. Way back in 1992, the Indian steel and cement industry anticipated a huge demand in the market. So it went on increase the capacity. But the investment that went into increasing this capacity came not from the profits that the industry had made, but from the loans they had taken.

Economic Times article\textsuperscript{8} explained that within a year of reorganizing its business across seven verticals, Tata Consultancy Services is now rolling out a set of methodologies and processes for the manufacturing industry. Basically eyeing capital-intensive industries like steel, metals and minerals; oil gas and refinery; and automotive, the company has already rolled solutions for cement industry and manufacturing. Manufacturing and process industry practice, which accounts for about 18 percent of its revenue is the third largest vertical in the company's portfolio, after banking, finance and telecom. The company is aiming at setting up collaborative ventures with users like doing close projects with them. It has already implemented its solution for cement industry.
Erika Toomy explained that a number of IT innovations with a potential to offer significant benefits is expected to transform specific industries in the next two years time frame. The article identifies a new of these technological innovations and describes the opportunities and challenges offered by them.

Funding la Cour et al explained that they test econometrically whether the sole Danish producer of cement holds a dominant position in the Danish market for (grey) cement. In import penetration tests, they find that its pricing and quantity decisions are independent of import price and quantity, implying that it can act to a considerable extent independently of its competitors. They also test whether it can act independently of its customers and find that its demand is inelastic with respect to its price.

George M. Kasper explained that the effect of user-defined decision support system and systems development cycle applications on forecasting decision making performance in experimental setting. He also explained that user defined decision support system for decision-making.

Greg Barnes Nelson and Jeff Wright explained that real time decision support is a strategy that focuses on solving business problems that cannot be solved by data warehousing systems alone. Real time decision needs a highly flexible architecture to support it. The article discusses such architecture and explains how it can help in moving the right people, enabling quality near real time decisions. It suggests a framework that supports low cast, incremental improvement in information architecture and at the same time optimizing business processes to enable information transparency across the organization.
Iivari, Juhani et al explained in his paper that, proposes a four-tiered framework for classifying and understanding the myriad of information systems development methodologies that have been proposed in the literature. The framework is divided into four levels: paradigms, approaches, methodologies, and techniques. This paper primarily focuses on the two intermediate levels: approaches and methodologies. The principal contribution of the framework is in providing a new kind of "deep structure" for better understanding the intellectual core of methodologies and approaches and their interrelationships.

Jack T. Hogue found that a relationship between decision support systems and the traditional computer information system function. It also describes that Decision support system application development through computer information system in any organization.

Jagadish C. Kapur, emphasizes that the output of the MIS is a vital resource for decision-making but it is effectiveness is subject to periodical review.

Jaya Krishna S article describes various add-on features to Total Quality Management enabled by Information Technology that facilitates the improvement of both product development and customer specific processes. It also discusses how harnessing various electronic channels can improve the quality of customer service delivery processes.

Jayaraman. G explained in his study the Indian cement industry has come a long way in technological upgradation, production and quality. India today, is the second largest cement producing country in the world with an installed capacity of 119 million metric tons per annum. The cement industry in India has a distinction of operating very large to very small
capacity and very modern to very old technology plants. Some of the modern plants can be compared to the best plants in the world in terms of quality, cement production, and energy efficiency.

Kasthurirangan explained that for a construction material like cement, selling was rarely a problem in the pre-liberalization era. The concept of a two-tier distribution chain comprising of manufacturers and dealers functioned very well. It was a perfect and simple set-up, in the sense that manufacturers sold cement to dealers. From there on, the onus was on the dealers who established contact with builders, government and institutional buyers, and sold to retailers.

Kauffman, Robert J et al found that in his research focuses on senior management issues in organizational strategy with technology, IT value, technology infrastructure investments and adoption, pricing strategies in e-commerce, and supply-chain management and electronic procurement markets.

Khare, S.S commented that public enterprises did not have a clear policy with regard to reporting and information system of control.

Moshe Zviran explained in his article relationships between organizational and information systems objectives. In this study he explained the impact of information systems in organizational effectiveness and organizational development.
Nachiket Moghe explained that in the consolidation of the industry, two things are happening: one, the marginal players are selling out and the market is being dominated by few large players. Secondly, among the larger players, there is a willingness to dominate a few regional markets rather than all India markets. In the first round of consolidation we have already seen smaller players succumbing to price pressures and finally selling off to larger dominant producers. As a result five to six major producers account for nearly 52% of the total cement capacity of 110mn ton.

Nisha Das explained that leading cement companies such as Associated Cement Companies (ACC), Gujarat Ambuja Cement, Grasim Industries and India Cement have registered an over 10-to-30-per cent growth in dispatches during the last six months period. ACC has recorded a growth 32.6 per cent in April-September 2003 as against the industry growth rate of 4.3 per cent. For the month of September alone ACC grew by 13.4 per cent on a year-to-year (y2y) basis as against the industry growth rate of 5.79 per cent in the quarter ended September 2003.

Nunamaker, Jay and Briggs, Robert O emphasizes that the computer would cause fundamental changes in the organization and society. We live in a time when many of their expectations have been realized. As they predicted, many organizations have flattened, eliminating many middle-management positions. Developments in computer applications have also led the world in directions not foreseen three decades ago. The Internet and the World Wide Web have connected people in ways that challenge the very concept of the traditional organization.
Panduranga Vithal, M\textsuperscript{25}, found that the defective information system by generating delayed voluminous reports became serious hindrance in the way towards corporate performance.

Pomeroy C D\textsuperscript{26} explained technological trends in cement industries and also explained the cement industry has been setting some trends in technology, price and others. He explained developments in the science and technology of hydraulic cements.

Pradeep Rane\textsuperscript{27} found that the cement industry in the country is likely to see a spate of mergers and acquisition (M&A) activities in the near future. Mergers and acquisitions will be triggered by the fragmented nature of the industry, where the top six manufacturers control 60 per cent of the market, while the remaining 57 operate in the have a combined market share of 40 per cent.

Rainer, R. Kelly and Watson, Hugh J\textsuperscript{28} found that the executive information systems (EIS) are high-risk/high-return systems, largely because the clientele these systems serve are not only influential in the firm, but have information needs that are very difficult to provide through computer-based information systems. As a result, it is important to understand the keys to successful EIS development and ongoing operation. This two-phase study first interviewed executives, EIS professionals, and vendors and consultants to elicit keys to success.

Ravichandran, T and Rai, Arun\textsuperscript{29} found that in his study the availability of high-quality software is critical for the effective use of information technology in organizations. Research
in software quality has focused largely on the technical aspects of quality improvement, while limited attention has been paid to the organizational and socio behavioral aspects of quality management.

Satish John explained in his article that strong projections of sales off take is yet to surface in the cement industry, as dispatches continue to show single-digit growth.

Schubert Fernandes explained that China has been the leading cement producer since 1985 and has produced nearly 36 per cent of the world’s total cement in the year 2000. The other three big producers — the US, India and Japan — put together contribute to about 20 per cent of the world’s total cement produce.

Scott R Sargent and James P Behling explained in his article today, the paradox of systems development and management is that as the business and technology environments become more complex, delivery methods must become simpler. This fundamentals approach to system development methodology is essential for success. In the article accentor proposes a ‘back-to-basics’ approach to systems development that offers several benefits and helps in determining clear role definitions and providing well-defined deliverables.

Sree Ramulu, E, in his work entitled “Innovation and Entrepreneurship in the manufacturing sector”, highlighted the innovation among the selected entrepreneurs, encouraging and discouraging factors to start an industry or enterprise and problems encountered by the entrepreneurs in the district.
Suneel Sethi explained that in today’s business environment companies are exposed to fast technological changes and innovations. To stay competitive, it is essential that companies not only protect themselves against disruptive innovations but also make the most of new technologies. For this, companies need to learn to recognize easting and approaching technological convergence and its effects on future business. Inability to do so will put companies on the edge of high technological risk.

Sunil K Poolani explained in his article that the Union government should take a policy decision to increase the use of cement-concrete instead of bitumen for the ongoing 6,000-km-long National Highway Development Project as also for the 7,000-km-long Golden Quadrilateral Project connecting the north-south and east-west corridors. It is a fact that the cost differential between cement-concrete and asphalt roads has come down drastically. If the costs of concrete roads were initially 20-30 per cent higher, they have come down to less than 10 per cent levels.

The National Programme Management Unit (NPMU) organized a review and planning meeting on MIS. The meeting was aimed 1) assessment of states preparedness and requirements for development of MIS, 2) defining parameters for development of MIS, and 3) preparation of state wise Action Plan for development of MIS.

Vandenbosch, Betty and Higgins, Christopher A explained that a model of the relationship among executive support systems (ESS), learning, and performance is developed. This model describes the impact of ESS on perceptions of competitive performance when viewed from a learning perspective. The model proposes two types of learning: mental-model
maintenance, which new information fits into existing mental models and confirms them; and mental-model building, in which mental models are changed to accommodate new information.

Venkat Ratnam, C.S\textsuperscript{38}, examined the internal organization structure of selected enterprises. He came to a conclusion that the organization structure of the public enterprises was not designed on specific basis.

Watson, Richard T. et al\textsuperscript{39} found that, his study compares and contrasts the findings of recent information systems (IS) management studies in ten nations or regions as well as one U.S. multinational study. It examines the key concerns of IS executives in these areas, focusing on identifying and explaining regional similarities and differences. Internationally, there are substantial differences in key issues. Possible reasons for these differences—cultural, economic development, political/legal environment, and technological status—are discussed. The analysis suggests that national culture and economic development can explain differences in key issues.

Xia, Weidong and Lee, Gwanhoo\textsuperscript{40} explained in his paper conceptualizes and develops valid measurements of the key dimensions of information systems development project (ISDP) complexity. A conceptual framework is proposed to define four components of ISDP complexity: structural organizational complexity, structural IT complexity, dynamic organizational complexity, and dynamic IT complexity. Measures of ISDP complexity are generated based on literature review, field interviews, and focus group discussions.
2.3 References


36. The ‘National Programme Management Unit (NPMU)’ organized a meeting “Review and planning of MISs”, An article, Hindu, 21, December 1998.


