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CONTENTS

NICE MANAGEMENT COLLEGE, MEERUT

NICE Management College, Meerut, is an institution set up by the NICE Society, an educational and philanthropic society, envisaged and inspired by Babu Vijendra Kumar ji, an eminent agriculturist and social-worker from Gangoh (Saharanpur district). The Society was registered in 1989 as a non-profit organisation under the Societies Registration Act, 1860, with its office at Meerut and headquarters at New Delhi, and professional institutes located at Meerut and Gangoh (Saharanpur).

NICE Management College offers MBA and MCA programmes, with affiliation to the UP Technical University, Lucknow, and BBA and BCA courses of Chaudhary Charan Singh University, Meerut. Shobhit Institute of Engineering and Technology, Meerut, offers B.Tech. programme of the UP Technical University, in the areas of Computer Science, Information Technology, Electronics and Communication, Electronics and Instrumentation, and MCA programme of the same university.

Shobhit Institute of Engineering and Technology, Gangoh, imparts education for the B.Tech. degree of UPTU in various branches of engineering and technology. Adarsh Vijendra Institute of Pharmaceutical Sciences has been set up at Gangoh for providing education, leading to the B.Pharm. degree of UPTU. Furthermore, the NICE Society runs Kunwar Shekhar Hospital and Research Centre at Gangoh.

Shobhit Institute of Engineering and Technology, Meerut, has recently been given the status of a 'Deemed-to-be-University', by the Ministry of Human Resources, Government of India.

NICE JOURNAL OF BUSINESS

NICE Journal of Business is a half-yearly journal, published by NICE Management College, Meerut. It seeks to provide a platform to research scholars, practising managers, and teachers in business management, commerce, economics, and allied fields, to present their research findings and share their views and experiences.

The journal aims to disseminate information about recent developments in the relevant and to publish book reviews, Ph.D. thesis abstracts, case studies, and bibliographies on topics of research interest.

Original contributions received for publication in the journal are subjected to a blind review by experts in the relevant field.

From the Editor's Desk

WE were overwhelmed by the response of academicians and practitioners to the inaugural issue of the *NICE Journal of Business*. We are now pleased to place before the readers the second issue of the Journal. After a preliminary review of nearly thirty papers received, the selected papers were subjected to a blind review by referees. These were revised by the authors in the light of the referees' comments, before they were finally selected for publication.

The issue contains research papers and short communications on diverse topics. Then, there are reviews of four books of topical interest.

Through an exhaustive survey of literature, Professor R.S. Dwivedi finds out how organisations engaged in development tasks can achieve superb performance and enhance their reputation through indigenous technological breakthrough, using innovative, and managerial practices. His study reveals the leadership style and innovative technique of Dr. APJ Abdul Kalam, President of India, when he guided his team of scientists at the ISRO, which attained exemplary organisational performance.

Using econometric models, Dr. Sanjay Kumar Singh seeks to forecast the teledensity and telephone demand in India upto the year 2015-16. He also examines the implications of the spectacular growth of the telecom industry in India and the corresponding revenue to the telecom operators and the Government.

Dr. Pikay Richardson studies the turnaround of the British Steel Corporation (BSC), a leading public-sector steel manufacturing company in the UK. Giving a critical analysis of the ups and downs of the BSC, which affected the growth of the company, the author attributes the spectacular turnaround to a capable management and timely government support.

In an exploratory study, Professor H.S. Sandhu and Ms. Ritu Mehta find positive attitude, leadership quality, and sincerity to be the highest-rated attributes of women managers. The study has also revealed that the handling of responsibility and analytical ability take the lowest rank in the ladder of such attributes.

Dr. Ved Pal and Dr. S.K. Goyal examine the technical efficiency of the sugar mills in the State of Haryana. The authors note that the sugar mills have adequate level of technical efficiency, and, with proper utilisation of resources, the production of sugar in the State can be increased by upto 24 per cent.

Marketing has always been a favourite field for researchers and authors, since it is not only a major functional area of business but has also been undergoing radical changes in its nature, scope, and philosophy, with increasing competition and changing customer needs and expectations. With the help of the vast literature available on the subject, Dr. K. Kajendra traces the evolution of the marketing concept and discipline since their inception, and evaluates their current status.

In their paper, Mr. Rajat Panwar and Professor Eric Hansen focus on companies' responsibility and accountability towards social and environmental issues. They suggest a code of conduct for companies in India, in order to develop a healthy corporate society relationship.

Professor B.K. Punia and Ms. Anju Dahiya evaluate the 360-degree performance appraisal system and its significance in the corporate sector vis-à-vis the traditional system of performance appraisal. They find that the system helps in developing leadership, team-building, employee motivation, and communication efficacy, and acts as a change-management tool, which is important for the success of any organisation.

Professor Anil Kumar Jain and Ms. Parul Jain seek to measure the extent of customer satisfaction in private-sector and public-sector banks. The authors observe that public-sector banks ought to improve their services to a greater extent than their counterpart in the private sector. They find that, in both types of banks, customer satisfaction has fallen short of customer expectations, and varies across the types of services offered by such banks.

Highlighting the role of the private-sector participation in public-utility infrastructure development projects, Professor K.R. Sharma evaluates the different models which can be used for cost minimisation, efficient-resource utilisation, and quality enhancement.

I am thankful to the authors for their valuable contribution.

Several experts helped us by assessing the articles and making critical comments for their improvement. I express my gratitude to all of them

Mr. Shobhit Kumar, Chairman, and Kunwar Shekhar Vijendra, Vice-Chairman, of the NICE Society, have taken keen interest in this academic endeavour. I am highly grateful to the two visionaries.

NICE Management College
Meerut

D.P.S. VERMA
Editor

INNOVATION FOR SUPERB ORGANISATIONAL PERFORMANCE

A Survey of Literature and Case Study of Dr. APJ Abdul Kalam at ISRO

R.S. Dwivedi*

Abstract

A survey of literature on innovation reveals that the researchers have largely focussed on the importance of innovation for an organisation's sustained profit, growth, and competitive advantage. Further, they have examined its concept (meaning and types), sources and barriers, and highlighted the need for managing its dynamics to accomplish the desired results. A case study of Dr. APJ Abdul Kalam is presented there to illustrate how he promoted the indigenous development of varied technologies (as evidenced by the successful completion of the Rohini Sounding Rocket, RATO motor, and SLV-3 programmes) through several administrative and managerial innovations to accomplish exeaplary performance at the Indian Space Research Organisation.

Key Words: ***Intrapreneurship, Organisational inertia, Indigenous technologies, Administrative innovations, Management innovations.***

INTRODUCTION

In the face of intense international competition, business enterprises in India have to constantly re-invent the wheel in order to survive and grow. Unfortunately, they can not fall back on a ready-made learning curve as real-life examples in the Indian context are too few and far between to help them conceptualise, develop, and implement relevant innovations. Hence, guidelines are needed for Indian organisations, engaged in creative and developmental tasks.

This paper presents a comprehensive survey of research literature on innovation and a case study on Dr. APJ Abdul Kalam's indigenous approach to innovation for 'superb organisational performance' at the Indian Space Research Organisation (ISRO). With a view to inculcating the desire and ambition to excel, the paper seeks to explore and examine the innovative practices adopted at the ISRO under the leadership of Dr. Kalam who is currently the President of India and developing a case study for use by B Schools and practising business executives. The paper

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also aims at stimulating researchers to undertake further studies in this area. The paper is divided into two sections. While Section I provides a comprehensive survey of literature on the subject of innovation, Section II contains a case study of Dr. Kalam's approach to innovation at the ISRO.

I.
LITERATURE ON INNOVATION

A plethora of research literature is available on the importance, conceptual foundation, and management of innovations. This section seeks to trace the major developments in these areas, based on a comprehensive survey of literature.

Importance of Innovation

In a developing economy, like India, companies need to catch up swiftly with international standards of performance. However, a survey conducted in 2000, found that the productivity of the manufacturing sector in India was low at one- tenth of the world standard (Sharma, Nair, and Suny, 2000). Another survey found that compared to Western countries and Japan, India ranked 45th on capacity for innovation, 49th on product/process sophistication, and 59th on customer-orientation (Cornelius, 2003). Under these circumstances, India has only two options to catch up: imitation and innovation. The available evidence does not indicate benefits of imitation both in the Third-World Countries (Tripathi, 2005) and the First-World Contexts (Staw and Epstein, 2000). However, as demonstrated by Japan, Indian companies can also catch up with the world leaders through sustained technical and managerial innovations (McMillan, 1996). Learning to be innovative will provide Indian companies with the first-mover advantage and bring about a sustainable competitive environment (Khandwalla, 2006). This is especially true in view of the fact that innovation is one of the three (in addition to quality and cost leadership) main sources of competitive advantage, as identified by Porter (1980, 1985).

Moreover, despite enormous environmental pressures and demands on business firms worldwide, immense opportunities have emerged for companies both in the developed and developing countries to achieve sustained growth through innovations (Hart, 1995; Hart and Milstein, 1999; Hall and Vredenburg, 2003; Vedpuriswar, 2004). Kim and Mauborgne (1997) have rightly observed that companies can realise sustained growth by value innovations. Studies show that companies innovate keeping varying pressures and demands in view (Miles and Snow, 1978; Shortell and Zajak, 1990). To explain, reactor and prospector strategic organisations follow extremes of innovativeness (Kreitner, 1999, p. 165). Reactor organisations wait for adversity (i.e., declined sales) before taking corrective measures. Their strategic responses come after changes in the environment and are, therefore, less profitable than prospector organisations (Conant, Mokwa and Varadarajan, 1990; Zahra and Pearce, 1990; and Dwivedi, 2005). Conversely, prospector organisations make things happen actively rather than wait for them to happen. They enjoy an edge over their competitors by being innovative.

With a competitive environment here to stay, the potential for innovation is greater now than ever. Managers are under constant pressure to create value in the face of intense competition and shrinking profit margins. Thus, innovation is the only way out for value-creation through profitable growth (Prahalad and Ramaswamy, 2003). As Moore (2004) suggests, established companies must innovate today, lest they should vanish tomorrow. Hence innovation forms a core competency for 21st Century organisations (Trucker, 1998; Ekanem, 2001). As Kanter (1983) demonstrated, corporations which are 'integrationist' (successful at stimulating the innovating capacity of their people) rather than 'segmentalist' (so rigidly structured as to stifle innovation) are able to stay ahead of changing technologies and markets.

Research on the impact of innovation has confirmed its benefits to organisations in terms of wealth creation, productivity, competence,

sustained competitive advantage, profitability, and growth (Miller, 1970; Damanpour, et al., 1989; Teece, et al., 1997; Barrett, et al., 2000; Zahra and Garvis, 2000; Kuratko, et al., 2001; Thomson and McNamara, 2001; Goosen, et al., 2002; Batten, 2002; Kemelgor, 2002; Antoncic and Hisrich, 2003, 2004; Ahiauzu, et al., 2004).

The Conceptual Foundations of Innovation

Meaning: From a technological perspective, innovation is the systematic development and practical application of a new idea (Higgins, 1995; Bylinsky, 1996). Kanter (1983, p. 20) defines innovation from a social and organisational standpoint, as the process of bringing any new, problem-solving idea into use. Utterback (1971) defines innovation as the process of developing a creative idea so that it can be put to practical use. It involves two facets: design and implementation. Zaleznick (1988, p. 38) differentiates innovation from creativity as follows: "Creative work disrupts habitual ways of thinking, innovative work utilizes habits, traditions and culture to arrive at new ways of doing things". Miller (1970, p. 3) observes that innovation is not merely an approach to change; it is a basic function of management.

Source: A study by Utterback, (1974) shows, that out of 157 organisational innovations, 98 were chosen from outside and developed. The innovations are the outcome of a methodological analysis (Drucker, 1985). Innovation stems from ongoing circles of exchange, where information is not just accumulated or stored but created. Knowledge is generated anew from connections which were not before (Wheatley, 1992, p. 123). A recent study shows that the intense competition among companies in the same industry encourages and promotes innovation (Ahiauzu, *et al.*, 2004). Das (1997) highlights the forces of innovation in managerial role performance while analysing its determinants and consequences for organisational performance. Another research study shows that continuous innovation also occurs because of the innovation-sponsoring capability of executives (Quinn, 1985). Several studies on the innovation-sponsoring capability of organisations have linked it to individual as well as organisational factors (Hostager, et al., 1998). An attempt has also been made to show that internal organisational factors do play a more important role than individual factors promoting innovations (Goosen, et al., 2002). Moreover, individuals can be trained to be intrapreneurial, provided the organisational environment is conducive (Wunderer, 2001; Thornberry, 2003). Obviously, innovation can be promoted through intrapreneurship in organisations. While entrepreneurs are a vital innovative force in the economy (Calonius, 1996), intrapreneurs strive for innovation within existing organisations (Schellhardt, 1996). An intrapreneur is defined as an individual who takes personal responsibility for pushing an innovative idea through a large organisation (Pinchott III, 1985, p. xvii). Middle managers play a major role as innovators as they have their fingers on the pulse of operations (Kanter, 1982). Shiba (2004) highlights the critical role of CEOs in helping companies break out of stagnation and slow growth using 'chaos' for breakthrough innovation. Researchers are focusing more on the organisational facilitation of innovations than the individual characteristics supporting innovation (Drazin and Schoonhoven, 1996; Russell, 1999; Antoncic, 2001).

Barriers: Dougherty (1994) indicates varied organisational facilitators and barriers of new product introduction. Khandwalla (1988) examined varied factors hampering institutionalisation of management innovations and identified strategies to overcome them. It has also been suggested that time pressures (Amabile, *et al.*, 2002) and an excessive reliance on control and order (Amabile, 1998) can undermine people's ability to generate and implement powerful innovative ideas. Sharma (2003) shows that large and established organisations have inherent disabilities that block innovation and intrapreneurship. With on-going activities getting strategies priority, innovation strategies are placed at the bottom of these organisations'

priority list. Organisational inertia at the strategic level may lead to a focus on maintaining the existing systems called administrative management (Kanter 1985). Thus, intrapreneurship is most difficult in large organisations (Carrier, 1994) as they do not have the flexibility in their systems to reward personal autonomy and wealth which an entrepreneurial individual looks for (Morse, 1986). Besides, radical innovations require human processes which defy systematisation (O' Connor and McDermott, 2004). Research shows that the short-term financial target orientations of these organisations have a negative effect on R&D and innovation (Hoskisson, et al., 1993). An Indian study (Manimala, et al., 2006) has identified various organisational constraints against innovation: absence of failure analysis systems, lack of patenting initiatives, lack of recognition for innovations in non-core areas, poor handling of resistence to change, etc. This clearly shows that Indian organisations are yet to institute many systems and procedures required for supporting innovations.

Types: Organisational innovations can be classified as technical and non-technical (Khandwalla, 1988, p. 326). Non-technical innovations can be further classified as managerial and social innovations. Managerial innovations range from innovations in missions, style of management, growth strategies, management systems and organisational structures to office décor and flexitime (Kimberly, 1981). It involves political pressures as well as participatory technologies, such as action research (De, 1979) and Organisational Development (OD) (Abud Ahmed, et al., 1980). Of course, it has been argued earlier that management innovations are difficult to institutionalise (Maheshwari, 1980; Nagabrahman, 1980, pp. 325-357). In general, innovation can be either major ('big bang') or minor ('suggestion box') types (Gluck, 1985). Abernathy, et al. (1983) classifies innovations in four categories: architectural, market niche, regular and revolutionary. Innovation can also be classified from macro and micro perspectives. While most studies relate to a macro perspective on innovation, researchers have also studied it from a micro or individual perspective called role innovation (Nicholson, 1984; Das, 1997). An interesting development is interorganisational innovation. Rivals in the same high-tech industry are increasingly collaborating on R&D-based innovations (Khandwalla, 2006). A related development is the network product innovation. Network innovation in home banking is an example (Pennings and Harianto, 1992).

Models: Chesbrough (2003) suggests two models of innovation: closed and open. In the closed innovation model, a company generates, develops and commercialises its ideas. This philosophy of self-reliance prevailed in leading corporations in the 20th century. In the new model of open innovation, a company commercialises both its own ideas as well as innovations from other firms, and seeks ways to bring its in-house ideas to the market by deploying pathways outside its current businesses. The open innovation model embraces activities in one of three primary areas: funding, generating or commercialising innovation. Firms which can harness outside ideas to advance their businesses while leveraging their internal ideas outside their current operations are likely to thrive in this new era of open innovation. A recent study examined the asystematic models on innovative activity and revealed that the patent racing model by Reinganum and others appeared to be more accurate than the auction model of Gilbert and Newbery (Czarnitzki and Kraft, 2004).

Management of Innovation

Research literature shows that innovation is a double-edged sword (Hall and Vredenburg, 2003). It is influenced by market forces as well as by public policy. Thus, while it can meet consumer and societal needs, it is a significant source of risk, competitive disruption and failure (Marshall and Vredenburg, 1992; Utterback, 1994). As Treacy (2004) observes, going after

breakthrough innovation may be glamorous but mounting evidence suggests that it is the last growth strategy one should try. It has recently shown that between 5 and as many as 9 out of every 10 new products end up as being financial failures. The reason may not lie with the innovations themselves but the way they are brought to the market (Andrew and Sirkin, 2003). As a preventive strategy for such failures, Prahalad and Ramaswamy (2003) propose a new frontier of experience innovation (a paradigm shift from the traditional company-centric and product-centric model to an individual customer-centric model) stressing a network of companies and consumers. Chakravorti (2004) suggests that for new products and services to succeed rather than innovate unilaterally, the whole network of industry has to get involved.

Khandwalla (1988) suggests that for effectively managing innovations, there is an urgent need at the very outset to identify and overcome the barriers to them. Corwin (1972), and Williams and Miller (2002) identify strategies for ensuring that a good idea gets a hearing and support. Farson and Keyes (2002) suggest that failure-tolerant leaders can make innovation a routine by creating a culture of intelligent risk taking. Researchers have also examined the relevance of HRM practices (Damanpour, et al., 1989) and organisational climate and structure (Ekvall, 1983) in promoting innovations. A recent Indian perspective highlights the role of financial rewards and the creation of an internal climate conducive to innovations (Mangalath, 2004). There exist several research studies indicating the art of managing technological innovations (Utterback, 1974; Kendrick, 1979; Sinha, 1982, Moss, 1985, Pearson, 2002). Innovations usually involve uncertainties which can be managed by organisations in varied ways (Hanan, 1969; Bleicher, et al. 1983; Quinn, 1985). Several researchers have attempted to identify a set of managerial qualities for managing innovations at the design (Burns and Stalker, 1961) and implementation (Khandwalla, 1988) phases. The political nature of innovation implies that those entrusted with innovation must have the skills to influence others and use a set of strategies (Sinha, 1982). In an American study involving 169 managers, the highest predictor of innovation success was the quality of human relations management (Service and Boockholdt, 1998). Peters and Waterman (1982) show that even large organisations can be innovative if they use small teams to develop innovative ideas.

Numerous researchers have suggested suitable organisational design for innovation in a competitive business environment (Khandwalla, 1992; Khandwalla and Mehta, 2004; Ravasi and Lojacono, 2005; Voelpel, Leibold and Tekie, 2005; Hamel, 2006). For sustained and successful innovation, the organisational structure must be highly divisionalised, decentralised and flexible with varied cross-functional projections which supplement regular functional departments. As Khandwalla (2006) suggests, HRM needs to induct from outside as well as identify from within the organisation, change agents and potential innovators, groom them, ensure that they have enough operating space to innovate and reward them when they deliver. Top management must come forward and engage in the planning and monitoring of innovations. Management tools have also been developed to enhance an organisation's ability to innovate (Khandwalla, 2003). Some of these tools can help generate an innovationist mindset in the enterprise and diffuse the requisite skills: creativity training, invention training and creative thinking network.

Lack of Clarity in the Indian Context: Need for Case Study

The above survey of literature shows that very little is known how to generate, develop and implement innovations for 'superb organisational performance' in the Indian context. However, Dr. Kalam's case provides an excellent approach to generate, develop and implement varied technological and managerial innovations for superb organisational performance at ISRO, although it has not yet

received researchers' attention. This approach is exemplified by the following case study, illustrating largely non-technical innovations made by him to accomplish outstanding organisational performance through technological innovations. The author prepared this case on the basis of his observations of Dr. Kalam's leadership and informal discussions held with him and certain published material (Kalam, 1999).

II.
DR. KALAM'S APPROACH TO INNOVATION AT ISRO

While working at the ISRO for over two decades, Dr. Kalam demonstrated a globally unparallelled approach to generating, developing and implementing both technological and managerial innovations for outstanding results in space programmes. This approach consists of four components.

1. Preparation for taking up challenging tasks : genesis of innovation
2. The Rohini Sounding Rocket programme: innovations relating to composites
3. The RATO motor programme: administrative innovations
4. The SLV programme: managerial innovations

Preparation for Taking up Challenging Tasks: Genesis of Innovation

Dr. Kalam received training at the National Aeronautics and Space Administration (NASA) and was effectively inducted by the Chief Executive Officer (CEO) of the organisation prior to assigning him a challenging task at the ISRO. This formed the genesis of several innovations that he subsequently introduced for superb organisational performance.

Training at NASA

Dr. Kalam joined the Indian Committee for Space Research (INCOSPAR) as a rocket engineer. After a familiarisation course at the Tata Institute of Fundamental Research (TIFR) computer centre, he was offered six months' training on sounding rocket launching techniques at NASA work centres in the USA. He began training at the Langley Research Centre (LRC) in Hampton, Virginia and then shifted to the Goddard Space Flight Centre (GSFC) at Greenbelt, Maryland. He ended his training at the Wallops Flight Facility at Wallops Island in East Coast, Virginia where he happened to see a painting of Tipu Sultan's army fighting the British. He was delighted to see an Indian glorified by the NASA as a hero of warfare rocketry. This painting impressed him so much that it guided his path throughout his professional life. Probably, it propelled him to make indigenous technological innovations to accomplish unprecedented growth in the Indian space programme.

After his return from the NASA, India's first rocket, Nike-Apache, was launched on November 21, 1963. It was a sounding rocket and made at the NASA.

Induction by the CEO

The next day, Prof. Vikram Sarabhai, the pillar of the Indian space programme, visited Thumba. He had a detailed discussion with Dr. Kalam, other scientists and engineers to prepare them for the new challenging tasks in the organisation. Revealing his utmost trust in their capabilities, he shared with them his dream of an Indian Satellite Launch Vehicle (SLV) for use of the military aircraft. A great visionary, he made every one see the urgent need to organise an integrated national space programme. He also persuaded them to develop indigenous technology manufacture rockets and develop launch facilities. Although the real journey for the Indian aerospace programme was to be initiated with the Rohini Sounding Rocket (RSR) programme, Prof. Sarabhai wanted everything to be performed concurrently (rather than one by one) in a multi-dimensional way. This induction programme helped Dr. Kalam to effectively perform multi-dimensional complex jobs in the organisation.

The Rohini Sounding Rocket Programme: Innovation Relating to Composites

Mentioned earlier, Prof. Sarabhai often used to assign multiple tasks to individuals and teams to develop their full potential and accomplish outstanding results. He always believed they would outperform in their rules. Accordingly, at the Thumba Equatorial Rocket Launch Station (TERLS), Dr. Kalam was involved with rocket preparation activities, payload assembly, testing and evaluation, besides building subsystems, like payload housing jettisonable nose cones.

While working with the nose cones, he entered the field of composite material. In this position, Dr. Kalam's way of innovation had its genesis in his earlier historical observation: "Indians used composite bows made of wood, sinew and horn as early as the eleventh century." He came to this conclusion after his self-study of research reports on archaeological excavations at different sites in the country. Fascinated by the versatility of these man-made composites, he wanted to learn everything about them almost overnight. Glass and carbon Fibre Reinforced Plastic (FRP) composites particularly excited him. An FRP composite is made up of an inorganic fibre woven into a matrix which encloses it and gives the component its bulk form. Later on, his team made high-strength glass cloth laminates to build non-magnetic payload housings and flew them in two-stage sounding rockets. They also wound and test-flew rocket motor casings of upto 360 mm diameter.

In due course, two Indian rockets were born at Thumba. They were christened *Rohini* and *Menaka* after the two mythological dancers in the court of *Indra*. Now, indigenously prepared payloads no longer needed to be launched by French rockets. Dr. Kalam gave full credit to Prof. Sarabhai for generating immense trust and confidence among his scientists and engineers and bringing into use their knowledge and skills to accomplish the national goal of self-dependence. It was because of the team members' full participation that innovative solutions became genuine, resulting in their effective implementation. This is evidenced from the successful launch of the first indigenous Rohini-75 rocket on November 20, 1967 demonstrating globally, the unparallelled innovative capabilities of Indian scientists and engineers.

The RATO Motor Programme: Administrative Innovations

This programme illustrates how Dr. Kalam chances upon the process of innovation from a business management book that reinforced his existing ideas to introduce administrative innovation in the organisation for its (programme's) successful completion in record time.

Incidental Insight into the Concept and Process of Innovations

In early 1968, Prof. Sarabhai wanted to see Dr. Kalam urgently in Delhi. On reaching Delhi, Dr. Kalam was asked to meet him at Ashoka Hotel at 3.30 a.m. After finishing his dinner, Dr. Kalam happened to pick up a book on business management in the hotel lobby. While glancing over the pages, he came across a quotation. It provided him an insight into the concept and process of innovations in line with his own perspective on it. Here is the gist of the quotation in his words:

> All reasonable men adapt themselves to the world. Only a few unreasonable ones persist in trying to adapt the world to them. All progress in the world depends on these unreasonable men and their often non-conformist actions.

Dr. Kalam also inferred from the book that it was essential for a project manager to learn to live with uncertainty and ambiguity and that a good plan violently executed now is far better than a perfect plan executed next week.

Prof. Sarabhai took Dr. Kalam and Captain V.S. Narayanan to Tilpat Range. He showed them a Russian RATO and asked: "If I get you the motors of this system from Russia, could you

recreate it in eighteen months time?" Both of them replied simultaneously: "Yes, we can." Prof. Sarabhai's face lit up.

By that evening, the news of India taking up the indigenous development of a RATO system with Dr. Kalam heading the project was made public. Indeed, the Air Force was in dire need of a large number of the RATO motors for their S-22 and HF-24 aircraft. These motors provided the additional thrust required by aircraft during take-off run under adverse operating conditions (i.e. particularly, bombed-out runways, high altitude airfields, etc.). The project was to be taken up at the Space Science and Technology Centre with the support of the DRDO, HAL, DTD&P (Air) and Air Headquarters.

Defence R&D, at that time, was heavily dependent on imported equipment as virtually nothing indigenous was available. In order to resolve this complex problem of import substitution, one of Dr. Kalam's young colleagues, Jaya Chandra Babu, proposed that the RATO system could be made without imports. According to Babu, the only barrier was the inherent inelasticity in the approach of the organisation toward procurement and sub-contracting, which would be the two major thrust areas to avoid imports. He insisted on an urgent answer for liberty in respect of seven issues:

1. Financial approval by a single person instead of an entire hierarchy.
2. Air travel for all on work irrespective of their entitlement.
3. Accountability to only one person.
4. Lifting the goods by air cargo.
5. Sub-contracting to the private sector.
6. Placement of orders on the basis of technical comparison.
7. Expeditious accounting procedure.

The above liberties were unheard of in government establishments. However, as the RATO system was a new game, Dr. Kalam thought there was no harm in trying to play with a new set of rules and approached Prof. Sarabhai. Hearing his innovative proposal for administrative liberalisation and seeing the merits behind it, Prof. Sarabhai approved these liberties in a single stroke, without a second thought.

Dr. Kalam's team (consisting of about 20 engineers), was immensely enthused with this administrative liberalisation. Now, no procedural bottlenecks could hold them up. They opted for a composite structure for the RATO motor casing using filament fibre glass/epoxy. They had also gone in for a high energy composite propellent and an event-based ignition and jettisoning system in real-time. A canted nozzle was designed to deflect the jet away from the aircraft. They conducted the first static test of RATO twelve months after the project initiation and within the next four months, they conducted 64 static tests. The RATO system was successfully tested on December 8, 1972 at Bareilly Air Force Station in Uttar Pradesh when a high performance Sukhoi-16 jet aircraft became airborne after a short-run of 1200 m as against its usual run of 2 km. The demonstration was watched by Air Marshal Shivdev Singh and Dr. B.D. Nag Chaudhary, the then Scientific Advisor to the Defence Minister. This effort saved approximately Rs. 4 crore in foreign exchange.

The Satellite Launch Vehicle (SLV) Programme: Management Innovations

The successful completion of the SLV programme can be attributed to Dr. Kalam's positive attitude towards people and errors, promoting widespread innovations among them in general, and the introduction of a set of management innovations in the organisation conducive to effectively attaining its objectives, in particular.

New Developments: In 1968, the Indian Rocket Society was set up. Shortly afterwards, Prof. Sarabhai decided to venture into a more challenging task of accomplishing indigenous capability in building and launching the country's own satellites. Sriharikota Island

(100 km north of Chennai) was selected and the SHAR Rocket Launch Station was born. Then, the INCOSPAR was reconstituted as an advisory body under the Indian National Science Academy (INSA). The Indian Space Research Organisation (ISRO) was created under the Department of Atomic Energy (DAE) to conduct space research in the country. Dr. Kalam was chosen as a project leader of the SLV and also assigned an additional responsibility of designing the fourth stage of the SLV. This stage was to be a composite system involving numerous innovations in fabrication technology. The task of designing the other three stages was assigned to three other scientists.

Positive Attitude towards People and Errors: Dr. Kalam, as a great visionary, realised that this complex task could only be accomplished by mobilising people's innovative capability, treating them in a dignified way, and considering each error as a part of the learning curve. Accordingly, he laid the foundation for stage IV of the SLV on two rocks — unqualified support and sensible approximation. He believed that people would be innovative and excel if they are given unqualified support and nurtured whole heartedly. To quote him: "If you abuse a person or despise him, you neither expect him to deliver results nor to be creative". He held that a leader was no better than his people and the team's commitment and participation made them partners. Moreover, he allowed mistakes as a part of the learning process for their development. He had learnt this art of supportive leadership from Prof. Sarabhai who used to consider errors opportunities to promote innovations and the development of new ideas.

Further Developments: Even as the RATO project was underway, the SLV project slowly started taking shape. By then, competence for all major systems of a launch vehicle had been established in Thumba. However, the passing away of Prof. Sarabhai, in December 1971, caused a huge loss to Indian science. After him, Prof. Satish Dhawan assumed the charge of the ISRO. Under him, the whole complex, which included TERLS, SSTC, RPP, RFF and PFC were merged together to form an integrated space centre and christened the Vikram Sarabhai Space Centre (VSSC) as a tribute to this unparallelled noble scientist. Renowned metallurgist, Dr. Brahma Prakash, took over as the first Director of VSSC. At this centre, the work on the SLV continued in full swing. All the subsystems had been designed, technologies identified, processes established, work centres selected, manpower earmarked and schedules drawn. The only hitch was the lack of a suitable management structure and relevant organisational processes conducive to developmental tasks.

Managerial Innovations

Primary Objectives and Tasks: As the project manager, Dr. Kalam was assigned the task of designing a management structure and organisational processes suitable to the effective attainment of the SLV project objectives. As visualised by him, the primary objectives of the project were design, development and operation of a standard SLV system (SLV-3) capable of launching a 40 kg satellite into a 400 km circular orbit around the earth. As a first step, he translated these primary objectives into three major tasks: (a) development of a rocket motor system for the four stages of the vehicle; (b) vehicle control and guidance, and (c) the augmentation of launch facilities at SHAR. A target of 'all line' flight test within 64 months was set in March 1973. Four advisory committees were formed to advise him on specialised areas such as rocket motors, materials and fabrications; control and guidance; electronics; and mission and launching. He set up three groups to implement project activities—a programme management group; an integration and flight testing group; and a subsystems development group.

Synergistic Effort: Dr. Kalam projected a requirement of 275 engineers and scientists for SLV-3 but managed to get only 50. It was only through the synergistic effort of his team that the

project began. Some engineers developed their own ground rules which resulted in outstanding individual and team results. Engineers also formed a natural appreciation club which helped them cope with setbacks and revitalise after periods of intense work.

A Matrix Structure: Dr. Kalam evolved a project implementation strategy to handle the organisation's complex tasks. A matrix type of management structure was set up to interface with over 300 industries. Instead of following the leader, his team successfully trod on varied individual paths.

Two-way Communication: To make the matrix structure a success, Dr. Kalam focused on communication, specifically in the lateral direction among the teams and within the teams. In a way, communication was his *mantra* for managing that gigantic project. He talked frequently to his team, discussing the goals and objectives of the organisation, and highlighting the significance of each member's specific contribution towards attaining them. He was receptive to their innovative ideas and floated them at the appropriate forums for critical examination and implementation. He used communication as a medium to define the problems and identify the action necessary to be taken to solve them effectively.

Balanced Leadership: Dr. Kalam maintained a delicate balance between hands-on and hands-off leadership to improve the performance of his team consisting of specialists. While the hands-on approach involves an active interest on a regular basis in each member's work, the hands-off approach relied on the team members' self-motivation and self-control.

Other Arrangements: At the request of Dr. Kalam, Dr. Brahma Prakash delegated all the financial powers to the project director in order to avoid any delay in its implementation because of red-tapeism. As the work on the SLV gained momentum, Prof. Satish Dhawan introduced the system of reviewing progress with the entire team involved in the project. In 1975, the ISRO became a government body. An ISRO Council was formed consisting of scientists of varied work centers and senior officers in the Department of Space (DoS). This provided a forum for participative management.

Milestones and Performance Dimensions: Dr. Kalam's team set its milestones for the SLV-3 project–development and flight qualifications of all subsystems through sounding truckers by 1975, sub-orbital flights by 1976 and the final orbit flight by 1978. The work tempo had picked up enthusiasm and excitement was palpable in the air. A new work ethos was placed and all was in readiness. In June 1974, the team used the innovated Centaur sounding rocket launch to test some of their critical systems. It was a complete success. When the SLV-3 hardware started emerging, their ability to concentrate on their project increased substantially.

Initial Setback and Successful Launch

Initial Setback: The first experimental flight trial of SLV-3 was scheduled for August 10, 1979. The 23 metre-long, four-stage SLV weighing 17 tonnes took off elegantly at 0758 hours and immediately started following its programmed trajectory. Unfortunetly, the second stage went out of control. The flight was terminated after 317 seconds and the vehicle's remains (including Dr. Kalam's fourth stage) with payload splashed into the sea, 560 km off Sriharikota. Dr. Brahma Prakash helped Dr. Kalam and his team members recover from this tragic shock. A post-flight review conducted the next day, revealed that the mishap had taken place because of the failure of the second stage control system. No control force was available during the second stage flight making the vehicle aerodynamically unstable, resulting in altitude and velocity loss. This caused the vehicle to fall into the sea even before the other stages could ignite.

Successful Launch: On July 18, 1980, India's first Satellite Launch Vehicle (SLV-3) lifted off from SHAR. Within the next two minutes, Rohini was set into motion in a low Earth orbit. Dr.

Kalam announced: "Mission Director calling all stations stand by for an important announcement. All stages performed to mission requirements. The fourth stage apogee motor has given the required velocity to put Rohini Satellite into orbit." When he came out of the Block House, Dr. Kalam was lifted onto the shoulders by his jubilant colleagues and who took him in a procession. The entire nation was excited. It had now joined an exclusive group of nations which possessed satellite launch capability.

SUMMARY AND CONCLUSION

Innovation is defined as a process of bringing any new problem-solving idea into use. It can bring about sustained profit and growth, improved productivity and competitive advantage. It can be promoted by intrapreneurship and other organisational facilitators and can be hampered by organisational inertia and constraints. Organisational innovation can be categorised in different ways such as technical and non-technical, managerial and social, major and minor, etc. Researchers have also identified two models—closed and open—of innovation and consider it a double-edged sword, indicating that the dynamics of innovation must be managed effectively to attain the desired results. An attempt has also been made to suggest design and management tools to encourage innovations in organisations.

Since there appears to be a lack of clarity in the Indian context concerning the practice of innovation, an attempt has been made to present a case study of Dr. APJ Abdul Kalam to illustrate how he generated, developed and implemented innovations (especially administrative and managerial) at ISRO (where he worked for over two decades) to accomplish superb organisational performance through the development of indigenous technologies. During his stint at the NASA, he embraced the development of indigenous technology through innovations. He used indigenous composites to successfully launch the first indigenous Rohini-75 rocket. Prior to launching the RATO motor programme, he approved a set of seven administrative innovations to cut out bureaucratic redtape and delays. Finally, the grand success of the SLV-3 can be attributed to his positive attitude towards people and acceptance of errors as part of the learning curve errors. His adopting a synergistic effort, a matrix structure, two-way communication especially in a lateral direction, balanced and supportive leadership, participative forum, and performance dimensions and review, in particular led to spectacular success.

Indian companies need to improve their ability to innovate to meet international standards of performance to survive and thereafter for sustained profit and growth. Concerted effort must be made to promote intrapreneurship and other organisational facilitators and overcome organisational inertia and constraints. Instead of innovating unilaterally, the entire network of industry should be involved to avoid financial risks. Moreover, suitable HRM practices and organisational climate and structures must be put in place to effectively promote innovations. Appropriate management tools can be used to generate innovationist mindset in the enterprise. Large organisations can use small teams to develop innovative ideas. Specifically, Indian organisations engaged in developmental tasks can accomplish superb organisational performance through widespread indigenous technological breakthroughs using varied innovative administrative and managerial practices pioneered by Dr. APJ Abdul Kalam at the ISRO.

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DEMAND FOR TELEPHONES IN INDIA 1950-51 TO 2015-16

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Abstract

Using the data from the period 1950-51 to 2005-06, this paper seeks to forecast the teledensity and telephone demand in India upto the year 2015-16. It has been found that the teledensity in India is expected to increase from 12.6 telephones per 100 inhabitants in the year 2005-06, to 107.5 telephones per 100 inhabitants, in 2015-16. Telephone demand is projected to increase from around 140 million in 2005-06, to 1361 million in 2015-16. The demand for mobile telephones is expected to outpace landline telephones and its modal share is estimated to increase from 64 per cent in 2005-06, to nearly 85 per cent in 2015-16. These developments will have important implications from telecom operators and the government. Revenues collected by telecom operators are projected to increase from approximately Rs. 763 billion in 2005-06, to Rs. 5149 billion in 2015-16. The government's revenue from the licence fee, including the universal service obligation levy and the spectrum charges) and service tax is estimated to increase from Rs. 175 billion (Rs. 100 billion from regulatory charges and Rs. 75 billion from the service tax) in 2005-06 to Rs. 1130 billion (Rs. 500 billion from the regulatory charges and Rs. 630 billion from the service tax) in 2015-16.

Key Words: ***Forecasting, Telephone demand, Mobile services, Landlines***

INTRODUCTION

INDIA had 1,70,000 telephones in the year 1950-51, with a 'teledensity' (number of telephones per 100 inhabitants) of 0.05. By the end of 2005-06, there were approximately 140 million phones in the country, of which 90 million were mobile telephones and the rest landline telephones (Figures 1 and 2).

Mobile telephones, introduced in the Indian market in 1995-96, are growing faster than the landline telephones.[1] From 2000-01 to 2005-06, the subscriber base for mobile phones in India has increased at the rate of 90 per cent per year whereas the corresponding growth rate for the landline telephones was just 8.7 per cent per year.[2] Mobile phones are becoming the dominant means of communications in India for two reasons: First, deploying the mobile network is more cost-efficient than setting up that copper landline. Second, mobile phones

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Figure 1

Telephone Demand in India

1950-51 to 2005-06

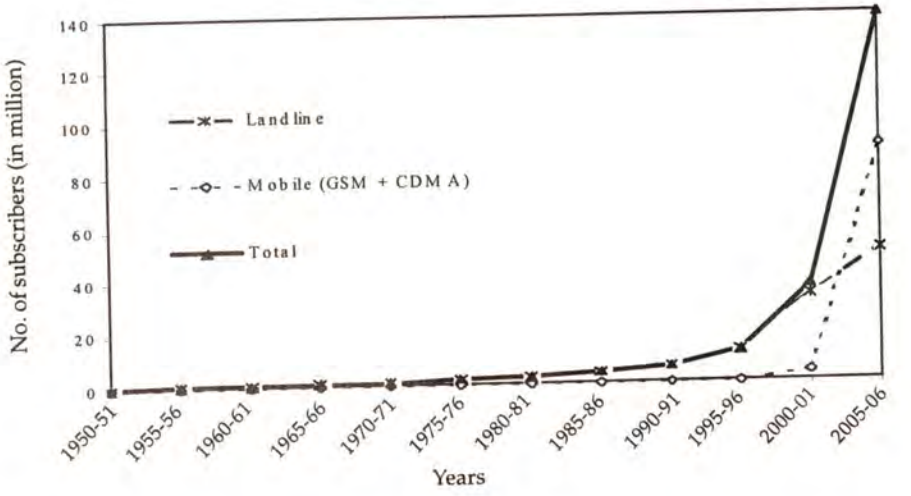
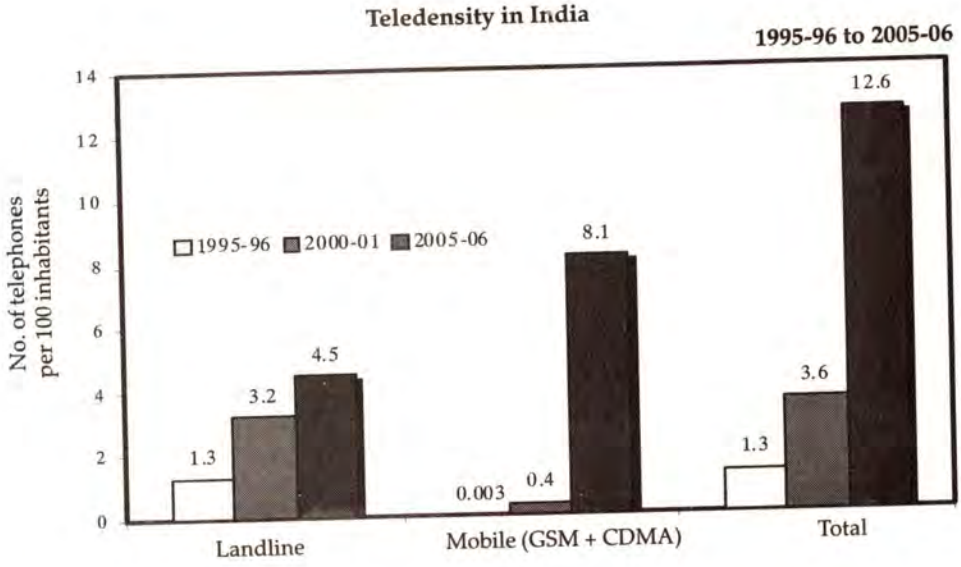


Figure 2

Teledensity in India

1995-96 to 2005-06



provide greater flexibility and convenience to its subscribers than landline telephones. It costs Rs. 6,000 in added infrastructure to serve a new mobile phone subscriber whereas the corresponding costs for a new landline connection are Rs. 24,000 (Jayaram, 2004). Since wireless connections can be deployed more rapidly, cash flow and return on investment are realised much faster. Although corporate sector and home data users (primarily, the Internet surfers) are opting for landlines, the general public prefers mobile services, which have become quite inexpensive.

Deregulation, liberalisation, and competition have played a key role in the incredible growth of the Indian telecom sector, since the telecom reforms began in the 1980s. The first phase of telecom reforms began in 1984 with the creation of Centre for Development of Telematics (C-DOT) for developing indigenous technologies and manufacturing customer premise equipments. In 1986, Mahanagar Telephone Nigam Limited (MTNL) and Videsh Sanchar Nigam Limited

(VSNL) were set up. In 1989, the Telecom Commission was established.

When the next phase of telecom reforms began in 1994, there were three incumbent operators in the landline telephone sector, namely, Department of Telecom (DoT), MTNL and VSNL. While MTNL operated only in Mumbai and Delhi, DoT operated in the rest of the country, VSNL provided international telephone services. The National Telecom Policy (NTP) in 1994 underwent a significant shift and, therefore, telecom services came to be recognised as necessary goods instead of luxury items.

Another phase of telecom reform started in 1999 when the DoT was restructured. It became a policy-making body and its service-providing wing was separated and initially called Department of Telecom Services (DTS). Later, it was renamed Bharat Sanchar Nigam Limited (BSNL). BSNL provided telephone services in all parts of the country, except Mumbai and Delhi. National Telecom Policy 1999 was introduced to improve upon NTP 1994 policy allowing multiple operators in the market with a level playing field between the incumbents and new entrants. It opened competition for several services including basic services, national long distance, and international telephony.

An important development in the reform process was the setting up of the Telecom Regulatory Authority of India (TRAI), in 1997. As and independent regulatory body, some of its functions include tariff fixation, dispute-settlement between operators, consumer protection through monitoring of service quality, and ensuring compliance to licence conditions. The TRAI Act of 2000 gave it power to frame regulations and levy fees and charges for telecom services as deemed necessary. TRAI General Fund facilitated its functioning. A separate dispute settlement body, Telecom Disputes Settlement and Appellate Tribunal (TDSAT) was also set up to fairly adjudicate any dispute between licensor and licensee, between operators themselves, and between an operator and a group of consumers.

Under the Unified Access Licensing Regime in November 2003, India was divided into twenty three service areas. This included the four metros and nineteen telecom circle service areas roughly equivalent to state boundaries. Based on the revenues that DoT historically received from the landline subscribers, five service areas called circles are grouped into Category A, eight into Category B, and six into Category C. Between 1994 to 1998, the DoT auctioned two mobile phone licences for each circle to private operators who bid for all circles except four least populated and poorest ones. They were assigned 900 MHz frequencies requiring them to use Global System for Mobile (GSM) technology. Subsequently, DoT granted the third mobile licence to the publicly owned BSNL and MTNL. In 2001, DoT auctioned seventeen additional licences to four operators. This resulted in four operators completing to provide mobile phone services to the economically well-off service circles and fewer operators offering services to the poorer areas.

In early 2001, to provide low cost communication to the masses, TRAI licenced limited mobility services (also known as Wireless Local Loop-Limited Mobility (WLL-LM)) in the 800 MHz spectrum. This introduced Code-Division Multiple Access (CDMA) technology in India. Limited mobility service operators were not only expected to charge 70 per cent less than full mobility operators, they were also not supposed to provide roaming services beyond certain limit. The licences for limited mobility were classified as Basic Telephone Service (BTS) and operators were entitled to provide conventional landline, fixed wireless, wireless local loop, and wireless local loop with limited mobility. In early 2003, some limited mobility licensees introduced a call forwarding mechanism that effectively provided full mobility. This aggravated the battle between GSM based Cellular Mobile Service Providers (CMSPs) and the limited mobility Basic Telephone Service Providers (BTSPs) over entry fee, continuing licencing fee, spectrum allocation, coverage obligation, subsidies for landline rural coverage, etc. By mid 2003, TRAI proposed

Unified Licencing for Basic and Cellular Mobile Services which would permit any operator to provide any access service using any technology. In October, 2003, TRAI recommended the implementation of a Unified Licensing Regime in a two-stage process which was agreed to by the Government of India. The first phase, implemented from November 2003 onwards, has put in place a Unified Access Licencing Regime in India. Under this both landline and mobile phone service providers are free to offer their services using any technology. Previously, mobile operators had to use GSM technology whereas basic service operators used CDMA technology to provide telephone services. TRAI is in its final stage to introduce the second phase of the Unified Licencing Regime to address several telecom services with separate licensing at present, like National Long Distance Service, International Long Distance Service, VSAT Services, Infrastructure Provider Services, Unified Access Licence, etc. A Unified Licencing Regime is expected to facilitate a level-playing field for the operators and accelerate the growth of telecommunication services in India.

Through the year of reforms, the telecom sector has witnessed intensified competition in the market which has resulted in a fall in telecom tariffs. The peak long-distance landline tariff between Delhi and Mumbai has come down from Rs. 30 per minute in 2000 to less than Rs. 2.40 per minute in 2004. The public-sector operators, BSNL and MTNL, have launched the 'One-India Plan' with effect from March 1, 2006, which enables customers to call anywhere in India at any time to any phone at a cost of Re. 1.00 per minute. International call charges for the American continent have fallen drastically from Rs. 61.20 per minute in 2000 to Rs. 7.20 per minute in April 2004. Presently, telephone usage charges in India are among the lowest whereas growth in subscriber base is among the highest in the world. Due to this, teledensity in the country has improved significantly in recent years.

From 1950-51 to 2005-06, teledensity in the country increased at a phenomenal rate of 10.7 per cent per year against the per capita Gross Domestic Product (GDP) growth of around 2.5 per cent per year. From 1990-91 to 2005-06, in light of around 4 per cent per year growth in per capita GDP, teledensity in India has increased at the rate of 21 per cent per year. Teledensity in the country increased from 3.6 in 2000-01 to 12.6 in 2005-06, i.e. an increase of 28.5 per cent per year during the same period. Teledensity in the country surpassed the mark of 13 in April 2006. During the month of April 2006 alone, 4.6 million new telephone subscribers were added, out of which, 3.88 million were mobile subscribers and the rest were subscribers of landline telephones. Telephone subscribers base in the country has reached 144 million pushing the teledensity to more than 13.

OBJECTIVE

The main aim of this paper is to model and forecast the teledensity and telephone demand in India up to the year 2015-16. The forecasting model is mainly built on two explanatory variables: (1) per capita GDP, and (2) time. The paper uses S-shaped growth curve functions to model the development in teledensity and telephone demand. Data from the year 1950-51 to 2005-06 are used for the purpose of estimation of the models.

FORECASTING TELEDENSITY AND TELEPHONE DEMAND IN INDIA

There are two ways to estimate future teledensity and telephone demand. One is generally based on independent projections of mobile phone and landline telephone demand. Projection for each builds on a different method, and the total telephone demand becomes simply an aggregate of the independent estimates for mobile and landline demand. The second approach is based on projection of total telephone demand (the aggregate of mobile and landline demand) as a first step and the related percentage share of mobile and landline phones computed as the second step. The second approach is better for predicted long-term scenarios since it takes into

account the competition between mobile and landline telephones. This paper follows the second approach especially to allow formulation of aggregate and long-term scenarios.

The Model

The demand for telephone depends on various socio-economic factors such as income and income distribution, price and quality of communication services, age distribution and household composition, educational level, technological development, regulatory mechanism and government policy. At the national level, the relationship between teledensity and factors influencing the same can be written as,

$$Td = f(X) \qquad (1)$$

where Td is teledensity (representing the number of telephones per 100 inhabitants) and X is a vector of variables determining the level of teledensity.

Using equation (1), it is possible to project the future teledensity if data for each of the variables on the right hand side are available. However, time series data for many of these variables are not readily available for India. In this situation, it is important to find out the key determinants of teledensity for which time series data are available. Jipp (1963), Cronin *et al.* (1991), Alleman et al. (1994), Lee (1994), Greenstein and Spiller (1995), Madden and Savage (1998), Mbarika et al. (2002), and many others have shown that there is a close relationship between income and demand for telecommunication services. The strong relationship between income (measured in terms of per capita GDP) and telecommunication services (measured in terms of teledensity) is found for both cross-sectional as well as time-series data. Figure 3, which presents the relationship between teledensity and per capita GDP for India, reiterates the same.[3]

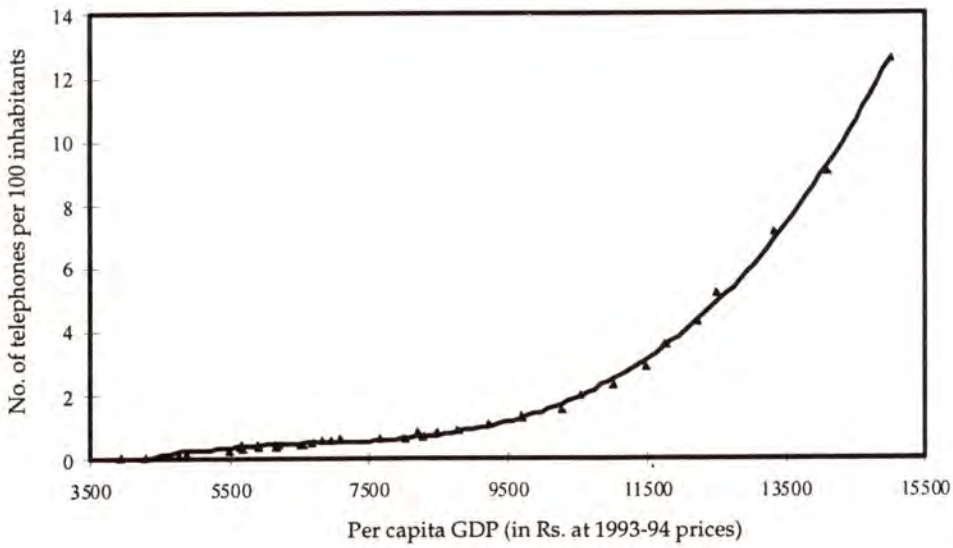
Therefore, it is decided to use per capita GDP as the main explanatory variable to project the future teledensity in India. Assuming that the time captures the effect of omitted variables, equation (1) can now be approximated by:

$$Td = f\left(\frac{GDP}{cap}, t\right) \qquad (2)$$

where Td is teledensity, $\frac{GDP}{cap}$ is per capita GDP, and t is time.

Figure 3

Relationship between Teledensity and Per Capita GDP in India



It is important to note that teledensity is expected to go up slowly at the initial stage as only a few members of the social system opt for telephones. In course of time, due to network externality, dissemination of information, and increase in income, etc., it increases rapidly as more opt for the services. Finally, during the maturing phase, its growth rate slows down as it converges to a certain maximum. Therefore, if we plot teledensity against the GDP per capita or time, it resembles an S-shaped curve. There are a number of different functional forms that can describe S-shaped curves, for example, the logistic, Gompertz, logarithmic logistic, log reciprocal, simple modified exponential, general modified exponential, and cumulative normal functions.[4] Among these, the logistic, Gompertz, and the simple modified exponential functions are the most widely used functional forms. Therefore, it is decided to use these three functions to model and forecast the teledensity in India.

The Logistic Model

Teledensity, Td, can be represented by the logistic function as:

$$Td = \frac{\alpha}{1+\beta e^{f(\frac{GDP}{cap},t)}} \quad (3)$$

where all the variables have their previous meaning and α is the saturation level. Parameters α and β are positive. To transform the model in a linear form, equation (3) can be written as:

$$\frac{\alpha}{Td} - 1 = \beta e^{f(\frac{GDP}{cap},t)} \quad (4)$$

Taking natural logarithm on both sides, we get:

$$\ln(\frac{\alpha}{Td} - 1) = \ln\beta + f(\frac{GDP}{cap},t) \quad (5)$$

This can be simplified by making a reasonable assumption about the functional form of $f(\frac{GDP}{cap},t)$. So, to estimate the model, using Ordinary Least Squares (OLS) method, equation (5) can be written as:

$$\ln(\frac{\alpha}{Td} - 1) = \beta_1 + \beta_2 t + \beta_3(\frac{GDP}{cap}) + \beta_4 t^2 + \beta_5(\frac{GDP}{cap})^2 + \varepsilon \quad (6)$$

where β_1, β_2, β_3, β_4, and β_5 are parameters to be estimated using OLS and ε is a disturbance term with zero mean and constant variance.

The Gompertz Model

Gompertz function is of the form:

$$Td = \alpha e^{-\beta e^{f(\frac{GDP}{cap},t)}} \quad (7)$$

where all the variables have their previous meaning and parameters (saturation level) α and β are positive. In line with the logistic function, equation (7) can also be transformed in a linear form as follows:

$$\ln[\ln(\frac{\alpha}{Td})] = \ln\beta + f(\frac{GDP}{cap},t) \quad (8)$$

Equation (8) can further be simplified by making a reasonable assumption about the functional form of $f(\frac{GDP}{cap},t)$. Thus, to estimate the model using OLS method, equation (8) can written as,

$$\ln[\ln(\frac{\alpha}{Td})] = \beta_1 + \beta_2 t + \beta_3(\frac{GDP}{cap}) + \beta_4 t^2 + \beta_5(\frac{GDP}{cap})^2 + \varepsilon \quad (9)$$

where β_1, β_2, β_3, β_4, and β_5 are parameters to be estimated using OLS and ε is a disturbance term with zero mean and constant variance.

The Simple Modified Exponential Model

The simple modified exponential function can be written as:

$$Td = \alpha(1 - \beta e^{f(\frac{GDP}{cap}, t)}) \quad (10)$$

where all the variables have their previous meaning and parameters, (saturation level) *a* and *b* are positive. In line with the logistic and Gompertz functions, simple modified exponential function can be transformed in a linear form as:

$$\ln(\frac{\alpha - Td}{\alpha}) = \ln\beta + f(\frac{GDP}{cap}, t) \quad (11)$$

In line with the logistic and Gompertz functions, equation (11) can be further simplified to estimate the model using OLS method in the following way:

$$\ln(\frac{\alpha - Td}{\alpha}) = \beta_1 + \beta_2 t + \beta_3(\frac{GDP}{cap}) + \beta_4 t^2 + \beta_5(\frac{GDP}{cap})^2 + \varepsilon \quad (12)$$

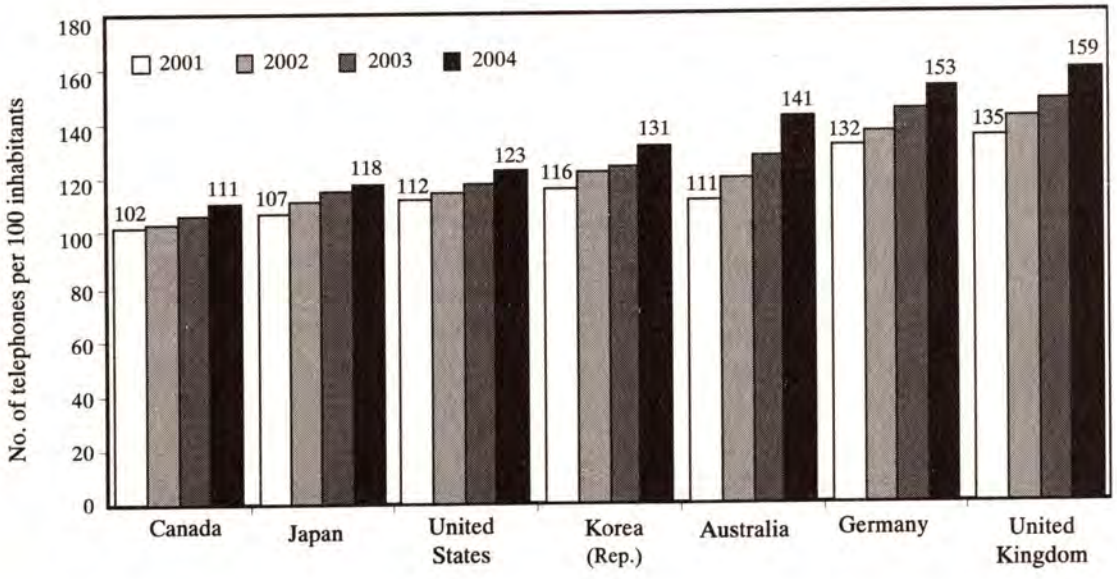
where β_1, β_2, β_3, β_4, and β_5 are parameters to be estimated using OLS and ε is a disturbance term with zero mean and constant variance.

These three models should be estimated for different saturation levels (e.g., 100, 110, 120, 130, 140, 150, and 160 telephones per 100 inhabitants) not only to illustrate the different possible paths of teledensity but also to find out the most appropriate saturation level. Each of these models that is, the logistic model (6), the Gompertz model (9), and the simple modified exponential model (12) can easily be estimated by the OLS method provided we know the saturation level, . If we analyse the teledensity in rich countries, we find that the saturation level in India could be anywhere between 100 and 160 (Figure 4).

The figure shows that the growth in teledensity in rich countries has slowed down in recent years as they are approaching their saturation level. It is quite possible that the saturation level is different for different countries depending on the differences in socio-economic factors. For example, a country such as the United Kingdom which relies heavily on mobile phones (64 per cent of the total telephones in 2004) may experience saturation at 160-170 telephones per 100 inhabitants whereas a country like Canada which relies less on mobile phones (42 per cent of the total telephones in 2004) may get saturated even at 110-120 telephones per 100 inhabitants. Since

Figure 4

Teledensity in Selected Rich Countries



India relies heavily on mobile phones (64 per cent of the total telephones in 2005-06), we may expect higher value for its saturation level. These three models can be compared for seven different saturation levels, using the Mean Absolute Percentage Error (MAPE), F-test, and the Durbin-Watson (DW) statistic.[5]

The MAPE provides an indication of the aptness of the model to fit the historical data. It is also used to compare the forecasting accuracy of the models. An F-test can be used to test the validity of restriction on coefficients. For example, whether $\beta_4 = \beta_5 = 0$ is valid or not can be tested using an F-test. The F-test statistics is calculated as $\frac{(R_{ur}^2 - R_r^2)/r}{(1 - R_{ur}^2)/(N-k)}$

where R_{ur}^2 is the R^2 value obtained from the unrestricted regression model, R_r^2 is the R^2 value obtained from the restricted regression model, r is the number of restrictions imposed, N is the number of observations and k is the number of parameters in the unrestricted regression model. This statistics follows F-distribution with (r, N-k) degrees of freedom. If the calculated F value is greater than the tabulated one, we reject the null hypothesis of restriction on coefficients. The DW statistic tests whether the residuals of the fitted model are independent. As a rule of thumb, if DW statistic is close to 2, one may assume that there is no serial correlation of the first-order. Therefore, the MAPE, F-test, and DW statistic can be used to find out the most appropriate saturation level and model, to forecast the future teledensity in India.

Model Estimation

The logistic model (6), the Gompertz model (9), and the simple modified exponential model (12) are estimated using the data of teledensity (number of telephones per 100 inhabitants) and per capita GDP ('000 Rs. at constant 1993-94 prices) from 1950-51 to 2005-06 by OLS method. Since we are interested in long-term forecast, five-yearly data is used instead of annual data. Therefore, the variable time, takes on a value 1 for 1950-51, 2 for 1955-56, 3 for 1960-61, and 12 for 2005-06. All the three models have been estimated for seven different saturation levels: 100, 110, 120, 130, 140, 150, and 160 telephones per 100 inhabitants. The econometric software Limdep Version 8.0 is used for the estimation of the models.

The estimation results are shown in Table 1.

According to the R^2 values, models fit the data very well. Estimated parameters have the expected signs and most are highly significant. The residuals of all the models are well behaved with a DW statistic of around 2. The predicted values were compared with the actual values over the sample period for all the models. The MAPE, presented in the Table, is in the range of 1.36 to 1.52 for the logistic models, 0.61 to 0.68 for the Gompertz models, and 55.17 to 57.86 for the simple modified exponential models. According to both R^2 and MAPE, the Gompertz models fit the data better than the logistic and the simple modified exponential models. For the Gompertz models, we also tested the null hypotheses of $b_4 = 0$ and $b_5 = 0$ separately. According to the F-test, the null hypotheses are rejected for all the selected saturation levels from 100 to 160.

To project the future teledensity up to the year 2015-16, we have to make reasonable assumptions about per capita GDP growth rate. Between 1995-96 and 2005-06 (latest year for which per capita GDP figure is available), per capita GDP in India increased at the rate of around 4.46 per cent per year. Assuming that will $\frac{GDP}{cap}$ increase at the same rate up to the year 2015-16, teledensity has been projected for the future. The projection of teledensity for different saturation levels using the estimated Gompertz models has been depicted in Figure 5.

Since among the Gompertz models, the one that is associated with 160 telephones per 100 inhabitants saturation level has the lowest MAPE, further analysis in this paper will be primarily based on this model as shown in equation (13).

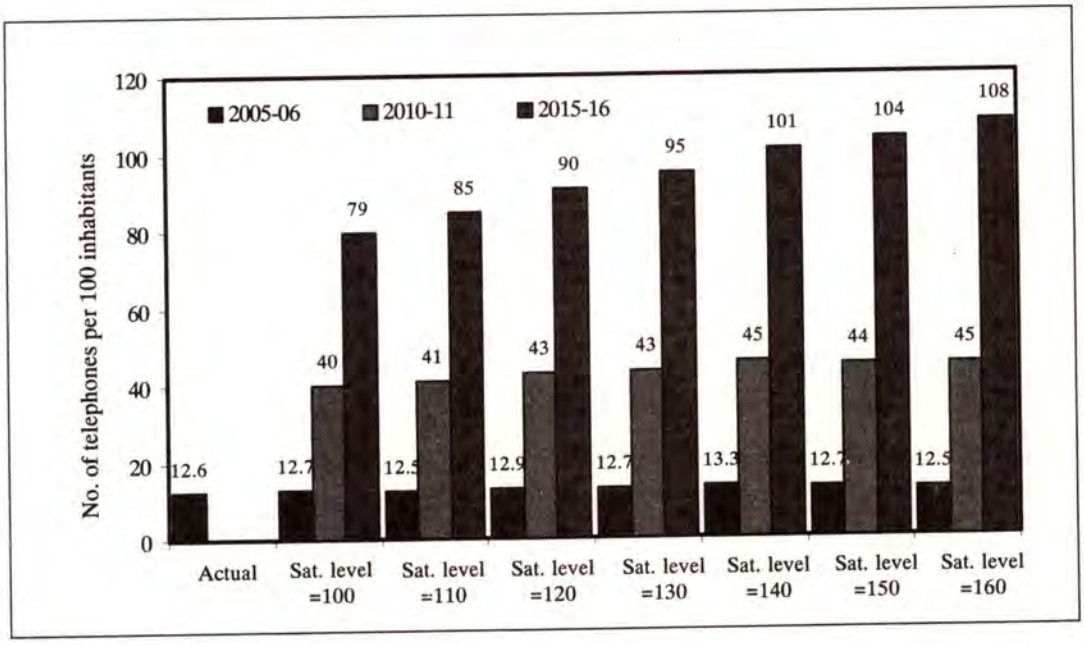
Table 1

Parameter Estimates of the Models (t-statistic in parentheses)

Saturation level, α = 100	
Logistic (6)	β_1 = 7.9875 (10.0), β_2 = -0.4876 (8.0), β_3 = 0.1185 (0.5), β_4 = 0.0218 (2.5), β_5 = -0.0230 (2.9); R^2 = 0.9971; DW = 2.2; MAPE = 1.52
Gompertz (9)	β_1 = 1.8158 (15.5), β_2 = -0.0841 (9.4), β_3 = 0.1158 (3.5), β_4 = 0.0030 (2.4), β_5 = -0.0100 (8.8); R^2 = 0.9988; DW = 2.3; MAPE = 0.68
Simple modified exponential (12)	β_1 = -0.1146 (4.5), β_2 = -0.0092 (4.7), β_3 = 0.0416 (5.8), β_4 = 0.0003 (1.2), β_5 = -0.0026 (10.4); R^2 = 0.9946; DW= 2.2; MAPE = 57.86
Saturation level, α = 110	
Logistic (6)	β_1 = 8.0942 (10.1), β_2 = -0.4866 (8.0), β_3 = 0.1144 (0.5), β_4 = 0.0217 (2.5), β_5 = -0.0227 (2.9); R^2 = 0.9971; DW = 2.2; MAPE = 1.49
Gompertz (9)	β_1 = 1.8427 (15.7), β_2 = -0.0822 (9.2), β_3 = 0.1099 (3.3), β_4 = 0.0030 (2.3), β_5 = -0.0096 (8.4); R^2 = 0.9987; DW = 2.3; MAPE = 0.66
Simple modified exponential (12)	β_1 = -0.1032 (4.5), β_2 = -0.0082 (4.8), β_3 = 0.0375 (5.8), β_4 = 0.0003 (1.2), β_5 = -0.0023 (10.4); R^2 = 0.9947; DW = 2.2; MAPE = 57.19
Saturation level, α = 120	
Logistic (6)	β_1 = 8.1906 (10.2), β_2 = -0.4859 (7.9), β_3 = 0.1110 (0.5), β_4 = 0.0217 (2.5), β_5 = -0.0225 (2.9); R^2 = 0.9971; DW = 2.2; MAPE = 1.46
Gompertz (9)	β_1 = 1.8660 (15.9), β_2 = -0.0805 (9.0), β_3 = 0.1051 (3.2), β_4 = 0.0029 (2.3), β_5 = -0.0093 (8.1); R^2 = 0.9987; DW = 2.3; MAPE = 0.65
Simple modified exponential (12)	β_1 = -0.0939 (4.5), b2 = -0.0075 (4.8), b3 = 0.0341 (5.8), b4 = 0.0003 (1.2), b5 = -0.0021 (10.5); R^2 = 0.9948; DW = 2.2; MAPE = 56.64
Saturation level, α = 130	
Logistic (6)	β_1 = 8.2784 (10.2), β_2 = -0.4853 (7.9), β_3 = 0.1082 (0.5), β_4 = 0.0217 (2.5), β_5 = -0.0223 (2.8); R^2 = 0.9970; DW = 2.2; MAPE = 1.43
Gompertz (9)	β_1 = 1.8865 (16.1), β_2 = -0.0791 (8.9), β_3 = 0.1010 (3.1), β_4 = 0.0029 (2.3), β_5 = -0.0090 (7.9); R^2 = 0.9986; DW = 2.3; MAPE = 0.64
Simple modified exponential (12)	β_1 = -0.0861 (4.6), β_2 = -0.0069 (4.8), β_3 = 0.0313 (5.9), β_4 = 0.0003 (1.2), β_5 = -0.0019 (10.5); R^2 = 0.9948; DW= 2.2; MAPE = 56.18
Saturation level, α = 140	
Logistic (6)	β_1 = 8.3591 (10.3), β_2 = -0.4847 (7.9), β_3 = 0.1058 (0.5), β_4 = 0.0217 (2.5), β_5 = -0.0222 (2.8); R^2 = 0.9970; DW = 2.2; MAPE = 1.40
Gompertz (9)	β_1 = 1.9047 (16.3), β_2 = -0.0778 (8.8), β_3 = 0.0974 (3.0), β_4 = 0.0028 (2.2), β_5 = -0.0088 (7.7); R^2 = 0.9986; DW = 2.3; MAPE = 0.63
Simple modified exponential (12)	β_1 = -0.0795 (4.6), β_2 = -0.0063 (4.8), β_3 = 0.0289 (5.9), β_4 = 0.0002 (1.2), β_5 = -0.0018 (10.6); R^2 = 0.9949; DW = 2.2; MAPE = 55.79
Saturation level, α = 150	
Logistic (6)	β_1 = 8.4338 (10.4), β_2 = -0.4843 (7.9), β_3 = 0.1037 (0.5), β_4 = 0.0216 (2.5), β_5 = -0.0221 (2.8); R^2 = 0.9970; DW = 2.2; MAPE = 1.38
Gompertz (9)	β_1 = 1.9211 (16.5), β_2 = -0.0766 (8.7), β_3 = 0.0942 (2.9), β_4 = 0.0028 (2.2), β_5 = -0.0085 (7.5); R^2 = 0.9985; DW = 2.3; MAPE = 0.62
Simple modified exponential (12)	β_1 = -0.0738 (4.6), β_2 = -0.0059 (4.8), β_3 = 0.0268 (5.9), β_4 = 0.0002 (1.2), β_5 = -0.0017 (10.6); R^2 = 0.9949; DW = 2.2; MAPE = 55.45
Saturation level, α = 160	
Logistic (6)	β_1 = 8.5032 (10.5), β_2 = -0.4839 (7.8), β_3 = 0.1019 (0.4), β_4 = 0.0216 (2.5), β_5 = -0.0219 (2.8); R^2 = 0.9970; DW = 2.2; MAPE = 1.36
Gompertz (9)	β_1 = 1.9360 (16.7), β_2 = -0.0756 (8.6), β_3 = 0.0914 (2.8), β_4 = 0.0028 (2.2), β_5 = -0.0083 (7.4); R^2 = 0.9985; DW = 2.3; MAPE = 0.61
Simple modified exponential (12)	β_1 = -0.0689 (4.6), β_2 = -0.0055 (4.8), β_3 = 0.0251 (5.9), β_4 = 0.0002 (1.2), β_5 = -0.0016 (10.7); R = 0.9950; DW = 2.2; MAPE = 55.17

Figure 5

Projection of Teledensity in India using the Gompertz model[6]



$$\text{Ln}\left[\text{Ln}\left(\frac{160}{Td}\right)\right] = 1.9360 - 0.0756t + 0.0914\left(\frac{GDP}{cap}\right) + 0.0028t^2 - 0.0083\left(\frac{GDP}{cap}\right)^2$$

$$\Rightarrow Td = 160e^{-e^{1.9360-0.0756t+0.0914\left(\frac{GDP}{cap}\right)+0.0028t^2-0.0083\left(\frac{GDP}{cap}\right)^2}}$$

$$\Rightarrow Td = 160e^{-6.931e^{-0.0756t+0.0914\left(\frac{GDP}{cap}\right)+0.0028t^2-0.0083\left(\frac{GDP}{cap}\right)^2}} \quad (13)$$

where Td is teledensity (number of telephones per 100 inhabitants), $\frac{GDP}{cap}$ is per capita GDP at 1993-94 prices (Rs. in thousand), and is time (t is 1 for 1950-51, 2 for 1955-56, 3 for 1960-61,....., and 14 for 2015-16).

Projection of Teledensity and Telephone Demand

On the basis of the estimated Gompertz model for 160 telephones per 100 inhabitants saturation level and assumptions concerning population and GDP, the projection of teledensity and total telephone demand upto the year 2015-16 has been made. As stated in the previous section, per capita GDP is assumed to grow at the rate of 4.46 per cent per year upto the year 2015-16, and based on the *World Population Prospects: The 2004 Revision Population Database*, published by the United Nations Population Division, the population of India is estimated to be 1189 million in 2010-11 and 1266 million in 2015-16.

Teledensity and total telephone demand trends upto the year 2015-16 are shown in Table 2.

Projected Share of Mobile and Landline Telephones

Since 1995-96, the mobile phone industry in India has grown at an astonishing rate. As per capita GDP increases, it is expected that the percentage share of mobile phone will go up. Percentage share of mobile phones in total telephone is expected to converge to a certain maximum as GDP per capita crosses a certain level. Maximum value (saturation level) of mobile share for a country depends on whether it is an early adopter or a late adopter of telephones. An analysis of mobile phones share in developed and developing countries reveals that the saturation level of mobile phones share in developed countries could be anywhere between 50 per cent and 70 per cent whereas the same would be

Table 2

Projected Growth in Teledensity and Telephone Demand in India

	Teledensity (No. of telephones per 100 inhabitants)	*CAGR in teledensity (since the previous period)*	*Telephone demand (No. of telephone subscribers in millions)*	*CAGR in telephone demand (since the previous period)*
2000-01 (Actual)	3.6	–	36.3	–
2005-06 (Actual)	12.6	28.5%	139.7	30.9%
2010-11 (Projected)	44.8	28.9%	532.1	30.7%
2015-16 (Projected)	107.5	19.1%	1361.3	20.7%

between 80 per cent and 90 per cent for developing countries. India, a late adopter of telephones, is likely to experience a saturation level between 80 per cent and 90 per cent

Assuming that 85 per cent would be the maximum share of mobile phones in total number of telephones in the country, equation (14) presents the relationship between the percentage share of mobile phones and the per capita GDP. Equation (14) can easily be used to project the share of mobile phone in India. Assuming that the per capita GDP in India will grow at the rate of 4.46 per cent per year upto the year 2015-16, the share of mobile phones and landline telephones has been computed and presented in Figure 6.

It is projected that the share of mobile phones in total telephone in India would be around 82 per cent in 2010-11 and very close to 85 per cent in 2015-16. On an average, subscription of mobile phones in the country will increase at the rate of 37 per cent per year from 2005-06 to 2010-11 and 21.5 per cent per year from 2010-11 to 2015-16. Due to this, the mobile subscriber base in the country is expected to reach 436 million in 2010-11 and more than 1150 million in 2015-16 (Table 3).

Landline telephone subscription in India is projected to grow at a lower rate than mobile phones. It is estimated that the growth in landline telephone subscription would be 14 per cent per year from 2005-06 to 2010-11 and 16.5 per cent per year from 2010-11 to 2015-16. The number of

Figure 6

Share of Mobile and Landline Telephones in India

995-96 to 2015-16

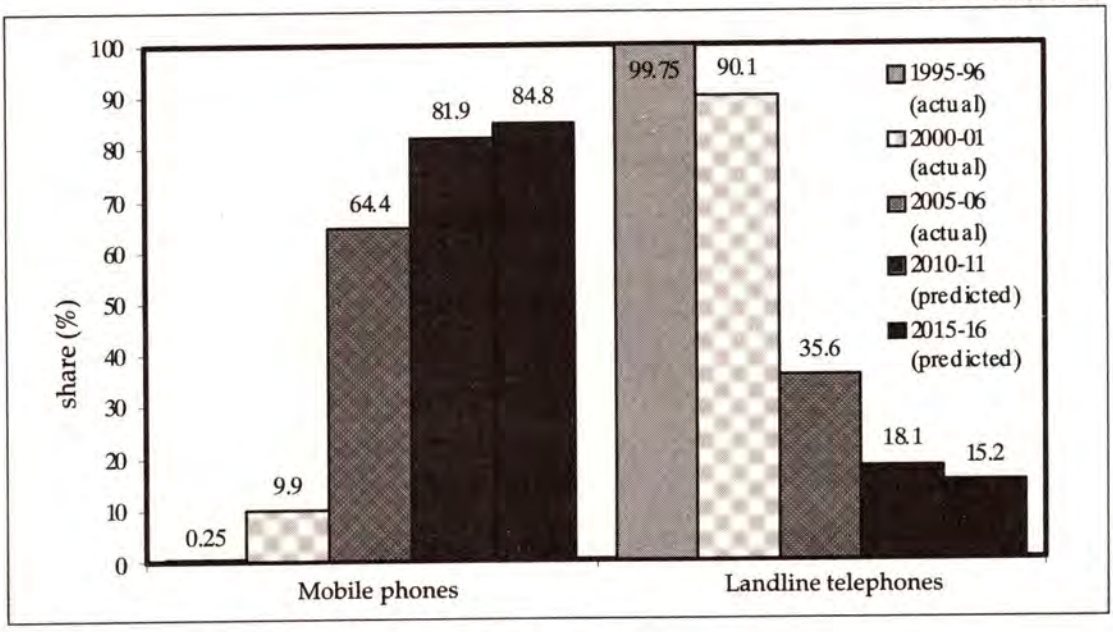


Table 3

Projection of Mobile and Land Line Telephone Demand in India

Year	*No. of mobilephone subscribers (in million)*	*CAGR since the previous period (mobile phone)*	*No. of land-line telephone subscribers (in million)*	*CAGR since the previous period (land-line telephone)*	*No. of total telephone subscribers (in million)*	*CAGR since the previous period (total telephone)*
2005-06 (Actual)	90.0	–	49.7	–	139.7	–
2010-11 (Projected)	435.8	37.1%	96.3	14.1%	532.1	30.7%
2015-16 (Projected)	1154.4	21.5%	206.9	16.5%	1361.3	20.7%

landline telephone subscribers in the country is estimated to increase from around 50 million in 2005-06 to 96 million in 2010-11 and 207 million in 2015-16.

Percentage share of mobile phones =

$$85e^{-1429.4e^{-0.566\left(\frac{GDP}{cap}\right)}};\ R^2 = 0.98 \qquad (14)$$

where $\frac{GDP}{cap}$ is per capita GDP at 1993-94 prices (Rs. in thousand).

POLICY-IMPLICATIONS

Although Average Revenue Per User (ARPU) for both mobile as well as landline telephones has declined over the years, it is expected to stabilize by the year 2010-11 due to inflationary and income effect. Mobile ARPU has declined from Rs. 884 per month in 2001-02 to Rs. 375 per month in 2005-06 whereas landline ARPU has declined from Rs. 778 to Rs. 600 per month during the same period (Figure 7).

Mobile ARPU is expected to stabilise at Rs. 300 per month by the year 2010-11 whereas the corresponding figure for landline is likely to be around Rs. 400. Therefore, it is assumed that the ARPU will be stable at Rs. 300 per month for mobile phones and Rs. 400 per month for landlines from 2010-11 onwards at least up to 2015-16.7 Based on this assumption about the ARPU and estimates of the number mobile phone and landline telephone subscribers, telecom revenues during the year 2010-11 and 2015-16 have been estimated and presented in Table 4.

Figure 7

Decline in Average Revenue Per User Per Month

2001-02 to 2005-06

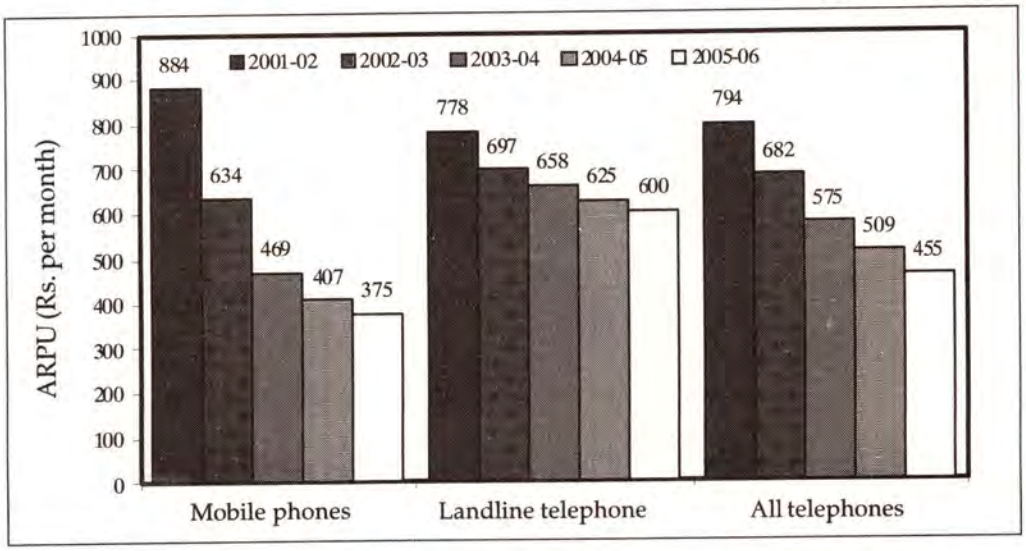


Table 4

Estimates of Telecom Operators' Revenue

Year	*No. of mobile subscribers (in million)*	*Mobile ARPU per year (Rs.)*	*Revenues from mobile services (Rs. in billion)*	*No. of land line subscribers (in million)*	*Land line ARPU per year (Rs.)*	*Revenues from land line services (Rs.in billion)*	*Telecom (mobile + land line) revenue (Rs. in billion)*
2005-06	90.0	4500	405	49.7	7200	358	763
2010-11	435.8	3600	1569	96.3	4800	462	2031
2015-16	1154.4	3600	4156	206.9	4800	993	5149

Revenue generated by the telecom sector in India during the year 2005-06 is estimated at Rs. 763 billion (Rs. 405 billion from mobile services and Rs. 358 billion from landlines), an amount which is around 2.4 per cent of the country's gross domestic product. India's GDP at factor cost at current prices in 2005-06 is estimated to be around Rs. 32,000 billion, an increase of 12.5 per cent since the previous year. In fact, India's GDP at current prices has been increasing at the rate of around 12.5 per cent per year for the last few years. Assuming that the growth in GDP at current prices will be at this rate up to the year 2015-16, India's GDP at current prices in 2010-11 and 2015-16 will be around Rs. 57,600 billion and Rs. 1,03,680 billion, respectively. When we assume average mobile spending of Rs. 300 per month per user and average landline spending of Rs. 400 per month per user during 2010-11 and 2015-16, total telecom spending in India during 2010-11 and 2015-16 is estimated to be Rs. 2031 billion and Rs. 5149 billion, respectively. India's telecom revenue will be equivalent to 3.5 per cent of its GDP in 2010-11 and around 5 per cent of its GDP in 2015-16 (Table 5).

This suggests that the revenues of Indian operators may prove significantly higher than the amount that might have been generally assumed. Most of the revenue increases in India's telecom sector will accrue to mobile operators. Revenue from mobile services is estimated to increase from 1.3 per cent of GDP in 2005-06 to 4.0 per cent of GDP in 2015-16. The high growth in telephone subscriber base and revenues will have important implications for telecom operators, infrastructure providers, handset suppliers, and vendors. Telecom operators (particularly mobile operators) infrastructure providers, handset suppliers, and vendors should be ready with contingency plans to deploy and operate infrastructure including customer care, billing, applications, etc., faster than what they might have initially planned. The projected boom in the telecom sector will have equally important implications for government revenue particularly in the form of regulatory charges and service tax. The telecom sector in India pays direct regulatory charges in the form of licence fee (including universal service obligation levy) and spectrum charges. Licence fee varies from 5 per cent to 10 per cent whereas spectrum charges vary from 2 per cent to 6 per cent of the revenue. On an average, annual direct regulatory cost faced by the telecom sector in India exceeds 13 per cent, and is much higher

Table 5

Telecom Revenue in India

(as a Percentage of GDP)

Year	*GDP (Rs. in billions at factor cost, at current prices)*	*Mobile revenue (as a percentage of GDP)*	*Landline revenue (as a percentage of GDP)*	*Telecom (mobile + landline) revenue (as a percentage of GDP)*
2005-06	32000	1.3	1.1	2.4
2010-11	57600	2.7	0.8	3.5
2015-16	103680	4.0	1.0	5.0

than in comparable developing countries. The corresponding figure for Pakistan, Sri Lanka, Malaysia, and South Africa is 4.5 per cent, 0.3 per cent, 6.5 per cent, and 5 per cent respectively. It is remarkable that despite the heavy regulatory charges (and other form of taxes such as service tax, sales tax, value added tax, etc.), telecom tariff in the country is among the lowest in the world. However, there is a case to reduce the levies particularly regulatory charges to further boost the sector. The sector paid nearly Rs. 100 billion to the government as regulatory charges during the year 2005-06. Even if we assume a reduction in regulatory charges from 13 per cent to say 10 per cent in the future, the contribution of the telecom sector to the government's revenue will be more than Rs. 200 billion in 2010-11 and Rs. 500 billion in 2015-16.

The telecom sector is already the largest contributor of service tax in India as almost 30 per cent of the country's service tax revenue comes from it. During the year 2005-06, this sector contributed around Rs. 75 billion in the form of service tax. The rate of service tax has increased from 5 per cent up to May 2003 to 8 per cent up to March 2004, 10 per cent up to March 2006, and 12 per cent from April 2006 onwards. If we include the education cess of 2 per cent (of 12 per cent), tax burden on telecom services would be 12.24 per cent from the financial year 2006-07 onwards. If this rate persists, government's revenue from the service tax on telecom sector will increase from around Rs. 75 billion in 2005-06 to around Rs. 250 billion in 2010-11 and Rs. 630 billion in 2015-16.

SUMMARY AND CONCLUDING REMARKS

The telecom sector in India has experienced the most fundamental structural and institutional reforms since the early 1980s. The opening up of the sector has intensified competition in the market which has resulted in a fall in tariffs and an acceleration in growth. Teledensity has increased from 3.6 telephones per 100 inhabitants in 2000-01 to 12.6 telephones per 100 inhabitants in 2005-06. In this paper, we estimated the future teledensity and telephone demand in India up to the year 2015-16. The paper projected the modal share of mobile and landline telephones and examined its implications for revenues of telecom operators and the government.

Teledensity in India has increased at a phenomenal rate of 28.5 per cent per year during last five years. India will have around 45 telephones per 100 people by 2010-11. On an average, telephone demand in India will increase at the rate of 30.7 per cent per year between 2005-06 and 2010-11 and 20.7 per cent per year between 2010-11 and 2015-16. As a result, total telephone demand is expected to increase from around 140 million in 2005-06 to 532 million in 2010-11 and 1361 million in 2015-16.

India's Unified Licencing for Basic and Cellular Mobile Services has enabled telecom operators to provide cost-efficient access service using any technology. It is projected that the modal share of mobile phones in India will increase from around 64 per cent in 2005-06 to around 82 per cent in 2010-11 and come close to 85 per cent in 2015-16. On an average, mobile phone subscription will increase at the rate of 37 per cent per year from 2005-06 to 2010-11 and 21.5 per cent per year from 2010-11 to 2015-16. Due to this, mobile subscriber base in the country is expected to reach 436 million in 2010-11 and more than 1150 million in 2015-16. Landline telephone subscriber base in the country is projected to increase from around 50 million in 2005-06 to 96 million in 2010-11 and 207 million in 2015-16.

Telephone operators have to keep up with rapid expansion and be ready with contingency plans to deploy and operate infrastructure including customer care, billing, applications, etc., faster than that they might have initially planned. Infrastructure providers, handset suppliers, and vendors should be prepared to respond to such plans.

Revenue collected by the telecom operators is projected to increase from Rs. 763 billion (2.4 per cent of GDP) in 2005-06 to Rs. 2031 billion (3.5 per cent of GDP) in 2010-11 and Rs. 5149

billion (5.0 per cent of GDP) in 2015-16. Revenue from mobile services is estimated to increase from 1.3 per cent of GDP in 2005-06 to 4.0 per cent of GDP in 2015-16. The government's revenue from regulatory charges (licence fee including universal service obligation levy and spectrum charges) and service tax will increase substantially due to rapid increase in operators' revenue. The government's revenue from regulatory charges is expected to increase from nearly Rs. 100 billion in 2005-06 to more than Rs. 200 billion in 2010-11 and around Rs. 500 billion in 2015-16. The government's revenue from service tax is estimated to increase from Rs. 75 billion in 2005-06 to approximately Rs. 250 billion in 2010-11 and Rs. 630 billion in 2015-16.

NOTES

1. The data on teledensity was taken from Telecom Regulatory Authority of India (TRAI) publications *(www.trai.gov.in)* and telecom sector database from *www.infraline.com*.
2. The growth rate was calculated as compound annual growth rate (CAGR), rather than simple annual growth rate. This principle is followed throughout this paper.
3. The per capita GDP data, presented in Figure 3, is taken from National Accounts Statistics of India published by the EPW Research Foundation, Mumbai, India and the data published by the National Accounts Division of Central Statistical Organisation (CSO), Ministry of Statistics and Programme Implementation, Government of India, New Delhi. The per capita GDP figures are at factor cost, at 1993-94 prices.
4. An overview of such functional forms is given in Meade and Islam, 1998; see also Griliches, 1957; Mansfield, 1961; Chow, 1967; Chaddha and Chitgopekar, 1971; Tanner, 1978; Bewley and Fiebig, 1988; Meade and Islam, 1995; Dargay and Gately, 1999; Singh, 2000; Franses Philip Hans, 2002; Botelho and Pinto, 2004; and Mohamed and Bodger, 2005.
5. The MAPE is commonly used in quantitative forecasting methods as it produces a measure of relative overall fit. The absolute values of all the percentage errors are summed up and the average is computed.
6. Teledensity figures for 2010-11 and 2015-16 have been rounded off to zero decimal place.
7. Although change in the ARPU in the coming years will be determined by factors such as competition in the market, technological progress, productivity of operators, inflation, income of the users, relative spending for mobile services by the users, etc., inflation and income effect is likely to be strong enough to offset the downward trend in the ARPU due to technological progress, productivity gain, competition, etc. One should note that the relative spending for telecommunication services increases as income increases. Therefore, the assumption that the ARPU will be stable from 2010-11 onwards, at least up to 2015-16, seems to be plausible.

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We express our gratitude to all of them.

Editor

LEARNING THE LESSONS OF CORPORATE TURNAROUND UNDER PUBLIC OWNERSHIP

The Case of British Steel Corporation

Pikay Richardson*

Abstract

The turnaround of the British Steel Corporation, in the early 1980s, has been described as the most remarkable event in the British industrial history. From a basket case, this huge publicly-owned enterprise was returned to profitability by a team of managers hired from the private-sector and mandated by the Thatcher Government to develop and deliver a turnaround strategy. The determination of top management to push through a sensible but unpalatable strategy, that of a government minded to stick to its guns in the face of union intimidation and blackmail, and contributions of a labour union, initially opposed to the turnaround strategy but eventually brought on board, combined to constitute a rare case of successful restructuring in public-sector enterprises. The case provides invaluable lessons for many loss-making state-owned enterprises in many developing countries, like India.

Key Words: ***Corporate restructuring, Corporate turnaround, Strategic management, Industrial relations.***

INTRODUCTION

THE turnaround of the British Steel Corporation (BSC) in the first half of the 1980s is a remarkable event in international industrial history, considering the fact that it took place under public ownership. The change agents were multifaceted. The role of management in orchestrating a strategy to deal with the costs of adjustment, social issues and adverse publicity; that of a government prepared to empower management and determined to stick to its guns; and that of the labour unions initially set to thwart the corporate restructuring but later 'forced' to tow the line, have together come to constitute a classic case of "British industrial and political history" (Richardson 1992, Beauman 1996).

The successful adjustment of the BSC was within the overall downward adjustment of the UK industry. Between 1975 and 1985, the entire British steel industry underwent a traumatic adjustment process as total industry capacity declined by 30 per cent, and employment fell by a massive 70 per cent, from 230,000 to 70,000. BSC determined the pace of change and the extent to which overall industry performance could

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improve. After 11 years of continuing losses, the company returned to profit in 1985, and, by 1988 when it was privatised, had become the world's most profitable steel firm.

HISTORICAL BACKGROUND

The BSC was formed as a public company in 1967, when the then Labour Government took over the 14 largest steel firms, through an Act of Parliament. Under the 1967 Iron and Steel Act, the Government took under public ownership the assets of those steel firms that had an annual production capacity of 4,75,000 tonnes or more. The industry was first nationalised after the war in 1949 but this was reversed in 1953. It was subsequently re-nationalised in 1967 and stayed in public ownership until December 1988, when it was successfully privatised. While several reasons were advanced to support the 1967 nationalisation, the two most important ones are cited here. First, the sector was experiencing what may be described as unacceptable decline in profitability. In 1958, the rate of return on capital employed for the whole sector was 17.3 per cent. By 1967, this had declined to 1.9 per cent. As the steel sector was privately-owned, the state of the industry was a matter of concern for the private owners but the world had just emerged from a devastating World War and the position of steel as the basic material for making the implements of War and for reconstruction was widely acknowledged. It was, therefore, inconceivable for an industrialised nation to witness the eventual disappearance of its steel industry and, hence, government intervention became inevitable.

Second, the construction of more modern and efficient basic oxygen plants (cost of a minimum efficient scale plant of 3-5 million tonnes was over $2 billion) to replace ageing open hearth plants could not be expected to be undertaken by relatively small, low profitable firms. Nor could market investment funds be expected to be available for a sector whose profitability was low and falling. By taking these firms into public ownership, the government could not only direct but also fund the much needed expansion and modernisation.

Although late in coming, the BSC in 1973 embarked on the largest ever capital investment programme in British industrial history, with £3 billion being approved in a 10-year plan to create a highly efficient steelmaking capability able to compete in a world market that was expected to show strong growth. This would increase steelmaking capacity by nearly 50 per cent from 24 to 36 million tonnes. In the event, the OPEC-induced world energy crisis of the 1970s, coupled with severe recession in the world economy, especially in the steel-intensive sectors such as shipbuilding and motor cars, combined to put the BSC heavily into loss. By 1976, it had become clear that the steel recession was structural and that urgent action was needed to stem the financial outflow or loss of the BSC. The actions that were devised and executed which led to the first ever profits for the company in 11 years, and subsequently to its privatisation in 1988, form the subject matter of the subsequent discussion. Under the British Steel Act of 1988, the assets and the liabilities of the BSC were transferred to British Steel plc, at a time when corporate profits were over £700 million, giving a margin of 11 per cent.

THE CRISIS: SYMPTOMS OF DECLINE

The post-war period upto 1974 saw a sustained growth in world crude steel output. In the UK, however, steel output peaked in 1970. In fiscal year 1970, liquid output of the BSC reached a record high of 26.1 million tonnes. Although the first four years of the 1970s witnessed a sustained growth in world output, a combination of factors led to a declining UK production and, with it, declining share of the BSC output. The BSC's share of the UK finished steel market dropped from 63 per cent in 1970 to 58.5 per cent a year later and then to a low of 50 per cent in 1975. In this high fixed cost, large scale industry, such low production led to unviable operations and subsequently to losses. Not surprisingly, the BSC's financial performance was a mere break-

even on an average turnover of £1.5 billion over the period of 1970-74.

The company had inherited a multiplicity of problems that accounted for its poor performance. Firstly, the company inherited disparate assets with a range of outdated, inefficient plants on many sites which had suffered from under-investment for many years. A large proportion of these plants were obsolete open hearth (OH) technology and suffered excessively from cost disadvantages compared to the huge-scale economies oxygen plants that were coming on stream in Japan and elsewhere.

Second, the company was over-staffed, a situation which had persisted since its nationalisation. Declining output exacerbated this situation at the crude steel level as well as at some finishing plants. Llanwern and Port Talbot in Wales, for example, had excess capacity in their strip mills. The result was that productivity was very low compared to the private sector in the UK and, more importantly, compared to its major off-shore competitors.

Third, the BSC faced industrial-relations difficulties, which affected customer service and retention. Centralisation, arising out of nationalisation, created difficulties in what had hitherto been separate companies with industrial relations policies. There were several unofficial strikes at Llanwern. When a new blast furnace (BF) was constructed, it stood inoperative for 18 months because new working practices could not be agreed upon. Strikes in other industries, like electricity and coal, did not help either. The 1974 coal strike, for example, damaged the BSC's coke ovens and led to increased costs.

Fourth, the position taken by the labour unions was, at best, confrontational and uncomplimentary. The structure of the union representation in the new constituted enterprise was not helpful. The BSC inherited 13 principal recognised unions with serious operational demarcation. This made it difficult for the established centre to orchestrate a coherent industrial relations policy. As if that was not enough, the 1974 incoming industry minister, Tony Benn, an avowed leftist, was committed to increasing trade union power and thwarted any management attempts to improve labour productivity through reduction in staffing levels. Not surprisingly, priority shifted from the efficiency enhancement to the maintenance of employment, thereby interrupting the adjustment process that the conservatives had begun in 1974. The number of BSC employees rose from 2,20,400 in 1973 to 2,28,300 the following year.

The BSC also had serious marketing problems. The company suffered from a lack of customer orientation. Inefficient product development and marketing led to increasing imports. The share of imports rose from a meagre 6 per cent in 1970 to 20 per cent in 1975 and to 25 per cent in 1978. The loss of grip on the domestic market was attributable to both internal and external factors. The internal factors were basically the lack, on the part of management, of marketing and product orientation. The external factors comprised the loss of customer links to constituent plants as a result of centralisation concomitant to the setting up of the BSC; the growth of steel stockholding as an efficient mechanism for meeting small-scale demand, thereby facilitating imports; and the expiry of European Commision (EC) moratorium on import supply to the UK by other EC producers after 1978.

Despite these problems, the BSC would perhaps have plodded on but for the worldwide recession that occurred in the world economy following the decision of the Organisation of Petroleum Exporting Countries (OPEC) to quadruple the price of oil in late 1974. While structural forces in the 'advanced industrialised countries' (AICs) were reducing steel intensity in these countries, the oil price hike caused a worldwide recession and precipitated a synchronisation of steel recessions in most AICs. The steel industry suffered disproportionately from the OPEC-induced recession, as steel-intensive industries of mechanical engineering,

motor vehicles construction and shipbuilding suffered the most.

In 1975, the steel capacity utilisation rates fell substantially as global output, and consumption declined by 8 per cent and 20 per cent respectively. The decline in output was 19 per cent in the US, 14 per cent in the EC, and 12 per cent in the UK. Recovery in subsequent years was either sluggish or non-existent. Competition from off-shore producers whose own declining domestic demand encouraged them to seek export markets, including the UK, dampened UK output even further. The UK steel deliveries dropped from 13.0 million tonnes in 1974, to 6.8 million tonnes in 1982. Prices weakened and the collapse of the steel market in the UK and elsewhere in Europe was averted by the European Commission's Simonet and Davignon Plans.

The UK Government objected to any significant closures. Two years into the recession, in March 1977, the company still had in operation five integrated plants, three smaller BOF plants, seven OH plants and a large number of under-utilised mills, giving a total capacity of 25 million tonnes. 208,000 employees were still on the BSC's roll. The result was that labour productivity plummeted and losses skyrocketed (Table 1). Between 1975 and 1980, the BSC gulped nearly £0.5 billion in state support.

Table 1

BSC: Financial Status

1972 to 1981

Year	*Revenue (£ million)*	*Profit (£ million)*	*Profit Margin (% age)*
1972-72	1477	9	0.6
1972-73	1775	56	3.2
1973-74	2255	89	3.9
1974-75	2356	(216)	-0.9
1975-76	3059	(69)	-0.2
1976-77	3154	(455)	-14.9
1977-78	3289	(327)	-9.9
1978-79	3105	(544)	-17.5
1979-80	2954	(1800)	-69.9

Note: Figures in parentheses indicate the losses.
Source: British Steel Corporation, *Annual Reports.*

THE TURNAROUND

The First Stage: Labour Government

The declared policy of nationalisation in 1967 was one of consolidation by means of rationalisation of productive capacity, improvements in profitability and expansion and modernisation of capacity in line with forecast demand. The 1970-74 period was one of sustained growth in steel demand. Before 1970, when the assets of the 14 constituent firms were transferred to the BSC, the legal identities of the firms remained the same as at the time of nationalisation. In 1970, these were reorganised into 6 product divisions, each as a profit centre with managing director. Head Office retained overall policy control and provided central services, such as forecasting, legal and certain R&D activities.

In 1970, a Conservative Government was elected and announced a policy that reinforced the aims of nationalisation. Later, in 1972, the government authorised the BSC to carry out a big modernisation programme. The Ten-Year Plan entailed concentrating investment in the 5 existing large integrated plants of Scunthorpe, Teesside, Port Talbot, Llanwern and Ravenscraig, to take advantage of economies of scale and increase capacity by 50 per cent to 36 million tonnes by 1980. By this time the Japanese had achieved the status of the world's least-cost producer, based on huge costal plants. The Fukuyama plant of NKK Corporation, for example, had an annual capacity of some 10 million tonnes.

In the event, the Ten-Year Plan was cancelled with the onset of the recession in late 1974. Investment subsequently boiled down to the modernisation of medium-sized integrated heritage plants which could hardly compete with highly efficient large plants, or with electric arc based "mini mills" which by this time had become formidable competitors in several product ranges.

Throughout the 1970-74 period the BSC plodded along breaking even on an average turnover of about £1.5 billion. From 1975,

however the incoming Labour Government, put paid to whatever little rationalisation and retrenchment the previous Conservative Government had started. The Labour government, in some sense, became a hostage to fortune with the onset of the recession and pledged to support jobs. This pledge continued through 1975 and 1976 and delayed closures at a time when this was economically necessary.

But this stance was not to persist. As a condition for the £3.2 billion rescue package to the UK Government to stem its currency crisis, the IMF asked for reduction in public spending, including support for ailing and loss-making public enterprises. If the Labour Government believed in principle, that radical measures were needed to stem the financial haemorrhaging of the BSC but could not find the courage to undertake the same for fear of the labour unions, the intervention of the IMF provided a much-needed excuse.

The first stage of the BSC's turnaround, thus, took place under a Labour Government and not under a Conservative Government as is most often believed. BSC Chairman Villiers and Chief Executive Bob Scholey convinced the government of cuts and closures, these being linked to generous redundancy payments. To set this in motion, the BSC opened plant level discussions with the unions at one site at a time and reached closure agreements with six steelmaking sites over an 18-month period.

Six OH sites, including the one in the constituency of then Prime Minister James Callaghan, were closed down, with the retrenchment of 25,000 workers. The BSC set up BSC (Industry) Ltd, in 1975, with the sole purpose of assisting job creation in areas where the industry had been the major employer, as a way of mitigating the social impact of the adjustment. The steel industry, especially the integrated sector, is a large-scale plant that employs thousands of people. Also because steel is a high-volume, low-value product (low value-to-volume ratio), steel plants had traditionally been located close to the source of raw materials. In the heady years, such communities had prospered but as the industry declined during the 1970s and 1980s and the plants closed down, these communities became rusting relics of a glorious past. The BSC I was set up to create new jobs in such areas, especially in South Wales.

The Second Stage: Conservative Government

Efforts by the Labour Government did not go far enough. The BSC lost money continuously due to continuing weak demand, low capacity utilisation rates and increased competition from 1978. Although the UK joined the Common Market in 1973, the European Commission (EC) gave the UK steel industry a moratorium of five years before opening the UK market up to continental producers. When continental competition, especially from the efficient German roducers, was curtailed, the BSC lost market share even further.

The second stage of the turnaround was achieved in the first 18 months of the Conservative Government from May 1979 to October 1980. The Labour Party was defeated in the Spring 1997 elections and a Conservative Government under Margaret Thatcher was voted to power. Three major events occurred in this period which triggered radical change. The first was the election of a Conservative government which promised a radically different approach to the nationalised industries. The majority, including the BSC, were to be subject to greater market forces or be privatised.

The second was another OPEC-induced oil shock in 1979-80 following the deposition of the Shah of Iran and the outbreak of the Iran-Iraq war. Spot Arab light rose from $12.85 a barrel in December 1978 to peak at $41 in November-December 1979. The UK's GDP contracted by 3 per cent in 1979, manufacturing output declined by a massive 14 per cent in 1979-81, and the crude steel output and consumption fell by 40 and 28 per cent respectively, in the same period.

The third factor was a devastating strike in early 1980. The BSC had devised a strategy of cost-cutting, wage restraint, and productivity-linked wage increases. This comprised a proposal to slim down to 15 million tonnes manned capacity by concentrating all hot metal steelmaking to five main integrated sites. It also set about to reshape labour relations fundamentally by ending national-level pay bargaining and devolving negotiations to plant level where wage rises would be linked to productivity and financial performance. A 6 per cent pay rise, up from an initial 2 per cent (compared to 20 per cent for coal miners) coupled with the above-mentioned proposals proved unacceptable to the labour unions who called a strike on 2 January 1980. The Government refused to intervene, and despite criticism from several quarters kept its resolve to stand firm and not give in to what had become "blackmail tactics" by nationalised industries.

The 13-week strike was called off on 1 April 1980, after the deliberations of a three-man court of inquiry led by Lord Lever, with Dr Richard March (nominated by the BSC) and Bill Keys (nominated by the unions) as members. A 16 per cent package consisting of productivity-related increases was negotiated by the committee. In total, it is estimated that the strike cost the BSC £130 million in lost revenues. It also caused BSC's share in the UK market to fall from 54 to 45 per cent. The joint cost to workers and the unions was estimated at £175 million (Pandit 1996).

In June 1980, the Secretary of State for the Department for Trade and Industry, Keith Joseph, appointed Mr Ian McGregor to succeed Villiers as Chairman, with the mandate to take the BSC to profitability (and eventual privatisation). Three months after the strike, the BSC reached a lump-sum bonus agreement with the labour unions, for the acceptance of plant closures, increased use of contractors, changes in organisation, working practices, manning levels, flexibility and other efficiency-enhancing measures. The principle of multi-union negotiations at the plant level was cemented. Performance-related bonuses based on indicators, such as output per man-hour and the achievement of specific targets, were established. In the first 9 months of 1980, employment reduction of 45,000, from 175,000 to 130,000 was achieved. The first and the most dramatic change occurred in South Wales where the manning at Llanwern was reduced from 9,000 to 4,500, and at Port Talbot from 12,000 to 5,000, in a move that came to be known as the "slimline" approach. By the end of 1980, capacity reduction had been achieved and the necessary agreements for further cost reduction and productivity improvement measures were firmly in place.

The Final Stage: 1981-1988

The fundamental transformation of the BSC started immediately after the strike. In December 1980, BSC Chairman McGregor devised a corporate plan, 'The Strategy for Survival' under which the BSC was organised into a series of businesses, each acting as a profit centre. The commercial-line control exercised by the Head Office was abolished. Each group drew together its relevant manufacturing operations and commercial activities, although Head Office retained a commercial service department. The specific aim of the plan was to halve the current losses by the end of March 1982 and to break even before exceptional items within the following two years. This was to be achieved by increasing BSC's share of the UK market for finished steel to 54 per cent (the level before the strike), to raise productivity through further job cuts, to increase exports and to divest peripheral activities.

While the Government gave the BSC management a free hand to plan and execute a turnaround policy, there were two provisos and one EC constraint. The first proviso was that the BSC keep the five major integrated steelmaking sites, in particular, Ravenscraig in Scotland, in operation until at least 1985. The year 1985 was a political choice, as it was the year of the next general election. The second proviso was that the BSC recover as a steel company. This was not surprising. The BSC accounted for over three-

quarters of the UK's crude steel output and it was inconceivable that the UK government could preside over any action that would lead to the decimation of an industry producing a material of strategic importance. In fact, one of the aims of the 1967 nationalisation was to take the steel industry into public ownership to facilitate the injection of public money. In a similar vein, the US government commissioned a study in the late 1970s to determine whether a much-reduced US industry could support domestic demand in a period of national mobilisation. Accordingly, it was imperative that any action for recovery should strengthen steel output and investment. By implication, actions directed to diversification were severely constrained.

The EC constraint came into effect in October 1980. In 1976 and 1978, the EC devised Plans, named after EC commissioners Simonet and Davignon, to curb the oversupply of steel (arising out of combination of the recession and new capacity coming on stream in the late 1970s) and stem the weakening of prices. The Plans, however, failed. So in October 1980, under Article 58 of the Treaty of Rome, the EC declared a state of "Manifest Crisis", under which it could impose production quotas and capacity curbs. All major EC producers, including the UK, were required to remove some capacity from operation by the end of 1985. The European Commission provided assistance for this rationalisation on a *quid pro quo* basis, and all national governments were barred from providing any support to any ailing industries unless these could be shown to assist adjustment.

Rationalisation

Although the BSC had cut down crude steel production to 15 million tonnes by 1981, there was need for further rationalisation of downstream activities, cost reduction, staff-reduction and improvement in efficiency and competitiveness. Under the EC provisions, by 1985 the UK was required to reduce hot-rolled capacity by 4.5 million tonnes, a target which was exceeded by 3 per cent. The UK government also took steps to reduce destructive competition between the BSC and private-sector firms, providing £32 million to assist with rationalisation and exit costs (barriers to exit in the steel industry are high). In August 1985, a final major corporate rationalisation plan was announced by Industry Secretary Norman Tebbit. Under the plan, the BSC would close two steel plants but would continue to keep all its five integrated mills open for at least 3 years (subject to demand and BSC's performance). Mr. Tebbit also announced that no further major closure was to be undertaken.

Privatisation and Joint Ventures

Steps were taken to privatise those parts of the BSC's operations which overlapped with the private sector or which were non-core It is estimated that the BSC raised £106.5 million from such sales between 1980 and 1984. Where privatisation was not possible, BSC-private sector joint-venture companies, termed Phoenix I companies, were set up. The first of these was a joint venture between the BSC and GKN, which merged their special steel activities. The new company Allied Steel and Wire (ASW) was operational by July 1981, with both parties having equal share. With £10 million support from the government, the joint company, with an expected turnover of £200 million, would rationalise the UK billet, bar and rod production. The ASW was later incorporated into a Phoenix II venture, United Engineering Steels (UES), in January 1986. The UES was expected to achieve a turnover of £600 million per year and employ 11,000, thereby making it the second largest steel firm in the UK.

Other joint ventures included British Bright Bar, set up with the BSC, GKN and Brymill, in a 40 per cent, 40 per cent, 20 per cent venture; the Cold Drawn Tubes Ltd between the BSC, the TI Group and FH Lloyd; and Sheerness Steel, between the BSC and Brockhouse. There were other rationalisation in various segments. For example, 10 out of 22 foundries were required to be shut in 12 companies to reduce 25,000 tonnes

of capacity. This led to 1,800 redundancies in an operation organised by consultants Lazard Brothers and funded by the government.

Labour Retrenchment and Employment Issues

By the end of 1980, the BSC still employed over 1,30,000 persons. This constituted a serious overmanning of the company, with productivity levels far behind those of its major competitors in the US and Japan. The retrenchment exercise which started in 1980 continued with vigour under Ian McGregor. Plant level negotiations over severance continued. Linking employment level to market conditions, the BSC provided generous severance pay to those leaving the workforce by early retirement. Full pensions were made available to men from the age of 55 and women from 50. The result was that the largest component of labour, a good 25 per cent, left by early retirement. In addition, the BSC provided for enhanced statutory redundancy payments and protection of earnings (80 per cent of private earnings) for up to 148 weeks.

Some of those affected by the rationalisation process were redeployed elsewhere within the BSC. Between 1980 and 1988, BSC employment declined by over 60 per cent to about 52,000. Of this, 40 per cent was due to outright closures, 40 per cent due to the "slimeline" programme and 20 per cent due to disposals and joint ventures. The BSC set up schemes for counselling every employee potentially affected, first on the financial implications of early retirement/ redundancy, and then, on possibilities for redeployment within the BSC, if an employee intended to take up such an option. As adjustment neared completion such redeployment openings fell. At the beginning of adjustment in 1977, it was reckoned that a third of those affected could be redeployed with the corporation. By 1984, this was down to 5 per cent.

Perhaps the most innovative and admired, and hence the most publicised creation within the adjustment framework, was the BSC (Industry) Limited. This was a subsidiary of the BSC, set up in 1975, specifically to create jobs in steel communities devastated by large closures. It sought to encourage a range of imaginative low-cost measures for job creation in each area suffering closures, implemented by carefully selected ex-BSC managers. It sought to encourage inward investment into such areas and assist local people to set up or expand business and offered subsidised loans, leasing facilities and training. The BSC personnel provided existing and newly set up enterprises with assistance on business plans, all aspects of national regulation, and access to financing available from the UK and the EC agencies. It also initiated a number of workspace developments, usually in redundant BSC facilities, for start-ups at cheap rates.

In concert, the effectiveness of the retained workforce was improved. Measures aimed at eliminating traditional demarcation lines were introduced in a bid to match the Japanese steel industry productivity. A new "steelworkers" concept which widened the area of each worker's job was introduced. This multi-skilling meant that the production department, for example, would maintain and repair their own machinery, craft workers would not only maintain machinery but would also operate it. The reduction in manpower coupled with a change in mindsets, an inculcation of a survival mentality and multi-skilling led to record levels of productivity. In the late 1980s, a blast furnace manager noted: "changing the nozzle on a clay gun used to take two riggers, two fabricators, two fitters and a fitter's mate. Now, it is done by one production man who has extended his basic skills. It is quicker and easier, as well as cost-saving" (Beauman, 1996).

During the period 1980 to 1984, the BSC employment was reduced by nearly 47 per cen from 1,20,900 to 64,500, although, liquid stee production increased from 11.9 to 13 millio tonnes. Labour productivity consequentl decreased from 14.5 man-hours per tonne to 6.' during that period. This was to further reduce t near 5.0 by the year of privatisation in 1988.

THE ROLE OF VARIOUS ACTORS

Management Action

The appointment of Ian McGregor as BSC Chairman, in mid-1980, was planned by the Conservative Government to bring some 'toughness' into the adjustment started in the late 1970s. By mid-1983, most of the policies and plans for achieving profitability had been put in place by a management team trained and recruited from the private-sector and, imbued with a culture of profit and commercial viability. Whilst pursuing capacity cuts, the management at the same time 'steered' finished output more in line with the structure of demand and towards more value-added products. For example, the shares of cold-rolled plates and sheets and hot-rolled wide coils increased from 26 and 9 per cent, respectively, to 30 and 15 per cent, between 1974 and 1988. McGregor also pursued new markets both at home and abroad vigorously. The BSC's success in pursuing foreign markets was partly responsible for its successful turnaround.

In June 1983, McGregor was persuaded to take up the chairmanship of the National Coal Board and was succeeded by Robert Haslam in September 1983. The government, by appointing Haslam, ensured the continuance of the planned recovery advanced by McGregor. Not surprisingly, the new chairman's initial statement on his appointment suggested that he would simply continue where McGregor had left off. Further consolidation of the company took place under Haslam and by 1985-86, the BSC turned a profit for the first time in eleven years.

The UK economy had been growing steadily at about 3 per cent (GDP at factor cost) since 1983 and this had begun to raise the demand for steel by 1985. The BSC was, thus, able to increase the prices of most of its products by 5 to 6 per cent. For the first time in 11 years, the BSC made a net profit of £38 million in 1985. This was, however, much below the target of £300 million, required to make the company a free-standing and, self-financing entity. Continuing reduction in manning levels and improvements in efficiency rendered BSC's costs 7 per cent below Germany's and 15 per cent below Japan's. This achievement is better appreciated if one looks back to the situation three years before when costs were 7 per cent and 20 per cent higher, respectively. In the words of Aylen (1988), the BSC had become "the strong firm in a weak industry."

On 31st March 1986, CEO Robert Scholey, took over from Haslam as Chairman (Haslam was later appointed the Chairman of the Coal Board). As most of the major cost-cutting, rationalisation and divestiture exercise had been completed, Scholey turned his attention to productivity improvements, not based on staff reduction, but based on training. His first move towards this end was to raise the training budget. By the end of fiscal year 1986, over £30 million, equivalent to £600, per employee, had been spent on training alone. During the year, 1300 middle-level managers attended training courses at Ashorne Hill Management College in Warwickshire: Links were also forged with the London Business School and Warwick Business School for the training of senior managers.

UK Government Action

Between 1975 and 1980, both Labour and Conservative Governments damaged BSC's performance by various interventionist policies. Firstly, by delaying approvals for investment projects, the Government slowed down adjustment. Secondly, by refusing permission to raise prices, it starved the BSC of much-needed funds for rationalisation. The Government also refused permission to build up a strong stockholding position, thereby jeopardising the company's plans to maintain market share. Incessant meddling by Government officials meant that BSC management spent too much time dealing with such officials rather than getting on with the job. As if these were not enough, open pledges to support jobs led to delays in closures and cost reduction at a time when this was the only economically sensible thing to do.

Under Mrs. Thatcher, the government acted mostly as a change agent. In a bid to reduce destructive competition in a weak market between the BSC and private sector firms, the government drew boundaries to limit such competition. Steps were taken to privatise those parts of the BSC's operations which overlapped with the private sector and where this was not possible BSC-private sector joint ventures were set up. To aid rationalisation, the government initially provided a £32 million grant. Under the Iron and Steel Bill of 1981, it also agreed to restructure BSC's finances by writing off £4.5 billion of equity and debt and progressively substituting the remaining debt with equity capital (Pandit, 1996). Announcing the raising of external financing for 1980-81 from £450 million to £1121 million and a figure of £730 million for 1981-82, Industry Secretary Sir Keith Joseph, said that the BSC was being given "a last chance to cease to burden the tax payer" (Table 2). As part of this financial discipline, annual financial targets were also set for the company.

Table 2

External Finance Provided to the BSC

1969 to 1984

Year	*£ million*	*£ million (1982-83)*
1969-70	22	102
1970-71	39	171
1971-72	120	481
1972-73	195	725
1973-74	46	159
1974-75	305	885
1975-76	659	1523
1976-77	949	1938
1977-78	806	1447
1978-79	752	1222
1979-80	579	805
1980-81	1119	1311
1981-82	694	740
1982-83	568	568
1983-84	321	306
Total	6,874	12,386

Source: Department of Trade and Industry, London.

Perhaps, the greatest achievement of the Conservative government was its political will to persist in a long (11 years) and expensive (£7.5 billion was spent between 1975 and 1984-85) downward adjustment of the BSC. From 1975-76, it was clear that a consistently tough attitude was required from the UK Government. The success of the turnaround strategy lay in the Governments "unshakeable commitment to reduce the drain on the public purse, combined with its willingness to spend very large sums in the short term" (Beauman, 1998). This commitment became clearly visible when the government refused to intervene in the strike of early 1980 and in the appointment of Ian McGregor as chairman, a man who had a history of being a 'no-nonsense' manager. Although, there were changes at the top subsequently, policy remained the same until privatisation.

The EC Dimension

The European Coal and Steel Community (ECSC) was set up in 1952, as a Common Market in steel and coal within the six original members of the European Community. When the UK joined the Common Market in 1973, the UK industry was allowed a 5-year moratorium to protect it from continental producers. This moratorium expired in 1978 and with similar recessions in these countries, producers sought export markets in the UK and elsewhere. These were, by and large, more efficient producers than the UK industry. Not surprisingly, steel imports share of the UK market rose from 10 per cent in 1973 to 28 per cent in 1978. This import supply exasperated the already precarious price situation, thereby worsening the BSC's losses.

In 1976, in a bid to redress the weakening EC market, the EC introduced the Simonet Plan and subsequently the Davignon Plan in 1977 but both failed. When the market weakened further after OPEC's second action in 1979, the EC, under Article 85 of the Treaty of Rome, declared a "state of manifest crisis" under which it imposed quotas, and prices and capacity cuts and

provided assistance for rationalisation on a *quid pro quo* basis.

The EC provisions brought some discipline to the market and mitigated "first mover" difficulties so endemic to the steel industry. It provided loans for rationalisation and barred all state subsidies unless these were linked to restructuring. Such state aid was to end in any case by 1985. The Commission also took steps to control imports as a way of improving EC output and stabilising prices. To the extent that such actions supported internal prices, the Commission helped to improve the finances of EC firms. At the same time, however, such actions kept excess capacity in operation for longer than would have been the case otherwise.

INDICATORS OF SUCCESSFUL ADJUSTMENT

Labour Reduction and Productivity

The extent of manpower reduction in the BSC, from 1974 to 1988, when it was privatised was truly massive. It is even more so when compared to what took place in the industries of major competitors. By 1988, the BSC had shed 78 per cent of its 1973 employment as compared to 44, 36 and 67 per cent of thier EC, Japanese and American counterparts. The resultant productivity gains were substantial, especially after 1980. As shown in Table 3, BSC's productivity in 1980 was less than a quarter of that of Japan. As adjustments proceeded, so did productivity rise. Although, the efforts in other industries led to productivity gains, the rate of growth of productivity was so much higher in the UK industry. By the mid-1980s, the BSC had overtaken the EC average and was catching up fast with the US and Japanese industries. By the end of the decade, BSC's productivity was at par with the best worldwide.

Table 3

BSC's Productivity Compared

Tonnes per man-year

Year	*1977*	*1980*	*1988*
BSC	114	100	374
EC	175	214	337
US	251	276	530
Japan	325	412	510

Source: Richardson (2000)

Costs of Production

Being a high fixed-cost, large-scale industry, unit costs of steel production decreases quickly, with falling capacity utilisation rates. The BSC went into heavy losses in 1980 when operation rates fell to 40 per cent. As closures continued and its market share improved, thanks to a steadily-booming economy, capacity utilisation rates improved substantially.The reduction in capacity and increasing output, combined with declining manning levels, meant that unit costs fell steadily. The BSC's productivity in man-hours per tonne of liquid steel declined by two-thirds over the 1980-88 period. Not surprisingly, labour costs as a percentage of total costs declined from 30 per cent in the late 1970s to 22.5 per cent in 1988.

The BSC also took steps to reduce specific energy consumption. Till the end of 1987, BSC's energy consumption fell by 27 per cent through economies in coke use and increased usage of non-coal energy sources. These cost reduction measures paid off as BSC costs moved from being 7 per cent higher than West Germany's and 20 per cent higher than Japan's in 1982-83 to being 7 per cent and 15 per cent lower respectively, three years later.

Profitability

The financial position and health of the BSC was the ultimate goal. As a first step, it was necessary to stop the haemorrhaging that was going on and relieve the tax payer of the pain of incessant subsidisation. Secondly, it was required that the BSC be made a good candidate for privatisation. To this end, provision for external finance to the BSC continued up to 1985 (see Table 2). From the onset of the recession during 1975 to 1985, when the BSC returned to profit for the first time, total

public support for the company amounted to some £7.5 billion (Beauman 1996).

This, as is well argued, was money well-spent, to the extent that the company was turned round and successfully floated, and since then, became a tax contributor to the exchequer. The BSC's profit performance between 1981 and 1988 is shown in the Table 4. The extent of BSC's turnaround becomes evident when it is put beside the performance of the company in the period before 1980. Serious turnaround measures, since 1980, led to the restoration of profitability and commercial viability and by the time the BSC was floated in 1988, it had moved from being a basket case to become the most profitable steel firm in the world.

Table 4

BSC Profitability

1981 to 1988

Year	Profits (£million)	Profit Margins (% age)
1980-81	(1020)	-34.5
1981-82	(504)	-14.6
1982-83	(869)	-26.9
1983-84	(256)	-7.6
1984-85	(380)	-10.2
1985-86	38	1.0
1986-87	178	5.1
1987-88	410	10.0
1988-89	561	11.4

Source: BSC, *Annual Reports*, various years.

SUMMARY AND CONCLUSION

The successful turnaround of the British Steel Corporation comprised a combination of management and governement efforts to reduce the drain on the public purse by an ailing publicly-owned heavy industrial company. The unshakeable commitment and consistently tough attitude on the part of the UK government, combined with the willingness to commit large sums of money in the short-term for long-term gain, were vital to the success of the experiment. Privatisation was not the aim of the turnaround. Rather this became possible after commercial viability had been achieved by a managment team recruited from the private sector that had the guts to orchestrate and deliver an unpleasant downsizing strategy.

The case of the BSC provides invaluable lessons for large ailing public-sector companies in many developing countries, including India and Bangladesh. While differing socio-economic conditions in such countries may not allow exact replication of the BSC strategy, there is little doubt that the case holds good lessons for governmental and managerial action required to deal with some of the intractable problems of persistently loss-making public-sector enterprises in such countries.

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FACTORS AFFECTING WOMEN MANAGERS' ATTITUDE TOWARDS THEIR JOB

An Exploratory Study in Amritsar

H.S. Sandhu* and Ritu Mehta**

Abstract

The paper takes a look at the factors affecting the attitude of women managers towards their job. A sample of 115 women managers was taken from selected organisations of the service sector in Amritsar. It was found that the women managers were positive in their approach and dependent on their managerial attributes, feminine characteristics, analytical ability, and equality of opportunity to gain acceptance at work. They also possess the competence, potential, and risk-taking abilities to function more efficiently.

Key Words : *Women managers, Service sector, Attitude, Amritsar, Job*

INTRODUCTION

WOMEN are increasingly coming forward to participate in every kind of job—be it skilled and hi-tech, creative and innovative, scientific and sophisticated, or daring and dangerous. They are constantly coping with newer problems, ranging from the age-old, social and sociological, to the ultra-new, psychological and attitudinal challenges (Prabhath, 2001).

In the last few decades, women have made in-roads into the male-dominated occupations. Colleges that opened up professional training programmes have seen female numbers rise. The economic reforms initiated in the early 1990s have resulted in many macro-level changes in Indian organisations (Datt, 2003). The liberalised Indian economy has created a large number of employment opportunities for women though mainly for educated ones residing in urban areas (Das, 2003).

The fast-paced business environment in India means a constant search for talented human resources (Budhwar and Boyne, 2004). Firms are now realising the potential of women employees. In the executive position, where strategy is set and power is exercised, it is hard to recognise that a social and economic revolution has taken place (Helms and Guffey, 1997).

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In India, while women are sometimes elevated to the status of goddesses and treated reverentially, more often, they are treated as secondary citizens and looked down upon as inferior members of the family. Despite the fact that the country gained independence more than five decades ago and has had a woman prime minister for a long time, many economic and social evils against women still persist (Bhatnagar, 1987). Negative attitudes towards working women still exist in the corporate world.

An attitude is a person's enduring favourable or unfavourable evaluations, emotional feelings, and action tendencies toward some object or idea (Kotler, 2003). The traditionally accepted view of attitude is that it is made up of three interrelated components—cognitive, affective, and conative. The cognitive component deals with cognition or knowledge; it is the faculty of knowing or perceiving or conceiving ideas; it is the sphere dealing with knowledge. The affective component deals with affections/emotions. For example, feelings of likes or dislikes towards objects are dealt with on the affective plane. And the conative component deals with behaviour or action. These three components together shape what is known as attitude.

Attitudes lead people to behave in a fairly consistent way toward similar objects. Attitudes range from positive to negative and influence behavioural intentions. But the impact of attitudes on eventual behaviour is modified by several other factors, such as norms prevalent in a society and abilities of individuals (Kumar, 1993). Therefore, attitudes are complex and not fully understood but strongly held attitude can be changed only with great pressure. A person's attitude settles into a consistent pattern, and to change a single attitude may require major adjustment in others attitude. Nevertheless, attitudes are studied because they are of great help in diagnosing, analysing, and predicting an individual's behaviour.

With large number of women joining managerial ranks, it is time to investigate attitudes of women managers towards their job. If they have to be integrated as worthwhile members of organisations, it is imperative that employing organisations consider their perceptions and attitudes towards their jobs.

REVIEW OF LITERATURE

There is a dearth of cross-cultural work on attitudes towards women managers. However, studies of sex-role socialisation and sex stereotyping have demonstrated the worldwide existence of negative attitudes towards women in non-traditional roles (Gulati, 1990). It is observed that women in managerial and administrative positions often face the social and psychological problem of cultural attitudes, which holds that a woman cannot successfully sustain an important and high-level job to which she is seriously committed (Lee, *et al.*, 1999).

Kulkarni (2002) found that traditional and cultural patterns inhibit women's urge to be in an executive or leadership position. This is further aggravated by a lack of self-direction, independence, and self-motivation to enter the male-dominated world. Adrian (2000) also observed that a woman is perceived as the one who is supposed to take care of the family, and if a female manager decides to have children, she is viewed as less committed to her career with no desire to achieve.

Some studies have indicated that despite an awakening to the problem of sex-stereotyping, negative attitudes towards women are persisting (see, for example, Bass, *et al.*, 1971; and Boverman, *et al.*, 1972). One explanation for this differential treatment of women stems from the assumption that women lack the aggressiveness and leadership qualities, often required for managerial positions (Bond and Vinacke, 1961; and Megargee, 1969). A more probable explanation for such perception of women may be found in the existence of pervasive and persistent sex-role stereotypes. Women are often

perceived as being too emotional and otherwise unfit for managerial positions (Bowman, *et al.*, 1965; Orth and Jacobs, 1971; and Schein, 1973). It has been noted that one of the most unfavourable stereotype is employers' belief that women workers are not dependable and this has often led to their reluctance to train or promote female employees for fear that they would leave the job on marriage or on having children (Wentling, 1996).

The existence of a male managerial model creates negative attitudes for women seeking advancement in management careers in organisations. Chow (1995) noted that despite the efforts and gains made by women in breaking into managerial ranks in recent years, men in management continue to hold negative attitudes towards them. They often face criticism from employees, not because of their ability but solely because they are women. Koshal, *et al.* (1998) observed that prejudices about women restricted their recruitment and promotion to the positions of power in organisations.

A number of studies indicate that women do possess the qualifications required for managerial positions. Like men, women exhibit leadership behaviour (Day and Stogdill, 1972), problem-solving (Matthews, 1972), co-operation and competition (Lirtzman and Wabha, 1972), and potential managerial capability (Bass, *et al.*, 1971; Stevens and DeNisi, 1980; Khosla, 1989; Papalexandris and Bourantas, 1991; Kumar, 1993; Madan, 1996; Maini, 1997; and Lee, 2005).

Research studies have shown that women react more favourably to women managers than men (Bhatnagar, 1987; Mehta, *et al.*, 1988; Gulati, 1990; and Owen, *et al.*, 2003). It is also observed that women are positive in their approach and accept risky and challenging assignments (Madan, 1996). Another study by Chow (1995) has revealed that the attitude of women in the workforce is quite positive as they have the capability to acquire the necessary skills to become successful managers and have the self-confidence required for a good leader. Cortis and Cassar (2005) observed that female employees accept women managers faster as compared to their male counterparts.

It follows from the above that while some studies have shown that both male and female managers are capable of effectively performing as managers, others have indicated that despite the current awakening to the problem of sex-stereotyping, negative attitudes towards women still persist.

OBJECTIVE OF THE STUDY

The earlier studies discuss the complex set of stereotypes and attitudes towards women managers, which impedes their advancement. Hence, most of them still operate at a sub-professional level. But with changing times, women are becoming more career-conscious and career–oriented. However, little is known about their attitude towards their job. In view of the above, the objective of this study is to explore the factors affecting the attitude of women managers towards their job

METHODOLOGY

Sampling Design and Sample Size

The study is based on primary data. A non-disguised structured questionnaire was developed and administered personally to 115 women managers working in educational institutions; banking institutions; medical organisations; insurance companies; and government administrative offices in Amritsar. The sample included both government (40 per cent) and non-government (60 per cent) organisations to study different work environments for women managers. The questionnaire was carefully thought of to ensure consistency, accuracy, and completeness. For choosing the sample, non-probabilistic judgment-cum-convenience sampling technique was used. The survey was conducted during the period of September 2005 to December 2005. The demographic profile of the respondents is shown in Table 1.

Table 1

Demographic Profile of Respondents

Demographics	*Respondents*	
	Number	*Percentage*
Age		
• Below 30 years	30	26.1
• 30-40 years	34	29.6
• 41-45 years	51	44.3
Education		
• Graduate	30	26.1
• Post-Graduate	73	63.5
• Professional/Ph.D.	12	10.4
Background (Rural/Urban)		
• Rural	9	7.8
• Semi Urban	18	15.7
• Urban	88	76.5
Marital status		
• Married	110	95.7
• Single/Unmarried	5	4.3
Work Experience		
• Below 10 years	15	13.0
• 10-20 years	77	67.0
• 21 or above years	23	20.0
Monthly Salary		
• Rs.10000-20000	15	13.0
• Rs.20001-30000	36	31.3
• Rs.30001 or above	64	55.7

The Measure

To analyse the attitudes of women managers towards their job, a pool of 14 statements representing the various attributes of managerial women and Indian work organisations was developed on a seven point Likert scale ranging from 'Very strongly agree' to 'Very strongly disagree'. A weight of '7' was assigned for 'Very strongly agree' and '1' for 'Very strongly disagree' where the other categories of scale were '6' for 'Strongly agree', '5' for 'Agree', '4' for 'Neither agree nor disagree', '3' for 'Disagree', and '2' for 'Strongly disagree'. The seven response categories are often cited as being ideal for measurement scales as human ability to discriminate is assumed to lie in the vicinity of the number (Viswanathan, *et al.*, 1996). Further, in order to avoid response set bias, approximately 36 per cent of the total items were worded negatively. These were, however, reverse coded for the purpose of data analysis and interpreted accordingly. The 14-item scale has been shown in Table 2.

Table 2

14-item Attitude Scale: Reliability Analysis (Cronbach's alpha); Sampling Adequacy Analysis (Kaiser-Meyer-Oklin Measure; Bartlett's test)

S. No	*Items/ Statements*
S1	Women have the objectivity required to evaluate business situations properly.
S2*	Women are not ambitious enough to be successful in business world.
S3	Women possess the self-confidence required of a good executive.
S4*	Women are less capable of learning mathematical and mechanical skills than men.
S5	To be successful, women do not have to sacrifice femininity.
S6*	Women can't be assertive in business situations that demand it.
S7	Women are competitive enough to be successful in business world.
S8	Women are less prone to fraud and corruption.
S9	Women possess requisite skills for success in business.
S10*	It is less desirable for women to have a job that requires responsibility.
S11*	Even if there are competent females around the best assignment at higher levels should go to man.
S12	Woman can withstand both emotional and professional stress to a great extent than man.
S13	Women keep an open mind and are less vulnerable to external pressures.
S14	Physiological problems associated with women should not make them less desirable than men as employees.

Cronbach's alpha = **0.78;** KMO value = **0.79**

Bartlett's test: c2 = **408.46**; df = **91** ($p < 0.001$)

* These items are worded negatively to reduce the bias due to tendency of respondents to reply in affirmative during data collection. They were, however, reverse coded for the purpose of data analysis and thus interpreted accordingly.

Testing the reliability of the scale, Cronbach's alpha method was used. Testing of reliability of the scale is very important as it shows the extent to which a scale produces consistent results if measurements are made repeatedly. Reliability can be defined as the extent to which the measures are free from random error. Cronbach's alpha is the most widely used method. Its value varies from 0 to 1 but an alpha coefficient of 0.6 and above is considered to be good for research in social sciences (Malhotra, 2002; and Cronbach, 1990). In the present study, Cronbach's alpha scale has been used as a measure of reliability. Its value is estimated as 0.78 (see Table 2), which is considered quite satisfactory, implying that the scale used in the study was reliable.

Techniques of Data Analysis

Data so collected was subjected to factor analysis to bring out the important factors affecting attitudes of women managers towards their work. However, before applying factor analysis, the data was tested for appropriatness. The appropriateness of factor analysis is dependent upon certain measures. In the present study, correlation matrix, Kaiser-Meyer-Oklin (KMO) Measure of Sampling Adequacy (MSA) and Bartlett's test of Sphericity were applied to verify the adequacy or appropriateness of data for factor analysis.

The correlation matrix was computed and is shown in Table 3.

The mean correlation is found to be 0.23 and it varies from -0.01 to 0.53 with a range of 0.54, which reveals that there were enough correlations among the variables, justifying the factor analysis.

Kaiser-Meyer-Oklin (KMO) Measure of Sampling Adequacy (MSA) is a useful method of measuring the adequacy of data for factor analysis. The KMO value varies between 0 and 1 (Kaiser, 1974). In this study, the value of KMO for overall matrix is found to be 0.79, thereby indicating that the sample taken to process the factor analysis is adequate.

Bartlett's Test of Sphericity (Bartlett, 1950) is the third test applied in our study for verifying the appropriateness of the data set for factor analysis. This test value should be significant, i.e., having a significance value less than 0.5. In this study, the test value is $c^2 = 408.46$, which is highly significant ($p < 0.001$). It indicates that the data is appropriate for factor analysis.

Table 3

Correlation Matrix

Items	*S1*	*S2*	*S3*	*S4*	*S5*	*S6*	*S7*	*S8*	*S9*	*S10*	*S11*	*S12*	*S13*	*S14*
S1	1.00	0.40	0.45	0.21	0.29	0.41	0.20	0.53	0.31	0.16	0.04	0.41	0.45	0.08
S2		1.00	0.34	0.27	0.27	0.44	0.05	0.31	0.23	0.22	0.16	0.25	0.25	0.12
S3			1.00	0.06	0.35	0.40	0.27	0.30	0.24	0.10	0.15	0.32	0.25	-0.01
S4				1.00	0.06	0.20	0.11	0.33	0.02	0.13	0.13	0.20	0.19	0.25
S5					1.00	0.36	0.19	0.24	0.36	0.18	0.23	0.45	0.34	0.24
S6						1.00	0.18	0.40	0.15	0.17	0.14	0.32	0.18	0.02
S7							1.00	0.26	0.11	-0.00	0.02	0.13	0.23	0.20
S8								1.00	0.26	0.16	0.05	0.40	0.29	0.14
S9									1.00	0.14	0.08	0.30	0.17	0.22
S10										1.00	0.44	0.13	0.27	0.08
S11											1.00	0.16	0.08	0.31
S12												1.00	0.43	0.34
S13													1.00	0.20
S14														1.00

Table 4

(Rotated) Factor Analytic Results of Attitudes Scale

Factors	Loadings	Eigen Value	Variance Percent
F_1 (Managerial Attributes)		**2.56**	17.03
'Women are competitive enough to be successful in business world'.	0.74		
*'Women are not ambitious enough to be successful in business world'.	0.68		
'Women have the objectivity required to evaluate business situations properly'.	0.66		
'Women possess the self-confidence required of a good manager'.	0.58		
'Women possess requisite skills for success in business'.	0.57		
F_2 (Feminine Characteristics)		**2.30**	15.29
'To be successful, women do not have to sacrifice femininity'.	0.65		
'Physiological problems associated with being women should not make them less desirable than men as employees'.	0.59		
'Woman can withstand both emotional and professional stress to a great extent than man'.	0.53		
'Women keep an open mind and are less vulnerable to external pressures'.	0.50		
'Women are less prone to fraud and corruption'.	0.44		
F_3 (Analytic Ability)		**1.71**	11.35
*'Women can't be assertive in business situations that demand it'.	0.67		
*'Women are less capable of learning mathematical and mechanical skills than men'.	0.59		
F_4 (Equality of Opportunity)		**1.65**	11.00
*'Even if there are competent female around the best assignment at higher levels should go to man'.	0.81		
*'It is less desirable for women to have a job that requires responsibility'.	0.73		

* These items are worded negatively to reduce the bias due to tendency of respondents to reply in affirmative during data collection. They were, however, reverse coded for the purpose of data analysis and thus interpreted accordingly.

After examining the reliability of the scale and testing the appropriateness of the data as above, factor analysis was carried out to identify the factors that affect the attitude of women managers towards their job. For this Principal Component Method was employed followed by Varimax Rotation. The Principal Component Method helped in indicating the number of factors to be extracted while Varimax Rotation method was used, as the interpretation of factors is more meaningful under this method. SPSS 10.0 was used for the purpose of analysis.

FINDINGS

The Principal Component Method, using Varimax Rotation, reduced the 14 statements to four factors. Table 4 highlights the four factors that were extracted along with their variables and corresponding factor loading.

It can be seen that all the four factors taken together explain as high as 54.70 per cent of the total variance. It is worth mentioning here that items with a factor loading of above 0.40 were considered to be a part of a particular factor. The values of communalities (h^2) ranged from 0.49 to 0.77 for various statements.

The four factors had eigen values between 1.65 and 2.56. It means factor analysis has extracted a good amount of variance in the statements. The factors so extracted are explained below:

F_1: Managerial Attributes

As shown in Table 4, five statements, namely, 'Women are competitive enough to be successful in the business world', 'Women are not ambitious enough to be successful in business world', 'Women have the objectivity required to evaluate business situations properly', 'Women possess the self-confidence required of a good manager', and 'Women possess requisite skills for success in business' represent factor 1 and have been

Table 5

Inter-factor Correlations, Factor-wise Mean and Standard Deviation, and Cronbach's Alpha of Extracted Factors (Sub Scales)

	Factors (Sub-scale)	*F1*	*F2*	*F3*	*F4*
F1	Managerial Attributes	1.00	0.52	0.48	0.23
			(0.00)	(0.00)	(0.01)
F2	Feminine Characteristics	–	1.00	0.51	0.22
				(0.00)	(0.02)
F3	Analytical Ability	–	–	1.00	0.26
					(0.05)
F4	Equality of Opportunity	–	–	–	1.00
	Number of Statements	5	5	2	2
	Mean (Scale value)	6.09	5.42	5.43	5.28
	Standard Deviation	0.99	1.39	1.47	1.60
	Alpha Value	0.79	0.61	0.62	0.58

suitably named as *Managerial Attributes*. This factor is the most important one since it explains 17.04 per cent of total variance. Close examination of the contents of its statements reveals that they all refer to women's possession of the characteristics, which are considered necessary in order to succeed in managerial posts.

F_2: Feminine Characteristics

This factor is again a combination of five important statements, 'To be successful, women do not have to sacrifice femininity', 'Physiological problems associated with being women should not make them less desirable than men as employees', 'Woman can withstand both emotional and professional stress to a great extent than man', 'Women keep an open mind and are less vulnerable to external pressures', and 'Women are less prone to fraud and corruption'. This factor accounts for 15.29 per cent of the total variance. It can be observed that the statements of this factor cover three special female characteristics (emotional stability, external pressures and physiological problems), which affect respondents' ability, and motivation to respond effectively to the role of manager. Thus, we can appropriately name this factor as *Feminine Characteristics*.

F_3: Analytical Ability

As shown in Table 4, the two statements, 'Women can't be assertive in business situations that demand it', and 'Women are less capable of learning mathematical and mechanical skills than men' have loadings of 0.672 and 0.589, respectively. This important factor reveals that the talent is equally divided between the two sexes and women possess the characteristics of analytical ability and decisiveness, which are considered important for people at the administrative levels. It is estimated to account for 11.38 per cent of the total variance.

F_4: Equality of Opportunity

Last but not least, is the fourth factor with which, two statements namely, 'Even if there are competent females around, the best assignment at higher level should go to man', and 'It is less desirable for women to have a job that requires responsibilty', are correlated. This factor has been interpreted as *Equality of Opportunity*. It indicates that women perceive themselves psychologically fit for the job that requires responsibility and they should be given equal opportunity to move from entry to advanced levels of pay and status. This factor explains 11.00 per cent of the total variance.

The inter-factor correlations, factor-wise mean, and standard deviation are reported in Table 5.

Besides, the factor-wise alpha is also shown which ranges from 0.58 to 0.79 thereby indicating high reliability of the sub-scales assessing the attitudes of women managers. The composite alpha for the entire scale is also found quite high (0.78). It is thus clear from this Table that significant relationships exist between these factors, although these factors are conceptually distinct from each other as shown in the results of Principal Component Method discussed earlier.

DISCUSSION OF RESULTS

The factor analysis has revealed that *'managerial attributes'* is considered to be the most important factor and women managers perceive that they possess the requisite abilities for becoming good managers. They see themselves as capable as men in managerial positions. It is worth mentioning here that the results of the study seem to support earlier work by Gulati (1990); Kumar (1993); Madan (1996); and Maini (1997) in suggesting that women managers possess the confidence, energy, perseverance, and hard work required for a good manager. The other factors such as feminine characteristics, analytical ability, and equality of opportunity are judged to be the important ones by women managers.

The study has revealed that women managers are quite positive in their outlook towards the job, in accepting risky assignments and competing with their male counterparts at every level in the organisation. Moreover, women managers feel that they not only possess the competence, potential, and the willingness required of managers, but are moving forward and have transcended their own sex-role stereotypes. Furthermore, they are becoming career-conscious due to increasing professionalism in the service sector.

Limitations

The survey was confined to the city of Amritsar only. This may limit the generalisations to the whole country. Moreover, sample size of 115 is relatively small to make the study comprehensive and representative. Therefore, the conclusions of the study may not be the basis for the formulation of a very definite policy.

Suggestions for Further Research

The research on attitude of women managers towards their job can be extended to other regions of India as well as other sectors of economy. In addition, a comparative study of attitudes of women managers working in metropolitans and smaller towns can also be carried out.

Moreover, since the study has been done at a cross-sectional level, a study of longitudinal nature can be taken up in the Indian context to examine if such attitudes of women in organisations change with the passage of time.

Policy-Implications

The results of the present study have policy implications for service organisations, government planners, and educational institutions. Based on the above findings, service organisations may formulate suitable recruitment policies to provide equal opportunities to women, and may devise alternative strategies for expanding women's participatory role at the national level. Educational institutions may organise appropriate training programmes either on their own or through voluntary organisations. They may invite successful women managers to share their views with management students.

CONCLUSION

The study has revealed that women managers are positive in their approach and are acceptable as managers. Managerial attributes, feminine characteristics, analytical ability, and equality of opportunity are some factors which influence women managers' attitude towards job.

Moreover, the study disproves the pre-conceived notion that the right place for a woman

is her home and she should be encouraged to take up only traditional female occupations. It also does not support the view that women lack drive and motivation for management. Furthermore, the results confirm that talent is not gender-oriented. Given an opportunity to develop and utilise their potential, women may well prove to bring new solutions into the ways organisations are managed.

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Studies serve for delight, for ornament, and for ability.

Francis Bacon, "Of Studies", *Essays*

Travel; in the younger sort, is a part of education; in the elder, a part of experience.

Francis Bacon, "Of Travel", *Essays*

TECHNICAL EFFICIENCY OF SUGAR MILLS IN HARYANA

A Stochastic Frontier Analysis

Ved Pal* and S. K. Goyal**

Abstract

This paper uses the stochastic frontier production function for sugar mills, using unbalanced panel data for three years (2000-01 to 2002-03). The panel data was collected from the sample of 11 sugar mills, forming a total number of 32 observations. The results show that the null hypothesis of the absence of technical inefficiency effects was rejected; indicating that the traditional average response function was not an adequate representation of the data given the specification of stochastic frontier model. The firm-specific technical efficiencies estimated were observed to be time-invariant. The technical efficiency showed wide variation across sample firms, ranging from 0.53 to 0.98, with mean technical efficiency of 0.76. The mean technical efficiency indicates that the realised output could be increased by about 24 per cent of without any additional resource. About 50 per cent of the firms had technical efficiency of above 0.75.

Key Words: ***Production function, Technical efficiency, Stochastic frontier, Sugar mills***

INTRODUCTION

THE sugar industry being the second largest organised industry, after textile industry, plays an eminent role in the Indian economy. It provides both direct and indirect employment to about 3.5 million people and supports many ancillary industries dependent on the sugar industry. This industry has a great significance because of its relation to agricultural and industrial economy of the rural region of the country. Therefore, the expansion of sugar industry in India is an indispensable factor for uplifting the socio-economic life of the rural India.

Profile of Sugar Industry

The modern Indian sugar industry has a history of nearly 100 years beginning with the establishment of the first vacuum-pan sugar plant in 1904 at Saran, in Bihar. The performance of the industry during the various Five Year Plans has been remarkable as brought out by the fact that the number of sugar mills in the country increased from 139 in 1950-51 to 385 in 1991 (220 in the co-operative sector and 165 in the joint sector and public sector) which further increased to 453 mills (including 269 in co-operative sector) with installed capacity of 17.5 million tonnes in

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2002-03. The sugar industry contributes significantly in generating revenue for the nation. Sugar mills paid Rs. 50 billion to the cultivators in 2002-2003. Apart from this, the sugar mills distribute cane seeds, fertilizers, and agricultural inputs of Rs. 2 billion annually. The sugar industry is the single largest employer in the rural areas.

The sugar production in Haryana was about 3 per cent of the country's total sugar production in the year 2003. In Haryana the sugar industry came into existence with the setting up of the first sugar factory in Rohtak in 1952. In the year 2004, in the state, there were 15 sugar mills in operation out of which 13 sugar factories were in co-operative sector and the remaining two in private sector. For last two decades, the sugarcane has emerged as a major commercial crop in Haryana. In 2002-03, the total area covered under the crop was 180 thousand hectares comprising about 4.13 per cent of sugarcane area of the country. The total installed crushing capacity of sugar mills in Haryana increased to 536 thousand tonnes in 2002-03 from 217 thousand tonnes in 1992-93.

Different reports and studies have revealed that sugar mills in Haryana are facing many problems concerning to the internal operations and business environment. The levy sugar price is decided by the Government of India every year but most of the times, the government declares the price very late. The co-operative sugar factories are facing the problem of funds due to blockage of funds in the sugar stocks. The wages are more in Haryana as compared to the other states.

Needless to emphasise, output growth is one of the most important indicators of industrial performance. But a high growth in output does not necessarily imply high efficiency and productivity. If the consumption of inputs rises at a faster rate than output, it results in a fall in the efficiency. The inefficiency in production may be due to certain problems, including inadequate technical know-how, location disadvantage, improper layout, outdated production process, high cost of inputs, weak market organisation, lack of market feedback, and market research. Productivity can be increased through one or more of its determinants—the technology, the quantities and the types of resources used, and the efficiency with which resources are used. Out of these determinants, improvement in the efficiency of resources at the disposal of the farmers is of great concern. In this context technical efficiency in production is of paramount importance.

REVIEW OF LITERATURE

A huge amount of literature is available on the productivity and factor substitution in Indian manufacturing sector. The major studies include: Kazi (1972), Mehta (1980), Kazi (1980), Gloder (1986), Kadak (1986), Baruah (1987), Golder (1988), Ahluwalia (1991), and Gupta (1991). All these studies used the traditional production function approach for measuring the productivity of a factor of production and elasticity of substitution of Indian industries at the aggregate level. Some of these studies also measured operational efficiency and production structure of industries at individual level and state level. The major studies pertaining to sugar industry are given below:

Mehta (1974) has estimated CD and CES production function for Indian Sugar Industry on the basis of time series data (1953-65). The study reveals that total factor productivity has been declining over the period under investigation and thus, the growth of output in industry is attributed mainly to the increase in capital per employee.

Kanwar (1981) reviewed the present status of the sugar industry in Punjab and highlighted that there is a marked improvement in cane production and cane recovery and, therefore, advocated the installation of more sugar mills in the state.

Kainth and Bawa (1981), in their study, observed a significant rise in the quantity of sugarcane availability to the mills in the Punjab

and assessed that the performance of the co-operative sector mills is better than that of the private sector mills. They emphasised the need for setting up more sugar mills in the co-operative sector to cope up with the rising consumption need.

Dawar (1990) in his study related to the comparative performance of the co-operative sugar mills of Haryana and Punjab found that the Punjab outperformed Haryana on the basis of economic and management indicators. He observed that capital as an input performed well in comparison to labour.

Gupta and Patel (1976), in their study on production function in Indian sugar industry, estimated the factor of substitutability, returns to scale, and marginal productivities by using the time series data from the period 1946 to 1966. They found zero neutral technical progress and increasing returns to scale in the Indian sugar industry.

Subrahmanyam (1981) in his study on inter-state production study for Indian sugar industry highlighted that CD production function is consistent for the industry at regional and national levels. He observed the existence of increasing returns to scale in All India and Tamil Nadu and constant returns to scale in UP, Bihar, Maharastra, and AP.

Reddy (1993) in his study related to sugar industry of Chittor district (AP), observed that the elasticity of factor substitution is unity and industry is operating under constant return to scale. The raw material is an important factor of production in the industry.

OBJECTIVE

Thus, no comprehensive study has been undertaken with an aim to analyse the technical efficiency of sugar industry in Haryana.

The present study is an attempt to estimate the firm-specific technical efficiency for sugar mills in Haryana. In this study, the stochastic frontier approach for panel data (Battese and Coelli, 1992) to estimate the technical efficiency is employed. This approach allows us to predict the technical efficiency and to test whether the technical efficiency increases or decreases or remains constant, over time. This information may help the policy-makers and planners to formulate appropriate policies to improve technical efficiency of sugar mills.

METHODOLOGY

Stochastic Frontier Production Function

A measure of technical efficiency was first introduced by Farrell (1957). A more satisfactory means of estimating the technical efficiency viz., stochastic frontier model was independently formulated by Aiger (1968), and Meeusen and Van den Broeck (1977). Jondrow, *et al.* (1982) made it possible to estimate the technical efficiency of an individual firm. Many studies on frontier production function are based on cross section data. The studies done by Pit and Lee, 1981; Battese and Coelli, 1988, 1992; Kumbhakar, 1990; Huang and Liu, 1994; Rajasekharan and Krishnamurthy, 1999; Mythili and Shanmugan, 2000 have made use of cross section cum time series data. Reviews of models for stochastic frontier production function are given by Forsund, *et al.* (1980), Bauer (1990), Battese (1992), Greene (1993), Bravo-Ureta and Pinheiro (1993), Kalirajan and Shand (1994), Coelli (1995) and Kumbhakar, *et al.* (1997). The present study uses the stochastic frontier production function approach to measure the technical efficiency of sugar industry. In the analysis of a firm's efficiency and inefficiency, it is not the average of observed relationships between inputs and output that is of interest but the maximum possible output that is obtainable from a given combination of inputs. Thus, frontier production function can be defined as the maximum feasible or potential output that can be produced by a firm with a given level of inputs and technology.

The general specification of frontier production function considered is defined by

$$Y_{ht} = \exp(X_{ht}\beta + V_{ht} - U_{ht}) \qquad (1)$$

where,

Y_{ht} represents the output for the h-th firm in the t-th time period;

X_{ht} is a (1xK) vector of inputs for the h-th firm in the't' time period;

β is a (Kx1) vector of parameters that describe the transformation process,

V_{ht} is assumed to be an independent and identically distributed random error which has normal distribution with mean zero and unknown variance σ^2_v; and

U_{ht} represents non-negative unobservable random variables associated with the technical inefficiency of production, such that, for the given technology and levels of inputs, the observed output falls short of its potential output.

The model developed by Battese and Coelli (1992) has been employed as it can accommodate unbalanced panel data associated with a sample of 'H' firms over 'T' time periods. Also, it provides a measure of technical efficiency for the same firm, in each time period considered. Following the model proposed by Battese and Coelli (1992), U_{ht} can be defined as:

$$U_{ht} = \{\exp[-\eta(t-T)]\}U_h \qquad (2)$$

where,

η is an unknown parameter to be estimated; and U_h, η = 1,2....N, are non-negative random variables that are assumed to be independently and identically distributed, obtained by truncation of the normal distribution with unknown mean, μ, and unknown variance σ^2_u.

U_{ht} decreases, remains constant or increases, as 't' increases, depending upon whether $\eta > 0$, $\eta = 0$ or $\eta < 0$, respectively.

The parameters of stochastic frontier production function model are estimated by maximum likelihood (ML) method using the computer programme, FRONTIER 4.1 (See Coelli, 1994). Testing whether technical inefficiency effects are not present in the model is of great interest. This is expressed by H_0: $\gamma = 0$, where the parameter is defined by $\gamma = \sigma_u^2 / (\sigma^2_v + \sigma_u^2)$

$$\sigma^2_s = \sigma^2_v + \sigma_u^2 \text{ and } \gamma = \sigma_u^2/\sigma^2_s$$

The γ-parameter has a value between zero and one. The γ is zero when U_{ht} equals zero (full technical efficiency). If this is the case, the Ordinary Least Square (OLS) estimates are also ML estimates. The null hypotheses that the technical inefficiency effects are time invariant and that they have half normal distribution are defined by H_0: $\eta = 0$ and H_0: $\mu = 0$, respectively. If parameter η is positive, the technical efficiency of the sample firm increases over time and vice versa. If η is zero, then the firm-effect will be constant over time. Similarly, if parameter μ is zero, then the firm effect would have a half normal distribution instead of a truncated normal distribution. The hypotheses are tested using the generalized likelihood-ratio test statistics. The decision whether to accept the corresponding null hypotheses depends upon the value of the test statistics and the appropriate χ^2 critical value at certain level of significance.

Model Specification

In this study, the stochastic frontier production function of Cobb-Douglas form was specified. Due to the advantages over the other functional forms, it is widely used in the frontier production function studies (Kalirajan and Flinn, 1983; Dawson and Lingard, 1989; Bravo- Ureta and Evenson, 1994, etc.).

The stochastic frontier production function of Cobb-Douglas type is defined in logarithmic form as:

$$\text{Ln}(Y_{ht}) = \beta_0 + \beta_1 \text{Ln}(F_{ht}) + \beta_2 \text{Ln}(P_{ht}) + \beta_3 \text{Ln}(M_{ht}) + \beta_4 \text{Ln}(W_{ht}) + V_{ht} - U_{ht} \qquad (3)$$

where,

The subscripts *h* and *t* refer to the h-th firm and t-th observation, respectively.

Ln represents the natural logarithm (i.e., to base *e*).

Y represents the quantity of sugar production (in kg)

F represents the value of fixed assets (in Rs.)

P represents the expenditure on power and fuel (in Rs.)

M represents the manufacturing and processing costs (in Rs.)

W represents wages and salary (in Rs.)

V_{ht}-U_{ht} is the random variables defined above.

The technical efficiency of production of the h-th farm in the appropriate data set, given the levels of his inputs, is defined as the ratio of the observed output to the frontier output which could be produced by a fully-efficient firm, in which the inefficiency effect is zero. The technical efficiency of the h-th firm in the t-th year of observation can be calculated as:

$$TE_{ht} = \exp(-\mu_{ht}) \quad (4)$$

The technical efficiency of a firm is between zero and one and is inversely related to the level of the technical inefficiency effect. The technical efficiency can be predicted using the frontier programme (Frontier 4.1, Coelli, 1994).

THE DATA

The data on sugar output and inputs used as variables in estimating the technical efficiency are compiled from the annual audited Balance Sheet and Profit and Loss Account of the sugar mills of Haryana. There are fifteen sugar mills in operation in the state, but for the present study, only eleven sugar mills were selected on the basis of availability and uniformity of data. The selected sugar mills are dispersed geographically all over the State and comprise more than 70 per cent of the total sugar production of the state. All the selected sugar mills belong to the co-operative sector, and are located at Palwal, Rohtak, Sirsa, Panipat, Bhuna, Kaithal, Shahabad, Jind, Karnal, Meham, and Sonepat, respectively. The firm's level panel data for the three years 2000-01, 2001-02 and 2002-03 are used for the estimation of the model. The data set consists of 11 firms constituting a total of 32 observations for all the three years. One sugar mill located at Sirsa came into existence only in 2001, so the data for this mill was available for two years. The data on sugar output is taken by deflating the total value of the sugar production with the market price of sugar of respective years. The data on input variables include fixed assets, salary and wages, power and fuel, and manufacturing and processing expenses belonging to the operational department of the sugar mills. The output is measured in terms of quintals while inputs are in the units of million in rupees.

RESULTS AND DISCUSSION

A basic summary of the values of the key variables, defined in the model is presented in Table 1.

Table 1

Summary Statistics of Study Variables

(in millions)

Variables	*Mean*	*Standard deviation*	*Minimum*	*Maximum*
Output (quintal)	0.338	0.130	0.081	0.673
Fixed assets	249.64	121.56	99.38	523.47
Power and fuel	3.32	1.29	.488	8.29
Manufacturing & processing costs processing costs	13.75	3.92	5.67	21.48
Wages and salary	44.77	13.5	1.12	64.53

The average sugar production per firm was 0.338 million quintal which ranged from 0.081 to 0.673 million quintal. The average value of fixed assets used was Rs. 249.6 million per mill ranging from Rs. 99.38 million to Rs. 523.47 million. The expenditure on power and fuel varied from Rs. 0.488 million to Rs. 8.29 million the average being Rs. 3.3 million. On an average, the sugar mills incurred Rs. 13.8 million towards manufacturing and processing costs. The average expenditure on salary and wages was Rs. 44.8 million, ranging from Rs. 1.1 million to Rs. 64.5 million.

Table 2

Estimates of stochastic frontier production function for sugar mills (panel data) in Haryana

Variable	Parameter	OLS	ML estimates			
			Model 1	Model 2	Model 3	Model 4
Fixed assets	β_1	0.3485* (0.0802)	0.3971* (0.1219)	0.4985* (0.0531)	0.4538* (0.0766)	0.5088 * (0.0436)
Power & fuel expenditure	β_2	-0.0916 (0.1322)	-0.0319 (0.0491)	-0.0608 (0.0682)	-0.0220 (0.0515)	-0.0325 (0.0432)
Manufacturing & processing costs	β_3	0.4563* (0.1369)	0.7479* (0.0836)	0.6842* (0.1370)	0.7334* (0.0990)	0.7282* (0.0847)
Wages & salary	β_4	0.4347* (0.0944)	0.2239* (0.0456)	0.2382* (0.0579)	0.2224* (0.0536)	0.2230* (0.0398)
Constant	β_0	5.4541* (0.8846)	5.1296* (1.0536)	4.5456* (0.8245)	4.7320* (0.6134)	4.2685* (0.4855)
	σ_2	0.0320	0.0425* (0.0132)	0.0730* (0.0315)	0.4013* (0.0148)	0.1546* (0.0708)
	γ	–	0.9257* (0.0349)	0.9553* (0.0645)	0.9204* (0.458)	0.9808* (0.0108)
	μ	–	0.3968* (0.1042)	–	0.3844* (0.1491)	–
	η	–	0.0055 (0.0437)	–	–	-0.0094 (0.0377)
	Log likelihood	12.35	27.41	25.06	27.03	27.12

Note: 1. Model 1 is with μ and η unrestricted, Model 2 is with μ and η restricted, Model 3 is with μ restricted and Model 4 is with η restricted.

2. Figures in the parentheses indicate standard errors.

3. *Significant at 5 per cent probability level

The maximum-likelihood estimates of the parameters in the Cobb-Douglas stochastic frontier production function, given the specification for the time varying technical inefficiency effects, are presented in Table 2.

Besides estimating the general form in conjunction with the panel data, some restricted forms were also estimated and tested. The tests of hypotheses associated with the models are presented in Table 3.

The LR test (χ^2) rejects the null hypothesis that $\mu = \gamma = \eta = 0$. The LR statistic (λ) is 30.12 which is significant at 5 per cent probability level implying thereby that traditional average response function was not an adequate representation for the data given the specification of the stochastic frontier model. Thus, inefficiencies of production can not be assumed to be absent from the stochastic frontier production function for the given level of technology used by the firms. If the null hypothesis is true, there are no frontier parameters in the regression equation, and the estimation becomes an ordinary least square estimates. The next null hypotheses that H_0: $\mu = \eta = 0$, H_0: $\eta = 0$ and H_0: $\mu = 0$, the technical

Table 3

Likelihood-Ratio Tests of Hypotheses for Parameters of the Stochastic Frontier Production Function for Sugar Mills in Haryana

Null Hypothesis	Log likelihood	λ	Critical value	Decision
Given Model	27.41			
$\mu = \gamma = \eta = 0$	12.35	30.12	10.50*	Reject
$\mu = \eta = 0$	25.06	4.7	5.99	Accept
$\mu = 0$	27.12	0.58	3.84	Accept
$\eta = 0$	27.03	0.76	3.84	Accept

Note: The critical value for this test involving $\gamma = 0$ is obtained from Table of Kodde and Palm (1986, p. 1246).

inefficiency effects are time invariant and have half normal distribution, are not rejected. The asymptotic *t*-values of the estimated values of η in model 1 is not statistically significant at 5 per cent, indicating that the firm effects associated with technical efficiency are time invariant. The estimated η term further confirms that the data support the time invariant technical efficiency term. Thus, given the specification of Cobb-Douglas production function, the above tests of hypotheses indicate that the preferred model is the model with time invariant inefficiency effects (Model 2).

The parameter γ (variance ratio) term is positive and statistically significant at 5 per cent level indicating that the variation in output of individual firm from its maximum possible frontier output arises mainly from technical inefficiencies. The variance ratio showed that about 96 per cent of the differences between the observed output and the frontier level of output were caused by differences in firm's technical efficiencies, while the remaining variation is due to factors out of control of the firms. Table 2 revealed that all the factor inputs except expenditure on power and fuel involved for the stochastic frontier production function have positive signs and are statistically significant at 5 per cent level. The coefficients were also higher than those obtained through OLS (Model 1), except for wages and salary indicating the possibility of increasing the production with the existing input use and given technology.

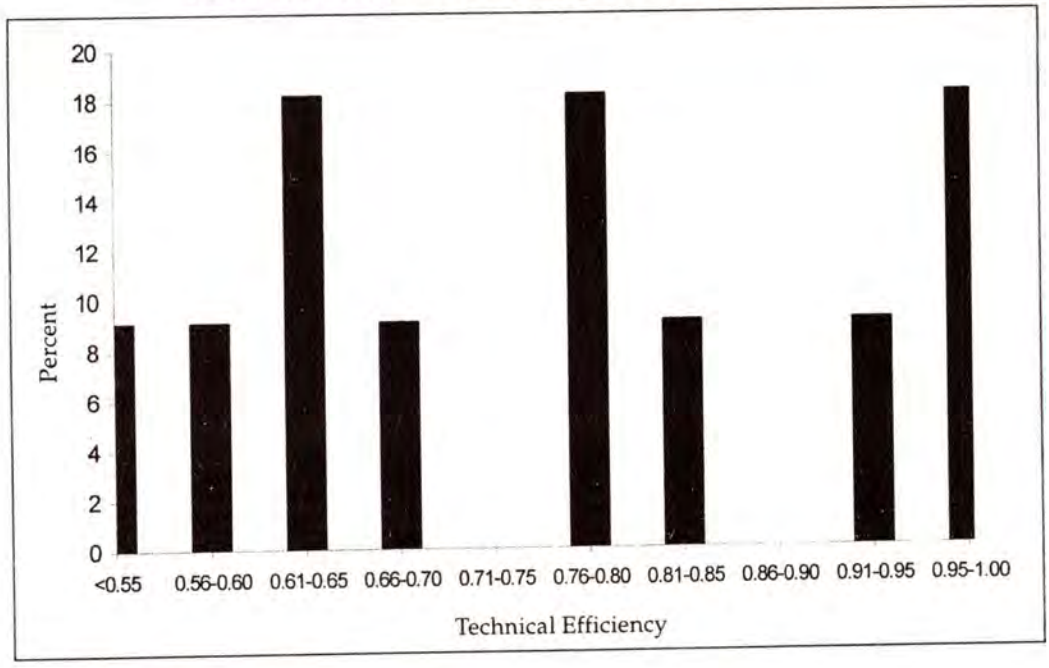
The coefficients of input variables in Cobb-Douglas production function are elasticities of mean output with respect to different inputs used. Elasticities of output for fixed assets, manufacturing and processing costs and wages and salary had expected signs and were significantly greater than zero at 5 per cent level under both model specifications, i.e., OLS estimation and ML estimation (μ and η restricted) with time invariant technical efficiency. The empirical results further indicated that manufacturing and processing costs had the major influence on sugar output. The elasticity of frontier (best practice) production with respect to manufacturing and processing costs was estimated to be 0.68. This indicated that, if manufacturing and processing costs were to be increased by 1 per cent, the total sugar productions were estimated to increase by 0.68 per cent. Further, the elasticity of fixed inputs was estimated to be 0.50. Thus, if fixed inputs were increased by 1 per cent, then the mean production of sugar was estimated to increase by about 0.50 per cent for the best practice sugar production. The elasticity of output in respect of wages and salary was estimated to be 0.23. The returns to scale parameter for the Cobb-Douglas production frontier was estimated by adding up the production elasticities of the inputs considered and then tested for its significance using 't' test. It was found that sugar production in the state experienced increasing returns to scale, as the sum of input elasticities was 1.36 which was found statistically significant.

Technical Inefficiencies

A production process is technically efficient if maximum output is produced from a given bundle of inputs. The technical efficiencies (or technical inefficiencies) of sugar mill owner's were predicted and observed to be time invariant. It implies that firm-specific technical efficiencies do not vary over time. Based on the argument that the outer bound firm-specific production function may vary for some firm over time, it is reasonable to expect that the firm-specific technical efficiencies may vary over time. However, over a small period of time, the variation may not be statistically significant. The predicted firm-specific technical efficiency for sugar mill ranged from 0.53 to 0.98, with mean technical efficiency estimated to be 0.76. The estimated mean technical efficiency indicate that on an average the sugarmills in Haryana tend to realize about 76 per cent of their technical abilities. In other words, it can be said that on an average the sugarmills in Haryana were producing sugar upto about 76 per cent of the potential (stochastic) frontier production levels,

Figure 1

Distribution of Technical Efficiency of Sugar Mills in Haryana



given the levels of their inputs and technology currently being used. It means that about 24 per cent of technical potential is not realised. To give a better indication of the distribution of individual efficiencies, a frequency distribution of predicted technical efficiencies within ranges of 0.05 are presented in Table 4 and depicted in Figure 1.

Table 4

Relative Frequency Distribution of Technical Efficiency of Sugar Mills in Haryana

	First year	
Technical efficiency	*Frequency*	*% age to total farmers*
0.55	1	9.09
0.55-0.60	1	9.09
0.60-0.65	2	18.18
0.65-0.70	1	9.09
0.70-0.75	0	0
0.75-0.80	2	18.18
0.80-0.85	1	9.09
0.85-0.90	0	0
0.90-0.95	1	9.09
>0.95	2	18.18
Mean	0.755	
Minimum	0.532	
Maximum	0.977	
Total number of firms	11	

It was observed that there were about 27 per cent of the mills which had technical efficiencies greater than 0.90 and equal percentage of mills had technical efficiencies between 0.60 and 0.70. There are about 18 per cent of the mills with technical efficiencies less than or equal to 0.60. The frequency distribution indicates that there is a wide distribution of technical efficiency among the sugar mill reflecting a considerable room for effecting improvement in the technical efficiency of mills in the area.

CONCLUSION

The estimated stochastic frontier production function for sugar mills in Haryana, using panel data for three years, showed that the traditional average response function, which does not account for technical inefficiency of production, was not an adequate representation of the data. The firm specific technical efficiency estimates

were time invariant. The technical efficiency showed variation across firms ranging from 0.53 to 0.98 with the mean technical efficiency of 0.76. The mean level of technical efficiency implies that the actual output can be increased by about 24 per cent without any additional resources. It is explicit that about half of total sample sugar mills had technical efficiency above 0.75. Various socio-economic and technological factors may be responsible for the observed inefficiency in sugar production. Due to lack of data on these factors, this aspect has not been studied in the present paper, which could have provided an insight into the factors for policy framework. The suggested policy to bridge the gap between the actual yield and the potential yield would be the appropriate operation management.

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Profit is the payment you get when you take advantage of change.

Joseph Schumpeter

While great decisions are invented in the laboratory, great products are invented in the Marketing Department.

William H. Davidow

The only job security anybody has in this company (Chrysler) comes from quality, productivity and satisfied customers.

Lee Iacocca

EVOLUTION OF THE MARKETING CONCEPT AND DISCIPLINE

Glancing over the Literature

Kajendra Kanagasabai*

Abstract

Marketing is not only a major functional area of modern business, but has also been undergoing radical changes in its nature, scope, and philosophy. With increasing competition and changing customer needs, tastes, and preferences, marketing is becoming a challenging subject. Though an extensive survey of the vast literature, available on the subject, the author has sought to trace the evolution of the marketing concept and discipline, since their inception, and to outline their current status.

Key Words : ***Marketing concept, Genesis, Evolution, Customer-orientation, Marketing literature***

IN the rapidly-changing global environment, the marketer cannot afford to ignore the customer and, therefore, has to make him the pivotal element in all marketing decisions. This is how the marketing concept has evolved over the years with many marketing scholars and practitioners suggesting that the marketing concept is a vital element of organisational culture (e.g., Deshpande and Webster, 1989[1], and Kerin, *et al.*, 1990).[2]

The concept of customer-orientation in vogue today is also derived from the marketing concept. Customer-orientation is, in fact, the effective implementation of the marketing concept (McCarthy, 1984[3]). This statement underlines the importance of the marketing concept in modern business.

MARKETING CONCEPT TILL 1950s

It is not certain when the marketing concept actually took shape. According to management theorist, Peter Drucker, the concept was first grasped in the 1650s by the Mitsui family who set up the first department store and decided to serve as the buyer for their customers. They would design the product for them, develop the sources for their production, evolved the principle of 'your money back and no question asked', and the idea of offering a large assortment of products to their customers. Drucker has noted that the marketing concept appeared in the West in the middle of the nineteenth century at the International Harvester Company.[4]

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The first man in the West to see marketing clearly as a unique and central function of the business enterprise, and the creation of a customer as the specific job of the management was Cyrus H. McCormick (1809—1884). He invented the mechanical harvester and also came up with the basic tools of modern marketing: market research and market analysis, the concept of market understanding, pricing policies, the service salesman, supply of spare parts, provision of after-sales services to the customer, and payment on credit by instalments.

The marketing concept first appeared in marketing literature in the early 1920s, when a mass distribution system became necessary to parallel mass production capability (Londe and Morrison, 1967).[5] Some authors, in the early 19th century, talked about the marketing concept and its benefits (e.g., Jones,[6] Simon,[7] and Hagerty).[8]

According to Fullbrook (1940)[9] and Converse (1945),[10] W. Shaw (1912)[11] was the first person to introduce the functional concept of marketing. Shaw spoke not of the functions of marketing but of the functions of middlemen. While offering no formal definition, he considered marketing functions as steps to be performed by someone in the process of marketing goods. He basically focused on market distribution and later introduced the functional approach, which led others to use and develop it (Shaw, 1915).[12]

Cowan defined marketing as a part of production. He observed that while marketing was concerned with the creation of time, place, and possession utilities, manufacturing was concerned with the creation of form utility.[13] He remarked that the main function of marketing was to get commodities from the producer to the consumer.

Cherington (1920)[14] stressed the need for analysing marketing functions separately from the actual performance of marketing. During the 1920s, most American economists devoted their attention to production rather than to consumption. Later, the emphasis shifted from production to consumption.

Vanderblue (1921)[15] believed that the functional approach was the logical one. In 1922, Macklin[16] discussed various marketing services and analysed the reasons why these services were performed. During this period, many studies suggested that marketing involved not just production but also the utility and performance of the product or service to the consumer.

White and Walter (1924)[17] argued that both production and marketing were most efficient when these were used in co-ordination with each other. In 1936, many great economic thinkers wrote about the significance of marketing in the economic system. They declared that marketing was one of the branches of economic science (Cassels, 1936).[18] Bader and Wernette[19] (1938) highlighted various issues of customers' expectations and protection. They concluded that consumers made their own selection on the basis of their wants and circumstances (customer satisfaction), which, later on, became the purpose of marketing.

Converse and Huegy (1947)[20] argued that the business functions should satisfy the needs o consumers and the first measure of the succes of any business was how well it served it consumers. According to them, there ar operations, which are not in the interest o consumers, no matter how profitable they ma be to the owners.

In 1947, Paul Mazur defined marketing a "the delivery of a standard of living".[21] Pro Malcolm McNair of Harvard Business Scho extended this concept and defined marketing a "the creation and delivery of a standard of livin to society".[22]

It is clear from these studies that the consume is the basic determinant of what goods an services should be produced.

MARKETING CONCEPT BETWEEN 19 AND 1960

Bell and Emory (1971)[23] felt that the philosop of customer satisfaction was not clear

articulated in operational business terms until the 1950s. Similarly, Day and Wensley (1983)[24] observed that the 1950s was the era of marketing's greatest influence in which marketing orientation was accepted as an essential element of profitable progress in the growth of markets (Kohli and Jaworski (1990).[25] Hence, scholars agree that the marketing concept the 1950s (McKitterick, 1957,[26] and Kotler, 1977).[27]

In 1954, Peter Drucker,[28] the well-known management theorist, first articulated the marketing concept that marketing was not really a separate management function but rather the whole business as seen from the customer's point of view. The marketing concept defines a distinct organisational culture, a set of beliefs and values that puts the customer at the centre of the company's thinking on strategy and operations. In his seminal work, *Practice of Management* (1954), Drucker observed:

> Marketing is not only much broader than selling; it is not a specialised activity at all. It encompasses the entire business. It is the whole business seen from the point of view of its final result, that is, from the customer's point of view. Concern and responsibility for marketing must, therefore, permeate all areas of the enterprise.[29]

He concluded that creating a satisfied customer was the only valid definition of the business purpose.

General Electric Company (of the US), one of the first companies formally to recognise and activate the marketing concept, expressed the philosophy of marketing this way: "We feel that marketing is a fundamental business philosophy". This definition recognises marketing functions and methods of organisational structuring only as the implementation of marketing philosophy. These things are not, in themselves, the philosophy. Fundamental to this philosophy is the recognition and acceptance of a customer-oriented way of doing business. Under marketing, the customer becomes the fulcrum, the pivot around which the business moves in operating for the balanced best interest of all concerned....[30]

In 1959, Felton defined the marketing concept as "a corporate state of mind that insists on the integration and co-ordination of all the marketing functions, which, in turn, are combined with all other corporate functions for the basic objective of producing maximum long-range corporate profits".[31] On the basis of this statement, Felton identified three basic elements of the marketing concept: (1) customer focus, (2) integrated marketing effort, and (3) attention to long-term profits rather than sales volume. Felton suggested that companies should realise the implications of the marketing concept. Otherwise, the outcome would be drastically reduced profits or continued losses. He found that most firms developed the marketing concept but fell short of the expected outcome due to certain organisational weaknesses, which were blocking the implementation of the marketing concept. The organisational weaknesses identified by Felton are: (1) lack of comprehension of the highly professional marketing job necessitated by today's competitive markets, (2) unsound organisational structure, (3) lack of top executive ability, and (4) over-concern with personal aggrandisement. To overcome these, Felton recommended the following measures:

1. Determine the true nature of the marketing operation;
2. Develop, with the help of consultants, the proper organisational structure;
3. Strengthen the Board of Directors by bringing in from members outside with specific skills;
4. Induct staff with a proper balance of ability, experience, and personality;
5. Sponsor executive educational courses to develop the practice of co-ordinating modern integrated marketing techniques with long-range planning;
6. Adapt written long-range plans and annual product-line plans; and
7. Set up operating controls.

In 1960, the American Marketing Association defined marketing as "the performance of those

business activities that direct the flow of goods and services from the producer to the consumer or user".[32] However, this definition limited the scope of the marketing function as marketing neither begins at the end of production nor ends with the sale to the consumer. This definition ignored the important features of market analysis and product planning (which precede the actual production of the product) and provision of after-sales services which follow the sales but are so essential to ensure customer satisfaction.

In his classic article, titled "Marketing Myopia", published in 1960, Theodore Levitt[33] observed that most of the companies faced a decline in growth as they ignored the customer's point of view. He also disagreed with the statement that companies faced a decline due to market saturation. In support of his arguments, he cited the example of the American railroad industry. In the 1950s, the railroad industry in America started declining. According to Levitt, it was because the railway industry assumed itself to be in the railroad business rather than in the transportation business. In fact, they were railroad-oriented instead of being transportation-oriented; they were product-oriented rather than customer-oriented. He highlighted the significance of the marketing concept thus: "In business, the followers are the customers". To produce these customers, the entire corporation must be viewed as a customer-creating and customer-satisfying organism. Management must think of itself not as producing products but as providing customer-creating value satisfactions".[34]

Keith (1960)[35] described the evolution of marketing in the Pillsbury Company for which he worked. According to him, the marketing concept was one in which the company was no longer at the centre of the business universe. Today, the customer is at the centre. Further, he stated, "Our attention has shifted from the problems of marketing, from the product we can make to the product the consumers want us to make, from the company itself to the market place". On the basis of his experience at the Pillsbury Company, Keith divided Pillsbury's progress into four eras and described it as a marketing revolution (1) Production-orientation era, which started in 1850 and extended till 1920, (2) Sales-orientation era, which lasted from 1920 to 1950, (3) Marketing-orientation era, which commenced around the mid-1950s, and (4) Marketing control era. In relation to marketing orientation, he stated that the company's purpose was no longer to manufacture a wide variety of products but to satisfy customers' needs and wants, both actual and potential. He emphasised that marketing begins and ends with the consumer

MARKETING CONCEPT BETWEEN 1960 AND 1970

Hise (1965)[36] discussed the marketing concept in relation to the marketing concept in the large and medium manufacturing companies. In order to operate successfully in today's business environment, he pointed out that a firm must consider the following aspects:

1. Be Customer-orientated, that is know about the customer's needs and wants, before beginning the marketing process.
2. Be aware of the profitability of marketing operations.
3. Set up an organisational structure in which all marketing activities are performed by the marketing department.

Based on his research, Hise concluded:

1. The large and medium manufacturing firms have adopted the marketing concept.
2. The greatest degree of acceptance is found in the customer orientation of marketing programmes and in the organisational structure of the marketing department.
3. Large firms are more fully committed to the marketing concept than medium ones.

In 1965, King described marketing concept as a "managerial philosophy concerned with the

mobilisation, utilisation, and control of total corporate effort for the purpose of helping consumers solve selected problems in ways compatible with planned enhancement of the profit position of the firm".[37] According to this definition, marketing concept involves:

1. Company-wide managerial awareness and appreciation of the consumer's role;
2. Concern of inter-departmental implications of decisions and actions of an individual department;
3. Concern with innovation of products and services designed to solve selected consumer problems;
4. Participation and interaction of company officers;
5. Role of marketing intelligence; and
6. Coordinated effort on long-range planning of corporate goals.

In 1967, Kotler, the doyen of marketing, defined marketing as "analysing, organising, planning and controlling of the firm's customer-impinging resources and activities with a view to satisfying the needs and wants of chosen customer groups at a profit".[38] His concept of marketing contained both a methodological and an organisational perspective. The definition of methodological perspective, according to Kotler, is customer focus, which implies more an outward orientation than an inward orientation towards the product. The organisational perspective is defined as integrated marketing, that is, a suggested structure of authority, which ensures customer–oriented focus. Kotler concluded that without the influence of the marketing concept, each department of the firm will develop its own logic, a set of norms based on its singular skills, and interests, which differentiates it from other departments. In order to ensure that each department focuses on customers' satisfaction, the entire structure of the organisation must be subsumed under the logic of customer-need satisfaction at a profit.

MARKETING CONCEPT IN NON-PROFIT ORGANISATIONS

In 1969, Kotler and Levy (1969)[39] sought to broaden the 'concept' of marketing to include non-business organisations, such as church, police department, and public school. Observing that these organisations had products and customers, they argued that marketing was a pervasive social activity, which went beyond the selling of toothpaste, soap and steel. In order to strengthen their argument, they cited certain examples marketing of political candidates as well as of soap; and stated that higher education is also marketed. The authors concluded:

> The choice of facing those who manage non-business organisations is not whether to market or not to market, for no organisation can avoid marketing. The choice is whether to do it well or poorly, and on this necessity the case for organisational marketing is basically founded.

Thus, they wanted to incorporate these phenomena into the body of the marketing thought and theory.

Luck (1969)[40] however, disagreed with the views of Kotler and Levy on broadening the concept of marketing. He argued that traditional marketing provided an opportunity to offer additional reflections on both the essential and the changing nature of marketing, and the 'concepts' or 'principles ' were not applicable to a universal range of human activities or institutions. He concluded that marketing had traditionally focused on those processes or activities whose ultimate result was a market transaction. Although he agreed on the significance of the customer, he differed on the fundamental awareness as to whether marketing-like activities actually took place in non-business organisations or not.

MARKETING CONCEPT AFTER 1970s

Marketing as a Philosophy of Business

Caldor (1971),[41] observed that marketing concept is the foundation of the theory of marketing

management and provides the philosophy for both the methodology and organisational structure of marketing. Yet he felt that the marketing concept was an inadequate prescription for marketing strategy, since it virtually ignored a vital input of marketing strategy, viz., the creative abilities of the firm. Without the knowledge of the individual's skills and capabilities, he argued the marketing concept could not be implemented. Therefore, he emphasised four conditions, which should be fulfilled for 'imbricative' marketing. These include the identification of:

1. Organisation's configuration of skills—its commitment constitution;
2. Objectives of the organisation;
3. Leading part of the system in which the firm operates; and
4. Market needs compatible to the organisation's needs.

In the same period, Bell and Emory[42] divided the marketing concept into three elements:

1. **Customer orientation:** Marketing concept pre-supposes knowledge of the customer, which requires a thorough understanding of his needs, wants and behaviour that should be the focal point of all marketing actions.
2. **Integrated marketing effort:** The entire firm must be in tune with the market by integrating all those activities which impinge on customer care and satisfaction.
3. **Profit direction:** All marketing operations lay emphasise on long-term profit rather than sales volume.

Further, they stated that the marketing concept was an operational concept, and not a philosophical one. Their justification of this statement was that all the companies had actually designed their marketing mix to meet the needs and wants of consumers, but this did not imply a commitment to consumer satisfaction, and the decisions were based on what could be sold at a profit instead of what could be manufactured to satisfy the needs and wants of society. To reinforce their argument, they pointed out that there had been an indication that the marketing concept had faltered due to organisational stress, excessive costs, high product failure rates, and deterioration of relations between business, on the one hand, and public and government, on the other. Therefore, Bell and Emory concluded that the implementation of the marketing concept was dependent on the operational activities of the firm and emphasised on operational marketing concept and social responsibility. In order to bridge the gap between these two, they suggested:

1. First priority should be given to the long-term survival of the company.
2. Adequate safeguards must be provided to the consumer to help him make rational decisions.
3. Products could be used to fulfil the consumer's needs and wants.

The revised marketing concept would have three elements: (1) Consumer concern, (2) Integrated operations, and (3) Profit reward. However, Bell and Emory felt companies would find it difficult to assume responsibility for the social implications of marketing operations.

Barksdale and Darden (1971)[43] agreed to some extent with the views of Bell and Emory. They observed that all firms should organise their operations in tune with the precepts of the marketing philosophy. They noted that the marketing concept was based on two fundamental notions: First, the customer is the focal point for all business activities, Second, profit rather than sales value should guide company decision (Bell and Emory, 1971).[44] Bell and Emory noted that the marketing concept served as an idealistic policy statement for management, however in practical terms, only a few companies applied this concept.

For McNamara (1972), the marketing concept was "a philosophy of business management, based upon a company-wide acceptance of the need for customer-orientation, profit-orientation,

and recognition of the important role of marketing in communicating the needs of the market to all major corporate departments".[45] His study revealed the contemporary status of the marketing concept. He proposed two major hypotheses:

1. Consumer goods corporations tended to adopt the marketing concept to a greater extent than industrial corporations; and
2. Large corporations (with over $150 million annual sales) tended to accept the concept to a greater degree than the small- ($10—$19 million) and medium-sized ($20—$150 million) corporations.

The results of this study supported both the hypotheses. Further, he emphasised that adopting the marketing concept is the development of a complete industrial education and communication programme and the marketing philosophy did not imply that all men in top management must have a marketing background. However, it was essential that top executives were customer-oriented. It is believed that executives having marketing experience are closer to the consumer and should adopt this philosophy.

Marketing Concept and Society

In 1972, Kotler[46] re-examined the marketing concept vis-à-vis his article published in 1969 as to whether its substance belonged to the business area or whether it was applicable to all areas in which organisations attempted to relate to customers and the public. He distinguished three different levels of consciousness in relation to the boundaries of marketing:

1. Market transactions involving buyers, sellers, commercial products, and services;
2. Organisation and client transactions involving any organisation which can be recognised as a group, called customers; and
3. Transactions involving any social unit seeking to exchange anything of values with other social units.

Kotler views this broad concept of marketing as generic marketing. According to him, generic marketing takes a functional rather than a structural view of marketing.

Peter Drucker (1973), revealed the essence of the marketing concept when he said:

> There will always, one can assume, be need for some selling. But the aim of marketing is to make selling superfluous. The aim of marketing is to know and understand the customer so well that the product or service fits him and sells itself. Ideally, marketing should result in a customer who is ready to buy. All that should be needed then is to make the product or service available.[47]

Tucker (1974)[48] shared Kotler's view that marketing principles should be applied to non-marketing institutions also. But he said that the drawback in Kotler's study was that it did not promise new theoretical development. Tucker suggested that some new directions, such as the study of the labour market (human resources) or research on consumer behaviour from the point of view of the consumer or that of society, should be given at least equal consideration.

Customer as the Controlling Function

Stanton (1975) suggested that the marketing concept be based on three fundamental beliefs: First, all company planning, policies and operations be oriented toward the customer. Second, profitable sales volume should be the goal of a firm. Third, all marketing activities in a firm should be organisationally integrated and co-ordinated.[49] He has repeatedly emphasised that the marketing concept is a philosophy of business, which states that the customer's want-satisfaction is the economic and social justification of a company's existence.

In 1980, Kotler[50] viewed the marketing concept as the one that consists of the

organisation determining the needs and wants of the target market and adapting itself to delivering the desired satisfaction more effectively and efficiently than its competitors.

In 1985, the American Marketing Association (AMA) revised the official definition of marketing as "the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods and services to create exchanges that satisfy individual and organisational objectives".[51] Obviously, this definition was much broader and comprehensive than the one given by the AMA in 1960. Boone and Kurtz (1989)[52] equated the marketing concept with a company-wide consumer orientation with the objective of achieving long-term success.

Kohli and Jaworski (1990)[53] viewed the marketing concept as culture. In their view, the marketing concept includes:

1. One or more departments engaging in activities geared towards developing an understanding of customers' current and future needs and the factors affecting them;
2. Sharing of this understanding across departments; and
3. The various departments engaging in activities designed to meet select customer needs.

CURRENT STATUS

According to Walker, et al. (1992), the marketing concept holds that the planning and co-ordination of all company activities around the primary goal of satisfying customer needs is the most effective means to attain and sustain a competitive advantage and achieve company objectives over time.[54] An analysis of these definitions reveals several common threads:

1. Customer-orientation, represented by the ability to recognise the targeted customers' generic needs, wants, and preferences and to satisfy them by continuously creating and delivering a superior value;
2. Company-wide, integrated efforts of all functional areas within the organisation; and
3. A means of achieving long-term corporate goals and objectives.

Kotler and Keller (2006) have stated that the marketing concept holds that the key to achieving its organisational goals consists of the company being more effective than competitors in creating, delivering, and communicating customer value to its chosen target markets.[55]

The American Marketing Association (2004) has further revised its definition of marketing as "An organisational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationship in ways that benefit the organisation and its stakeholders".[56] One new theme on marketing concept has been introduced by Kotler and Keller, i.e., 'Holistic Marketing Concept'. This concept is based on the development, processes, and activities that recognise their breadth and interdependencies. Holistic marketing has four key dimensions:

1. *Internal Marketing*: Ensuring that everyone in the organisation, embraces appropriate marketing principles. It is the task of hiring, training, and motivating able employees who want to serve customers well.
2. *Integrated Marketing*: Devising marketing activities and assembling fully-integrated marketing programmes to create, communicate, and deliver value for consumers.
3. *Relationship Marketing*: Developing deep, enduring relationships with all people and organisations that could directly or indirectly affect the success of the firm's marketing activities.
4. *Social Responsibility Marketing*: Dealing with the understanding of the ethical, environmental, legal, and social context of marketing activities and programmes.

CONCLUSION

Though the existing literature points to the inception of the marketing concept during the 1950s, the corporate philosophy of paying attention to the customer's point of view existed much long before that. Although the definition of marketing has undergone a change over the years, the marketing concept became popular since the late 20th century. Numerous marketing scholars have suggested that all types of organisations—business as well as non-business —have to implement the marketing concept to achieve overall organisation success.

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A BRIEF ACCOUNT OF CORPORATE SOCIAL RESPONSIBILITY

Rajat Panwar* and Eric Hansen**

Abstract

This paper documents the concept of corporate social responsibility and traces its brief history. In order to provide a context-driven understanding, an eco-system based definition of CSR has been provided. The paper also identifies the major areas of intervention which companies in developing countries, like India, can choose in order to discharge their social responsibility.

Key Words: ***Corporate social responsibility, Business environment, Stakeholders, Child labour***

INTRODUCTION

THERE is a growing trend among academicians and professionals to revisit the role of business in society. For many years, business entities were assumed to have only economic objectives with much of the business research and professional pursuits geared toward a single goal of maximizing the profits. However, with the expansion and globalisation of business activities, scholars as well as managers, have begun to carefully examine the impact of business on society and the environment. Events such as the 1992 Rio Earth Summit have pushed individuals and organisations to accept that economic growth has often resulted in negative social and environmental outcomes. Changing societal perspectives on the role of business has caused academicians and managers to re-examine the role business plays, and ought to play, in the modern society. This has prompted leading corporations to engage in efforts for increasing social well being and for enhancing environmental protection. Their efforts have differed in accordance with varying business and cultural contexts. In some cases, such efforts have taken the form of charitable monetary contribution, known as corporate philanthropy. A more proactive approach is to conduct business so as to balance economic efficiency with maximizing social and environmental protection. This concept is typically referred to as 'corporate social responsibility' (CSR).

THE CONCEPT OF CSR

Scholars have taken varying stances on conceptualising CSR. While some take CSR as an obligation, others consider it as a strategic tool. The following definitions communicate the core

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concept of CSR and the inherent message behind it:

- "an obligation to pursue those policies, to make those decisions, or to follow those lines of action that are desirable in terms of the objectives and values of our society".
  Bowen (1953)
- "a social contract between business and society that relates to the corporate impact on the welfare of society.
  Steiner (1972)
- "business decision and actions taken for reasons, at least partially, beyond the firm's direct economic or technical interest".
  Davis (1960)
- "CSR sets a minimum behavioural standard that aims at doing no harm to stakeholders and if it has happened then rectifies it as soon as it is identified".
  Campbell (2006)
- "a concept whereby companies integrate social and environment concerns in their business operations and in their interaction with their stakeholders on a voluntary basis, as they are increasingly aware that responsible behaviour leads to sustainable business success."
  Commission of the European Communities (2002)

In a pioneering effort, Carroll (1979) specified the responsibility domains of business and, thus, provided a concrete platform for scholarly studies on CSR. He maintained that social responsibility of business encompasses the economic, legal, ethical, and discretionary expectations that society has from organisations at a given point of time.

Despite divergent opinions on CSR, the three underpinning propositions commonly embraced by researchers and practitioners are economic efficiency, social development, and environmental well-being. Also, most scholars agree that CSR is going beyond mere compliance with legal regulations. This necessitates business organizations to understand and respond to issues that a given society is faced with. Accordingly, in a particular society, social issues, dominant social paradigm, and legal environment interplay together to shape general perception about CSR. Such interplay can be compared to the interaction of biological organisms in any eco-system. Since social issues and societal expectations from business are both context and time dependent, hence this interplay becomes both dynamic and evolving. This makes CSR a context-specific proposition. Accordingly, we propose the following definition of CSR:

> CSR is a unique, context-specific and wholesome business philosophy, translated into corporate strategy and fused with organsational culture, aiming at ethically-guided initiatives that sustainably protect and promote the interests of the ever changing components of a corporate eco-system.

In order to ascertain which components of such an eco-system an organisation should incorporate, this definition is similar to the stakeholder concept, in which, an organisation chooses the relevant set of stakeholders in its strategic decision making.

GENESIS AND EVOLUTION

The role of business in society has undergone several distinct changes through history. Most of the scholarly references of tracing the genesis and evolution of CSR revolve around the famous paper written by Eberstadt (1977). Studying the changes ranging from ancient to modern times, Eberstadt has suggested that the current form of the concept of corporate social responsibility is an attempt to restore a 2,000-year-old tradition of business being connected to the community. The medieval period witnessed a contrasting change from the older times when the nomadic trader replaced the local craftsman in fulfilling the merchandise needs of people. Society often held negative views of these traders and saw them as exploiters. The industrial revolution focused on profit maximization which was largely separated from social concerns.

Awareness of the impact of business on society and environment has grown along with the increasing socio-regulatory pressures. This evolution has gradually led business to return to the displaced social orientation. Many firms are assuming increased responsibility for both social and environmental well-being. After extensive study, the corporate response to environmental and social issues is progressing through three stages of evolution: profit maximization management, trusteeship management, and "quality of life" management (Hay and Gray, 1977).

The first stage reflects the belief that the individual's drive for maximum profits and the regulation of the competitive marketplace interact to create the largest aggregate wealth for a nation and results in the maximum public good.

The second stage which began between 1920s and 1930s reflected a shift from a mere profit motive to maintenance of an equitable balance among the competing claims of numerous stakeholders. An important reason for the shift is said to be the emergence of a pluralistic society such as in America and Europe that suggests no group in society should have unbalanced power over others. Major groups exerting pressure on business during this period were labour unions and national governments, but today these include minority, environmental, and consumer groups.

The third stage, "quality of life" management suggests that societies became saturated with goods and services as a result of economic success thus creating a scenario where societal concerns surfaced over issues such as inequitable distribution of wealth, air and water pollution, degraded landscapes, and a general disregard for consumers. This stage was marked by the changing sentiments in society regarding the inherent trade-offs between economic gains and declining social and physical environments. A new societal consensus evolved where business was expected to assume responsibilities beyond the realm of economic considerations.

THE RECENT INTEREST IN CSR

The debate about the role of business in society has intensified in the recent years.

Companies largely have two motivation for pursuing CSR. One is recognition of the changing business environment and growing importance of social, environmental, and economic sustainability. The other is recognition that CSR makes good business sense.

Changing Business Environment

Hoffman (1997) suggests that corporate behaviour, to a large extent, is shaped by the external environment and changing perceptions of contemporary society. The global socio-economic environment has undergone fast paced changes in recent years with corresponding changes in corporate response. The Rio Earth Summit of 1992, where major environmental problems facing the world were discussed, is a milestone in the development of a modern, global environmental agenda. Post-World Trade Organisation globalisation has increased the presence and reach of multinational companies. In an increasingly globalised world, as Waddock and Graves (2004) note, social activists have placed increased pressure on organisations regarding their social and environmental impacts. They further attribute this increased pressure and activist networking to advances in communication and technology and assert that nongovernmental organisations have used tactics like boycotts, vendettas, divestitures, letter-writing campaigns and social policy shareholder resolutions to influence corporate behaviour. Thus, global changes in social and economic paradigms compelled business to incorporate social and environmental issues into their strategies.

Corporate misconduct has also fuelled the growth of international concern over corporate behaviour. Especially noteworthy are the Santa Barbara (California) oil spill in 1969, Union Carbide tragedy of 1984 in Bhopal (India), Exxon

oil tanker grounding near Alaska in 1989 and recent Enron financial scandal in the US. These mishaps received international attention and heightened societal concern over corporate behaviour.

Apart from pressure groups and the media, multilateral organisations, like the World Bank, have increasingly recognised the potential role of corporations in providing for the common good. These organisations have helped bring corporate responsibility concept to prominence. Altman (1998) reviewed corporate responsibility models and made special note of what is called the World Bank model which comprise of social, economic and political development.

Smith (2003) noted the formation of an association of 120 companies from across the world, called the World Business Council for Sustainable Development (WBCSD), giving a boost to CSR. Other developments include the emerging dialogue on corporate responsibility at other multilateral platforms, like World Economic Forum and the increasing political commitment made by the United Kingdom government when it appointed a separate minister for CSR in its Department of Trade and Industry. The declaration by The United Nations of Millennium Development Goals (MDGs), and the creation of the UN Global Compact in 1999, have given impetus to private-public partnership, aiming at social well being through corporate responsibility. According to Luetkenhorst (2004), the present UN Global Compact membership stands at 1,000 companies, labour groups, academic institutions, civil society organisations, and certian core UN agencies, like the ILO (International Labour Organisation), UNEP (United Nations Environment program), UNHCHR (United Nations High Commissioner for Human Rights), UNIDO (United Nations Industrial Development Organisation) and the UNDP (United Nations Development programme). The attention given to CSR by such such international bodies has underlined its significance.

The above discussion suggests that over time business has been shaped by changing social feelings. At times, business has had more freedom to operate devoid of social and environmental concerns. In other instances, society restricted business freedom and tried to control its behaviour. Corporate social responsibility, as many scholars suggest, is the voluntary adoption of social and environmental issues and, hence, any legally- mandated requirement does not constitute a CSR component, as such. Much of today's CSR debate is focused on the standardisation of CSR activities and the development of uniform reporting systems.

Rationale of CSR

Companies have diverse motivations for adopting corporate responsibility practices. Such motivations can range from meeting basic lega requirements to consideration of CSR as a tool fo increased productivity and improved financia performance. Functional areas, such as risk management and market positioning, are expecte to improve with increased attention to CSR (Paine 2003). A number of potential instrumental benefit of CSR are listed in Table 1.

Companies at the leading edge c responsibility may act out of internally motivate ethical considerations rather than instrumenta factors. At the same time, companies havin concern for environment and exhibiting good CS practices, experience increased consume purchase preference and investment appe (Gildea, 1994; Zaman, *et al.*, 1996). It is ofte suggested that by adapting business practic and philosophies to socio-cultural norms ar societal values, companies can improve th likelihood of securing their legitimacy or licen to operate. This legitimacy aids company surviv and prosperity by reducing stakeholder confl and its associated costs while improving lon term sustainability and employee satisfacti (Bansal and Roth, 2000).

Similarly, many scholars have argued th adoption of CSR helps companies crea

Table 1

Benefits of CSR Practices to Business as Identified by Kotler and Lee (2005) and Azapagic (2003)

Kotler and Lee (2005)	*Azapagic (2003)*
• Decreased operating costs	• Enhanced corporate image
• Strengthened brand positioning	• Increased ability to attract, motivate, and retain employees
• Increased sales and market share	• Increased appeal to investors
• Lower health and safety costs	• Lower labour costs
• Easy access to lenders and insurers	• Best practice influence on legislation as model cases
• Cost savings and benefits of innovation	• Company reputation
• Market advantage	• Opportunity to attract ethical investors

competitive advantage. Porter and Kramer (2000) suggest that firms can only improve the context of their competitive advantage by investing in social and philanthropic activities. They view CSR as a strategic tool to help address the social problems that affect the company mission.

Governments have provided incentives and policies that boost adoption of CSR. In particular, increasing domestic and international regulations aimed at securing environmental protection, pollution control, gender and social equity, minimum wages, and safety and health benefits have been adopted and enforced.

A recent well-publicised business case for CSR practices, based on an analysis of the Indian market, suggests that there is a huge, untapped market at the bottom of the economic pyramid (commonly referred to as BOP). This market consists of the poor population mainly in the developing countries of the world (Prahalad, 2002). By catering to this market, companies can not only make profit through volume sales but also offer goods and services to the deprived segment of the population. Prahalad and Hammond (2002) suggest that areas like telecommunication and energy production can provide socially relevant market opportunities within this consumer segment. Whether such a vision consists of CSR or is simply finding a new market could be debatable but it certainly has the potential of bringing those people to the mainstream that have hitherto often been considered economic and social liability.

THE RESPONSIBILITY PYRAMID: CSR IN PRACTICE

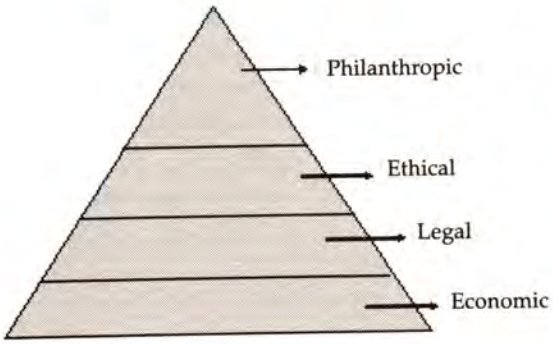
Carroll (1991) has identified four domains which cover the entire range that business might consider in order to be socially responsible. He refers to this range as total CSR, and classifies these responsibilities as economic, legal, ethical and philanthropic. These responsibilities are arranged in a hierarchical pyramid as shown in Figure 1. These responsibilities are discussed in more detail in the following section.

Economic Responsibilities

According to Carroll, business organisations were primarily created for the delivery of goods and services to society and were rewarded with profit. As times changed, this profit motive became a "maximum profit" motive that has continued till modern times. He argues that this is the bottom line responsibility that firms must pursue since all other responsibilities flow from the base of economic success. He proposes that it is important to be committed to being as profitable as possible and perform for maximizing earnings per share. He also asserts that a continually profitable firm will be the one that could be called successful and suggested a high level of operating efficiency to reach higher profits.

Figure 1

Four Responsibility Components as Suggested by Carroll (1991)



Legal Responsibilities

Furthermore, Carroll asserts that it is critical for firms to comply with various regulations as this legitimises their profit making. In his view, legal responsibilities reflect codified ethics in the sense that these codified ethics translate the basic notions of fair operations into legal stipulations. Carroll's pyramid places legal responsibilities second from the bottom, as in his own words, "...to portray their historical development, but they are appropriately seen as coexisting with economic responsibilities as fundamental precepts of the free enterprise system (Carroll 1991)."

Ethical Responsibilities

According to Carroll, this set of responsibilities consists of activities that society expects companies to either embrace or avoid but are not mandated by law. Keeping the lingual symmetry, these could be called "un-codified ethics." Carroll proposes that such expectations form the basis for future legislation. He furthers his argument by suggesting that organisational ethics could be determined through the ethical principles of justice, rights and utilitarianism. This could provide a more proactive ethical orientation that firms could pursue in addition to meeting societal expectations.

Philanthropic Responsibilities

Carroll differentiates between ethical and philanthropic responsibilities in that the latter are desired by communities but not required ethically. He asserts that such activities are voluntary in nature and society does not consider a firm unethical if it does not perform such activities, so philanthropic activities are the least important of the responsibilities. Philanthropic activities could include monetary and human resource allocation for social activities to enhance communities and their inhabitants.

The four components of responsibilities shown in Figure 1 provide a conceptual view of CSR for academic scholars and managers alike. Carroll explicitly mentioned that this distinction is for the sake of separate discussion only and any firm embracing CSR must simultaneously consider all these responsibilities. It should be noted that the underlying premise is an expectation regarding the level of performance by those who are affected or affect the particular category. The economic responsibility component will be determined by shareholder expectations regarding profits. Legal responsibilities, beyond the level of threat to survival, will be determined by the expectations that various law-enforcing agencies have regarding fairness in the process of adherence to law. Ethical responsibilities, beyond the level of gaining social licence to operate, will be determined by the expectations that diverse entities have from business regarding ethical operations. Philanthropic activities will be determined by the expectations of both the communities as well as of the managers regarding the utility and desirability of such activities. Therefore, it is evident that CSR, as a social or business proposition, emanates from the expectations that these diverse stakeholders have for business.

As emphasised previously, CSR is a context driven proposition and therefore different domains of responsibilities discussed above are likely to undergo corresponding changes in differing economic and social contexts. For

example, in developing countries economic responsibilities might supersede ethical responsibilities. Similarly, what is ethical might vary from one cultural context to another. The implementation of legally mandated behavior in itself might well be an ethical issue than purely legal as is the case in the Western world.

ISSUES INVOLVED

Major issues that companies need to consider before implementing CSR are summarised in Table 2. These research findings provide useful lessons for companies to some of the potential challenges in CSR implementation.

CSR LANDSCAPE IN INDIA

The main thesis of this paper suggests that CSR is a context-driven proposition. Despite the increased interest in social responsibility issues, dominant social paradigm, and the stage of economic development in India is largely following the doctrine of business responsibility proposed by Milton Friedman (1970) when he asserted that the social responsibility of business is to increase profits. However, we see Friedman as espousing the business case for corporate responsibility. He suggested that in the long run to serve its self-interest, a business should devote resources for providing amenities to community..." in order to generate goodwill and thereby increase profits. The doctrine seems to have been adopted half-heartedly in many developing countries, including India, with only the business paradigm viewed and not the social responsibility part.

Table 2
Major Issues facing CSR Implementation

Communication of CSR activate by companies should be done in such a way so that consumers can distinguish these initiatives from marketting/promotion efforts (Bhattacharya and Sen, 2004).
Line managers need clear elaboration of CR benefits to the company as well as a definition of their individual role in implementing CSR (Cramere, *et al.*, 2004.)
Financial benefits resulting from socially responsible business practices may be realized after a lengthy gestation period (Azapagic, 2003).
Alignment of CSR communicaitons with stakeholder concerns is essential to fully capture the reputation benefits of CSR (Dawkins, 2004).

The general regulatory framework in the areas of social and environmental protection in India is impressive and in consonance with global norms. However, implementation and compliance of the legally or morally mandated business behaviour can create some problems. Based on limited observations, Panwar and Hansen (2006) suggest that safety practices in many of India's forest products industries need further development. This may be an issue of insufficient implementation of regulation. However, whatever the reason, employees would benefit from improved working conditions. Taxable income conceit is another area of social and economic concern. Mehta (2005) notes that the tax compliance rate in India has increased slightly for the lowest and highest tax categories in recent years, whereas it has declined for middle income categories. Similarly, Social Watch Report (2004) suggests that Indian citizens have at least US $ 785 million in fiduciary bank accounts in Switzerland, most probably without paying taxes in India. This is one important area where Indian corporations can take a more proactive ethical stance and contribute to a fiscal system that caters to the basic needs of India's huge population. Also, in the longer term, such practices would help in creating a healthy business climate in the global economy.

In India, much of socially-oriented business research focuses on child labour. However, in the light of the definition that is proposed, a contextual CSR portfolio may answer some of the potential dilemmas emerging as a result of eliminating child labour. Elimination of child labour from relatively safe work may not always be desirable as it could lead to worse conditions for those individuals. Siddiqui and Patrinos (1995) state that child labour is very often the result of poverty prevailing in the household and working children provide substantial financial

support to their families. However, like many other countries, India does not differentiate between light work and dangerous work. Ideally, corporations should religiously follow the child labour provisions prevailing in India. Another potential way to address the issue could be to provide educational opportunities for the working children and flexibility of working hours. This illustrates the contextual-driven nature of "good" CSR practices.

Many business students as well as groups of conservative economists see CSR as a threat and a tool for creating disadvantage for countries like India in the global marketplace. They see any proposed CSR certification as a potential means to eliminate the export potential of developing countries. However, as we suggest through the eco-systemic definition of CSR, Indian companies must address issues in a more proactive manner by realising the importance of business for social and environmental well-being. One way to embrace CSR and not to be threatened by potential West-imposed CSR standards could be to develop industry specific Indian CSR standards based on local, social, and environmental needs. Alternatively, individual business houses can develop their own sets of ethical principles with honest compliance and reporting. An important CSR dimension for Indian corporations could be to broaden the set of stakeholders and associated issues in their decision making. In the wake of India's increasing role in the global economy, voices from groups such as global environmental non-government organisations, quality concerns of outsourcing companies in the Western world and issues concerning social and income inequality could be incorporated in corporate decisions. Including CSR in professional curriculum could be an effective tool to produce future professionals and thinkers that might imbibe the concept in its holistic form during their professional tenure. This can also be bolstered by corporations developing codes of conduct and providing CSR education to their working executives.

The major issues which a company in India might include in its code of conduct (or citizens' charter) are listed below:

- Fair wages for employees and accurate reporting thereof in the books of accounts;
- No mention of caste or religion in the employment records, even though the job was offered as special reservation for under-represented groups;
- Privacy of personal records of employees;
- Promoting regional, national, age- based, racial and gender diversity;
- Protecting special interests, e.g., maternity leaves for female employees, and education for low-paid employees and their children;
- Easy accessibility to all parts of organisation for disabled people;
- Respect for individual employees regardless of their job position;
- Holistic participatory decision making involving all employees;
- Continuing education for employees at all levels;
- Realistic company/organisation brochures and product promotion;
- Fair reporting of company revenue and expenditure,
- Improved pollution control mechanisms; and
- Creating recycling facilities and promoting proper waste management system.

This list is by no means comprehensive and, as Panwar, *et al.* (2006) suggest, individual companies based on their resources as well as the context in which they operate, could develop their own set of guidelines to improve social and environmental conditions. SA 8000 standards are more commonly used in developing economies like China and India. ISO is also currently working on developing CSR standards and their fusion with existing ISO standards related with process and environment can be a ready-to-use tool for companies in India.

CONCLUSION

CSR is gaining prominence in business research and practices. However, its multi-dimensional nature makes it highly difficult for a company to develop a well-balanced CSR portfolio. Given the economic, social and environmental issues facing a country, region or community, companies must consider how best they can balance these three areas and improve the lives of people in and outside the organisation while simultaneously harnessing the potential business benefits.

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Marketing is merely a civilised form of warfare in which most battles are won with words, ideas, and disciplined thinking.

Albert W. Emery

Vision without action is a daydream; action without vision is a nightmare.

Japanese Proverb

PERFORMANCE APPRAISAL SYSTEMS IN CORPORATE SECTOR

An Evaluation

B.K. Punia* and Anju Dahiya**

Abstract

Performance appraisal of employees is an important factor in the corporate sector as it has widespread organizational implications. In keeping with environment changes, many organizations have replaced traditional performance appraisal system with the 360-degree appraisal system. They rate the new system as being superior in terms of effective communication, leadership development, and team building. The present study seeks to evaluate the merits and limitations of the traditional appraisal system as compared to the new 360-degree appraisal system as seen through employees' perspective.

Key Words: ***Performance appraisal, Traditional appraisal system, 360-degree appraisal, Feedback system***

INTRODUCTION

PERFORMANCE appraisal helps employers decide which employees to retain during layoffs, assess the quality of training programmes, measure equitable treatment of different groups of employees, hike salaries, and to promote or terminate the employees. Appraisal outcomes help poor performers through upon their performance by giving specific feedback and encourage good employees to continue to excel through positive reinforcement. Therefore, an organisation should adopt the right type of appraisal system which helps improve the performance of its employees and leads it towards managerial efficacy. In a sense, effective performance appraisal systems not only help measure and improve productivity, they also provide a solid platform to the organisation for managing change and gaining competitive advantage.

Though appraisals are undertaken periodically, the job of performance appraisal is continuous—sometimes daily—and requires effective communication on both the part of the supervisor and the employee. The supervisor is ultimately responsible to ensure that these conversations actually take place and are also documented. It is essential that the supervisor

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holds all performance discussions and documentation in complete confidence. However, as the definition of work place is now changing with relying on electronic means of communication, flexible work schedules, telecommuting, remote workers, and non-territorial or "hoteling" work spaces, the corporate employees usually find little opportunity for face-to-face interaction with members of their primary work group and immediate supervisors. Within this changing context the employees' performance appraisal system is also undergoing a sea change.

In the traditional system of performance appraisal, the organisation used to assess and rate the employees' performance through Annual Confidential Reports (ACRs). This system is still prevalent but largely confined to public sector organisations. The majority industrial organisations nowadays have adopted a system of employee appraisal wherein they involve more people and are not confining themselves to the viewpoint of the immediate superior only. This system is slightly superior to the traditional system as more than one person is involved in assessing the employee is performance. In other organisations, the system of 360-degree appraisal and feedback system is also being implemented but the numbers of such organisations are too few. In such a situation, it becomes imperative to assess the employees' opinion on the contribution of traditional and 360-degree appraisal and feedback system in attaining managerial effectiveness and the present paper is an attempt in the direction.

RELATED STUDIES

Performance appraisal constitutes an inseparable part of efficient human resource management system within a given organisation. It represents a fundamental tool to enhance employee motivation, bring about job satisfaction, and to stimulate quality work. Moreover, it serves as an instrument to link other human resource management (HR) activities, such as compensation, training and development, as well as career management making it the backbone for management practices within an organisation. Numerous management gurus have given their viewpoint on the diverse approaches of employee performance appraisal that can be segmented into three broad categories, i.e., trait orientated appraisals (for example trait scales), behaviour oriented appraisal (for example, critical incidents) and outcome, or results oriented appraisals (for example management by objectives). Kreitner (1986) opined that the trait-oriented appraisal approach has the dubious distinction of being the most widely used and one of the weakest approaches. Personality traits are not by themselves measures of behaviour or performance as they are unstable within individuals. They tend to be unfair and do not stand up well in court. Performance appraisal systems that focus on specific job-related behaviour are strongly recommended by experts in the field. Their rationale is that behaviour rather than personality traits or abilities are responsible for the job success or failure (Maund, 2001 and Kreitner, 1986). The outcome/results oriented appraisal approach focuses on what has been achieved against measurable and participatively set goals (Lewis, *et al., 2001;* McKenna, *et al.*, 2002).

Management by objectives (MBO), as propounded by Peter F. Drucker, was used as a technique for performance appraisal in the 1970's. This approach stressed the link between individual and departmental objectives and gave credence to performance appraisal being a two-way process rather than top down. However, Maund (2001) propounded that self-appraisal should be introduced to get away from the top down 'sterile and biased' approach. Through this method, the appraisees state how they feel, appraise the value of training received, the effects of amendments to their jobs, perceive key objectives of the job, view future aspirations and training and development they required to meet those aspirations (McKenna, *et al.*, 2002; Maund, 2001). Keeping in view the merits and limitations

of different appraisal techniques, some organisations started using 360-degree appraisal system and feedback system. Maund (2001) lists this technique as the most exciting development in the field of performance management. Organisations are using 360-degree appraisals by gathering, usually through a questionnaire, views of peers, the appraisee's manager, and sometimes the internal customers. Swanepoel (2003) feels that this approach fits more comfortably into the latest trends in leadership strategies such as empowerment, self-responsibility and team work.

In fact, the days of traditional supervisor-subordinate performance evaluations are diminishing and quite a few companies are looking at 360-degree appraisals which pool feedback from both internal and external customers to receive a broader, more accurate perspective on employees. How does a supervisor evaluate an employee whom he or she sees only a few hours each week? Traditional performance appraisals at their worst can be subjective, simplistic and political. Yet the need for accurate, fair performance measurement has increased exponentially as most organisations face increasingly flatter structures, greater internal changes, and more external competitive pressures. The 360-degree appraisal and feedback system significantly differs from the traditional supervisor-subordinate performance evaluation. Rather than having a single person play judge, a 360-degree appraisal acts more like a jury.

For every organisation, it is important to maximise the contribution that the labour force makes to its objectives. Performance appraisal is designed to play a major part in here. Thus, identification of an 'ideal' performance evaluation system depends on methods which the organisation chooses, enabling the objectives of the system to be defined. This means it is not possible to define one 'best' performance evaluation system. As viewed by Baron and Kreps (1999), no system of performance evaluation works perfectly; however it is possible to look at the different objectives and see if an 'ideal' performance evaluation system can meet these perfectly. Due to involvement of human issues there may occur distortion in the form of 'halo' effect (over-estimation), the 'horn' effect (under-estimation) or the 'Veblen' effect (rating everyone average), that are likely to creep in and play a part, mostly subconsciously, when we judge others (Marchington and Wilkinson, 2002). Such problems can never be completely removed from a performance evaluation system, although they can be allowed for and minimised.

Therefore, the 360-degree appraisal system with feedback on an employee's performance from all angles: above, below, sideways and even outside of the organisation, recognises the complexity of management and the value of input from various sources in order to give more open and reliable feedback and identify broader development areas and also raise self-awareness (Baron and Kreps, 1999) However within this system too, Makin, Cooper and Cox (1996) have identified three specific problems in addition to the other normal problems of employee appraisal:

1. *The training gap.* In a 360-degree system, many people are required to do some assessing, but for this assessment to be constructive and developmental-oriented, a great deal of training is required; training that most of these people are not going to have. Filling the training gap can give them these skills which will benefit them in other ways too.
2. *The objectives' gap.* In most appraisal systems, the organisation states that the primary aim is to develop the staff, but the first thing that the staff realises is the importance of a rating scale somewhere along the line—something that is irrelevant for future development. As argued above, an ideal appraisal system needs to be individually tailored, but this would mean the system would be less transparent and more variable between employees, increasing the objectives gap for each individual will have different objectives, yet the organisation surely has the same objectives!

3. *The culture gap.* Every organisation has a culture, whether it is of mild competition in a sales environment, hard-working in a charitable environment or laid back in a warehouse environment and an appraisal system will have wide ranging effects on employees' attitudes, behaviour and beliefs about the organisation. The system must fit the organisation culture and not encourage undesirable traits, such as suspicion.

The 360-degree feedback system is considerably used in the UK—40 per cent of FTSE companies use it and in the US 75 per cent of Fortune 500 companies use it (Redman and Wilkinson, 2001). Armstrong (1999) says provided there is "careful design, communication, training and follow-up" most of the general, and 360-degree-specific, problems mentioned above can be overcome to an extent that justifies its use and is better than other systems, hence its popularity. Wimer (2002) cautions: "Feedback providers should be selected carefully to represent those who know the person best. To ensure appropriate responses, it's best to provide instruction on how to give behavioural feedback that's balanced and constructive". However meeting these conditions is not an easy task, and, despite many consultancies' promises, it is likely that smaller companies might not have the resources to design and manage such system.

In India, the 360-degree feedback and appraisal system is as such as relatively new concept and has gained in popularity in the last 7-8 years. Though it was started in the mid-eighties at the Indian Institute of Management, Ahmedabad by T V Rao and his team as Top Management Styles and Organisational Effectiveness, it was not branded as 360-degree appraisal (Rao and Rao, 2003). Rao (2004) says in India, we made one significant mistake and stuck to it for the last 30 years by calling system, a performance appraisal system and not a performance management system. To ensure effective practice of the system, Singh (2003) has pointed out that the process of 360-degree appraisal can be broken into three stages or levels, viz., planning, implementation and result stage. At each of these stages, various factors involved in 360-degree feedback process can be identified alongwith their role and contribution. It is argued that successful management of all these factors can contribute to the ffective use of this process. Therefore, to have a focused approach, minimise the biases, make employee appraisal more effective and achieve overall managerial efficacy, it becomes imperative to study the views of corporate personnel on the different modes of appraisal vis-à-vis their managerial implications, and the present study is an endeavor in the direction.

OBJECTIVES OF THE STUDY

Performance appraisal in any organisation has a critical role in attaining managerial effectiveness and competitive advantage. A composite phenomenon, it is based on many factors, i.e., employee motivation, communication, leadership and team building trends, objective setting and problem solving practices and lastly management of change. Therefore, the primary objective of the study has been to elicit employees' comparative opinion on performance appraisal systems being implemented in the Indian corporate sector. The incidental objectives contributing to the primary objective will be as under:

- To analyse the views of respondents' on different components of the total performance appraisal system.
- To study the relative significance of both traditional appraisal system and the 360 degree feed back and appraisal system.

METHODOLOGY

Data in the form of a well-structured questionnaire was collected from one hundred respondents working in different industrial organisations of North India. The questionnaire included forty statements and a brief profile of the respondent. The statements were directly or

indirectly related to the five key components of the performance appraisal system. These have been identified as 'role of performance appraisal system in objective-setting and problem-solving', 'leadership and team-building through performance appraisal', 'performance appraisal as a tool of employee motivation', 'communication efficacy through performance appraisal', and 'performance appraisal as change management technique'. The respondents were asked to mark their preferences on a five-point scale for both types of appraisal systems and the scale ranged from 'true to very little extent' to 'true to a very great extent'. The data so gathered has been analysed by applying statistical tools like frequency and mean score and then based upon the composite responses total score of the specific component were converted into grand mean score to attain a comprehensive overview of the specific component. Paired samples test has been applied to ascertain the significance by comparing the t-value.

MAJOR FINDINGS

Today's corporate world demands sustainability in strategic growth, retaining and expanding market share, attracting, nurturing, developing and retaining talent for delivering high quality performance to all the stakeholders. To retain a competitive edge, organsiations need to improve their sub-systems and boost performance of their people contributing to the different sub-systems. Different organisations view performance appraisals differently. Some take it as a mere system of employees' contribution, whereas others consider it as a potential assessment tool, a tool of organisation support system, a tool of HR motivation and development and also a strategic tool of change management. In the present study, the systems' comparative contribution on five different parameters, i.e., the role of system in objective setting and problem solving, leadership and team-building, employee motivation, communication efficacy, and change management has been analysed and discussed under separate heads, mentioned below.

Role of Performance Appraisal in Objective-Setting and Problem-Solving

The success of an organisation lies in its ability to attain its objectives and find solutions to problems, setting realistic objective calls for correct assessment of employees' potential and their roles in different departments. While the assessment of employees' potential may not always be accurate, it is easier for organisations to assess their involvement. The greater the employees' involvement, the better the chances for organisations to attain their objectives.

Table 1 summarises the results of the 360-degree appraisal system as compared to the traditional appraisal system.

The table shows that the overall role of 360-degree appraisal and feedback system in objective setting and problem solving is more as compared to the traditional system of employee appraisal. Translation of business vision into clear direction of the appraisal system with specific priorities, has been found much ahead in the case of 360-degree appraisal and feedback system as compared to the traditional system. The gap in the mean score has been depicted least in the dimension 'indicating and conveying the priorities areas with right sense of urgency and importance to fulfill goals of the appraisal system'. Hence it appears that the 360-degree appraisal and feedback system is preferred by employees for their role and contribution in objective-setting and problem solving and the outcome of *t*-test also statistically verifies this significance of difference (Table 6). This goes in line with the findings of (Morical, 1999 and Tornow, 1998). The researchers feel that 360-degree system enhances performance, provides accurate feedback, and also provides direction for individualised developmental planning and promotes charity in performance expectations.

Leadership and Team- Building through Performance Appraisal

Most people define leadership as the process of influencing others but from the performance

Table 1

Role of Performance Appraisal in Objective-Setting and Problem-Solving

Response Variables	*360-Degree Appraisal System*						*Traditional Appraisal System*					
	VLE	*LE*	*AE*	*GE*	*VGE*	*MS*	*VLE*	*LE*	*AE*	*GE*	*VGE*	*MS*
'Makes every effort to set team or group goals along with individual goals for appraisal system.'	0	9	41	39	11	3.52	3	18	44	35	0	3.11
'Facilitates problem solving activities and team discussions that are related with appraisal system.'	0	23	34	35	8	3.28	3	29	46	20	2	2.89
'Explains performance expectations and goals to be achieved by subordinates at the very beginning.'	1	21	33	36	9	3.31	3	21	48	27	1	3.02
'Encourages the organisation to emphasise on goal commitment & persistence in achieving the same.'	1	19	42	32	6	3.23	1	20	47	28	4	3.14
'Conveys priorities area with right sense of urgency & importance to fulfill goals of appraisal system.'	3	12	44	35	6	3.29	2	24	44	24	6	3.08
'Top management listens to others witholding judgment & comes across as open to all viewpoints.'	3	18	32	42	5	3.28	4	24	41	27	4	3.03
'Always encourage employees to take initiative in tasks or projects, having organisational importance.'	3	10	37	40	10	3.44	1	23	42	25	9	3.18
'Translates business vision into clear direction of the appraisal system with specific priorities.'	0	9	32	45	14	3.64	5	17	44	29	5	3.12
'Explains the reasons for decisions and actions taken with their relevance to appraisal system.'	3	15	35	34	13	3.39	5	15	50	26	4	3.09

Note : VLE=True to a very little extent; LE=True to a little extent; AE=True to an average extent; GE=True to a great extent; VGE=True to a very great extent; MS=Mean Score

appraisal point of view, the first step is to discover the self before thinking of leading others. Hence, every one has the potential to be a leader. Leadership is actually all about creating a better and stronger self. If one takes it to the extent of excelling then the goal will be to do the best in any task. Here an appraisal system has a definite role to play as it helps employees to improve constantly. Table 2 depicts the contribution of appraisal system (360-degree/traditional) in development of leadership and team-building.

It is apparent that 360-degree appraisal and feedback system has emerged as a stronger means of leadership development and team-building in contrast to traditional appraisal system. The results show that the 360-degree appraisal and feedback system breeds effective leadership talent and managerial skills amongst the employees and encourages employees to share ideas and suggestions to develop team cohesiveness (mean score on both these dimensions have been found to be 3.75 and 3.52, respectively). In contrast, the respondents have viewed that the traditional system does not recognise much and celebrates teams' accomplishments, contributions and success with all team members as the mean score has been found to be only 2.92. These findings have also been substantiated by the outcome of t-test with significant difference in means. Stevenson (2002) contends that the key to leadership development lies in individuals developing effective cognitive models for managing complex behavioural

Table 2

Leadership and Team-Building through Performance Appraisal

Response Variables	*360-Degree Appraisal System*						*Traditional Appraisal System*					
	VLE	*LE*	*AE*	*GE*	*VGE*	*MS*	*VLE*	*LE*	*AE*	*GE*	*VGE*	*MS*
'Encourages the employees to feel and act like business leaders.'	0	17	44	25	14	3.36	2	28	43	24	3	2.98
'Holds team members accountable to the commitments made regarding the system.'	0	10	37	46	7	3.50	4	22	45	26	3	3.02
'Provide coaching to others and prepare them for achieving current and future business demands.	0	17	33	38	12	3.45	1	17	49	32	1	3.15
'Encourages employees to share ideas and suggestions to develop team cohesiveness.'	0	8	40	44	8	3.52	3	22	47	23	5	3.05
'Enhances the team's effectiveness by emphasising co-operation, team spirit, and respect from others.'	0	9	45	40	6	3.43	5	19	48	25	3	3.02
'Breeds effective leadership talent and managerial skills among the employees.'	0	3	37	42	18	3.75	2	18	43	28	9	3.24
'Recognises & celebrates teams' accomplishments, contributions and success with all team members.'	2	14	48	31	5	3.23	6	26	39	28	1	2.92

Note: VLE=True to a very little extent; LE=True to a little extent; AE=True to an average extent; GE=True to a great extent; VGE=True to a very great extent; MS=Mean Score

decisions involved in the process of leadership. The present findings are in tune with those of Atkins & Wood (2002) who contend that 360-degree feedback offers a more comprehensive assessment of a leader's behaviour through a greater number of perspectives provided than self-assessment. This is why 360-degree feedback is preferred to self-assessment as self–assessment provides only one perspective, and this may be exaggerated positively or negatively and thus, is not as valid as raters' perceptions. In sum, respondents have acknowledged that the 360 degree appraisal and feedback system is more superior to the traditional system or other systems of employee appraisal in leadership development and team-building.

Performance Appraisal as a Tool of Employee Motivation

Work motivation is a psychological concept that is primarily concerned with the strength and direction of people's work-related behaviour. Though most employees are motivated to some extent, often they simply direct their energies in achieving aims which are not in consonance with organisational objectives. This typical situation normally arises when benchmarks against which performance is to be evaluated are ambiguous. In such cases, employee appraisal can act as a mechanism of employee motivation. The results of this particular aspect are analysed and presented in Table 3, which elucidates that on every dimension of the parameter, employees prefer the 360-degree appraisal and feedback system in contrast to the traditional system. Respondents have rated the 360-degree appraisal system to be a tool of infusing self motivation; a system that helps in recognising good performers for future purposes. Employees have stated that the traditional system of performance appraisal does not encourage employees to question those procedures of working which they may not understand which otherwise is the strength of the

Table 3

Performance Appraisal as a Tool of Employee Motivation

Response Variables	*360-Degree Appraisal System*						*Traditional Appraisal System*					
	VLE	LE	AE	GE	VGE	MS	VLE	LE	AE	GE	VGE	MS
'Encourages collaborations of fellow employees to achieve the required results of feedback system.'	2	10	46	34	8	3.36	3	20	51	24	2	3.02
'Encourages others to question those procedures of working which they may not understand.'	2	13	36	39	10	3.42	9	23	45	23	0	2.82
'The appraisal system recognises good performer instead of those having a performance problem.'	2	17	30	45	6	3.36	3	25	38	27	7	3.10
'The system rewards the employees for innovations and calculated risk taking behaviour.'	3	15	37	41	4	3.28	4	21	48	24	3	3.01
'Encourages amongst the employees a feeling of self-motivation instead of being driven by others.'	0	17	33	33	17	3.50	5	14	51	20	10	3.16
'Utilises recognitions, non-monitory rewards and incentives to reward excellent performances.'	1	12	47	31	9	3.35	3	21	47	24	5	3.07
'Encourages the organisations to conduct regular meetings to increase trust and mutual respect.'	2	12	41	37	8	3.37	2	23	40	31	4	3.12

Note: VLE=True to a very little extent; LE=True to a little extent; AE=True to an average extent; GE=True to a great extent; VGE=True to a very great extent; MS=Mean Score

Table 4

Communication Efficacy through Performance Appraisal

Response Variables	*360-Degree Appraisal System*						*Traditional Appraisal System*					
	VLE	*LE*	*AE*	*GE*	*VGE*	*MS*	*VLE*	*LE*	*AE*	*GE*	*VGE*	*MS*
'The system values upward feed-back from subordinates & peers and solicits it actively.'	2	18	33	43	4	3.29	18	26	41	15	0	2.53
'Offers direct, constructive and actionable feedback which helps in improving employees' performance.'	0	5	49	39	7	3.48	3	24	41	28	4	3.06
'Delivers all the points related with appraisal system with full energy, enthusiasm and in convincing way.'	2	18	39	37	4	3.23	0	29	39	26	6	3.09
'Communicates very effectively and regularly the issues that are critical to the appraisal system.'	0	9	34	44	13	3.61	4	22	42	25	7	3.09
'Communication in the system is so open that the employees understand each other's position or idea.'	3	10	29	47	11	3.53	2	24	47	20	7	3.06
'Uses appropriate and persuasive techniques while interacting with people of varying backgrounds and resistance levels.'	1	15	42	30	12	3.37	2	24	45	23	6	3.07
'Usually offers honest criticism and suggestions for the performance improvements in others.'	2	16	40	35	7	3.29	3	24	40	26	7	3.10

Note: VLE=True to a very little extent; LE=True to a little extent; AE=True to an average extent; GE=True to a great extent; VGE=True to a very great extent; MS=Mean Score

360-degree appraisal and feedback system. The application of t-test (Table 7) has also testified the significance of the means. Further, the findings are also in consonance with those that appeared in *The Source* (2006). It mentioned that 360-degree feedback provides answers to the vital self-management and motivation question, "How am I doing?" As employees rise in the hierarchy, they receive less and less honest information about themselves, so 360-degree assessments can provide them with the information they need to take corrective action.

Communication Efficacy through Performance Appraisal

Effective communication is the backbone of every successful organisation. No system or organisation can think of its survival in the absence of effective communication and the same holds true for a performance appraisal system. To what extent the system of employee appraisal is transparent defines its efficacy and possible success. Employees were asked to express their opinion on the communication efficacy, of the traditional and 360-degree performance appraisal systems and the results are summarised in the Table 4. It can be visualised from the table that the 360-degree appraisal system is much ahead of the traditional system with regard to the statement that it communicates very effectively and regularly the issues that are critical to the appraisal system. Similarly, the communication in the system is so open that the employees understand each other's position or idea. On all the statements of communication efficacy the respondents have strongly favoured the 360-degree appraisal system in contrast to the traditional system of performance appraisal as the mean score of all the statements has been found to be much higher. In sum, the 360-degree appraisal and feedback system has better communication efficacy as compared to the traditional system of performance appraisal and the same is tested as significant as per the Table 7. Similar views have been expressed by Ward (2005) who maintains that the application of 360-degree feedback is an exercise in open management wherein one has communication upwards and across the organisation whereas before it may have only been downwards.

Performance Appraisal as Change Management Technique

Today's business environment is changing so rapidly that it leaves everyone breathless. Just like conflicts and stress, change is inevitable in the life of an organisation. It heralds new opportunities and poses formidable challenges. Organisations that learn to cope will thrive while those which fail to do so will be wiped out. Hence, change is the only thing permanent in nature. Talking about on the significance of change, Machiavelli has viewed that 'there is nothing neither more difficult of success, nor more dangerous to handle than to initiate a new order of things'. The truth of this is forcibly brought home to the manager attempting to put into effect any change. Change is a necessary way of life for any individual, system or the organisation. If any system does not change when forces of change require it to, its survival will be in danger. In the dynamics of change, the performance appraisal system must also act as a change master. Which of the two appraisal systems is more change friendly has been illustrated in Table 5. The views of respondents present a mixed picture as feel both systems after comparable change management techniques. However, the 360-degree appraisal system gets a better rating for being more change friendly. In spite of the marginal difference in mean scores, the overall preference of the respondents goes in favour of 360-degree appraisal system as an instrument of change absorption, yet the difference has not been found statistically significant as given away in the Table 7. However, Ward (2005) has stated that organisations introducing 360-degree feedback often find that it has a morale-boosting effect. The feedback contains a mixture of strengths and areas for development. Obviously the former can be motivating per se, but for those people who try to change their behaviour and succeed there

Table 5

Performance Appraisal as Change Management Technique

Response Variables	360-Degree Appraisal System						Traditional Appraisal System					
	VLE	LE	AE	GE	VGE	MS	VLE	LE	AE	GE	VGE	MS
'The appraisal system acts as a change master in the events of major organisational changes.'	0	17	36	35	12	3.42	0	21	54	21	4	3.08
'The system develops the plans and follow-through actions on change initiatives in appraisal system.'	1	18	38	40	3	3.26	2	29	42	20	7	3.01
'Encourages the structures and the processes to plan and manage the orderly implementation of changes.'	1	18	42	27	12	3.31	0	19	45	30	6	3.23
'Encourages others to absorb the changes if any change in the organisational appraisal system.'	3	21	36	37	3	3.16	4	16	47	30	3	3.12
'Encourages and accepts the new changes that can play a significant role in the appraisal system.'	1	19	44	28	8	3.23	1	14	53	29	3	3.19
'Appraisal system helps employees to develop a clear understanding of what they will need.'	1	17	38	39	5	3.30	0	16	39	39	6	3.35
'The system mainly emphasises on positive thinking (win-win solution).'	3	18	42	31	6	3.19	3	14	46	31	6	3.23
'The appraisal system leaves positive impact on the employees affected by the system.'	0	16	41	36	7	3.34	2	15	50	29	4	3.18
'Encourage organisational readiness to analyse the issues having impact on other areas of business.'	2	12	49	32	5	3.26	2	14	53	24	7	3.20
'Appraisal system is open to new ideas that may change on goals for benefits of the team.'	1	11	51	31	6	3.30	3	21	45	26	5	3.09

Note: VLE=True to a very little extent; LE=True to a little extent; AE=True to an average extent; GE=True to a great extent; VGE=True to a very great extent; MS=Mean Score

is an even greater improvement in morale. Finally, 360-degree feedback changes employees' attitude to performance, what gets measured gets done and thus this technique is rated as a better change master.

CONCLUSION

With the entry of an individual in an organisation, employer starts expecting good performance from the employer. The employer also suggests continuous value addition in the employee. A system of continuous evaluation and monitoring can act as a catalyst in matching the mutual expectations. With the changes in working conditions, the methods of employee appraisal are also changing. In the traditional appraisal system, employee's performance appraisal was the sole prerogative of the seniors. Now a days progressive organisations have started using 360-degree appraisal and feedback system which is also known as the multi-rater appraisal system. In this system, the employee's performance is assessed by colleagues, sub-ordinates, customers in addition to the rating of the senior. The present study supports. 360-degree appraisal and feedback system. It has been favoured on four grounds namely, role of performance appraisal in objective-setting and problem-solving; leadership and team-building through performance appraisal; performance appraisal as a tool of employee motivation; and

Table 6

Overall Comparison

Overall Response Variables	*360-Degree Appraisal System*						*Traditional Appraisal System*					
Implication Dimension	*VLE*	*LE*	*AE*	*GE*	*VGE*	*MS*	*VLE*	*LE*	*AE*	*GE*	*VGE*	*MS*
Role of performance appraisal in objective setting & problem solving	1.55	15.12	36.66	37.56	9.11	3.37	3.00	21.23	45.11	26.78	3.88	3.07
Leadership and team-building through performance appraisal	0.29	11.14	40.57	38.00	10.00	3.46	3.29	21.71	44.86	26.57	3.57	3.05
Performance appraisal as a tool of employee motivation	1.71	13.71	38.58	37.15	8.85	3.37	4.14	21	45.72	24.72	4.42	3.04
Communication efficacy through performance appraisal	1.42	13	38	39.29	8.29	3.40	4.57	24.71	42.15	23.29	5.28	3.00
Performance appraisal as change management technique	1.30	16.70	41.70	33.60	6.70	3.27	1.70	17.9	47.40	27.90	5.10	3.16

Note: VLE=True to a very little extent; LE=True to a little extent; AE=True to an average extent; GE=True to a great extent; VGE=True to a very great extent; MS=Mean Score

Table 7

Paired Samples Test

Dimensions of difference between the traditional performance appraisal system and 360 degree performance appraisal and feedback system	*Paired Differences*		*t-value*	*Significance (2-tailed)*
	Mean	*Std. Error Mean*		
Role of performance appraisal in objective-setting and problem-solving	.2780	5.919E-02	4.696	.009
Leadership and team-building through performance appraisal	.4080	3.277E-02	12.450	.000
Performance appraisal as a tool of employee motivation	.3620	6.184E-02	5.854	.004
Communication efficacy through performance appraisal	.4620	9.942E-02	4.647	.010
Performance appraisal as change management technique	.1500	6.132E-02	2.446	.071
Overall comparison	.3100	5.413E-02	5.727	.005

communication efficacy through performance appraisal. The application of Paired t-test brought out significant differences on all these four dimensions. The employees view both the systems of performance appraisal on almost equal ranking on the dimension of change management. Though the employees out of the two systems, the 360-degree appraisal and feedback system has taken an edge over the traditional system. Therefore, keeping in view the value of 360-degree appraisal and feedback system and employees' favourable perception of the system the organisations should switch over to the new system for attaining overall effectiveness and gaining competitive advantage in the present dynamic industrial society.

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The aim of marketing is to make selling superfluous.

Peter F. Drucker

Consumerism is a shame on marketing.

Peter F. Drucker

COMMUNICATION

CUSTOMER SATISFACTION IN RETAIL BANKING SERVICES

Anil Kumar Jain* and Parul Jain**

Abstract

The Indian banking industry has undergone radical changes due to liberalisation and globalisation measures undertaken since 1991. Today, Indian banking industry is one of the largest in the world. There has been a great surge in retail banking. Retail portfolio, which mainly comprises lending for consumer durables, housing, personal loans and educational loans, etc., constitutes more than one-fifth of total bank advances. Banks are continuously striving to improve their services in different market segments. Nevertheless, there has remained a gap between the services offered by banks in the retail area and the expectations of their customers.

The present study, based on responses received from 200 customers of HDFC Bank, ICICI Bank, and some other private and nationalised banks in Varanasi city, was undertaken to indentify the various types of services offered by banks, the level of satisfaction about different types of services, expectation about these services and the level of segmentation gap among the services offered.

Key Words : ***Customer satisfaction, Retail banking, Perception, Market segments***

INTRODUCTION

IF all the customers had similar needs, wants, desires, cultural background, education, and experience, there would not have been any need for market segmentation and mass (undifferentiated) marketing would have been a logical marketing strategy. Since man is not merely a cog in the machine and is governed by emotions, values and cultural background, his expectations and level of satisfaction from a product are different. Between planning and execution, there exists a yawning gap and this is increasingly becoming a major problem for retail banking institutions. Therefore, segmentation strategies are designed to discover the needs and wants of specific groups of customers so that appropriate goods and services can be developed and promoted to satisfy their needs. Many new products are developed to fill gaps in the market place, revealed through segmentation research. Such studies are also used for developing strategies for redesigning or repositioning of products and brands.

Basically belonging to the area of marketing, the concept of segmentation has embodied in its ambit different areas of management,

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including finance, because present or prospective customers are the end target. Segmentation is one of the essential tools needed to make a product and service available to a heterogeneous market which may either be demographically, geographically or socially segmentable. Therefore, over the last decade, banks - both large and small, have emphasised relationship-based strategies to increase their sales and profits. Segmentation is defined as the process of dividing a potential market into distinct sub-sets of buyers with common needs, wants, tastes or characteristics and selecting one or more segments to target with distinct marketing mix. Segmentation frequently provides the opportunity to obtain information about a particular group of the society and expand the market by better satisfying the needs and wants of a particular group of customers. However, the methodology used in segmentation research depends upon the segmentation base used and on a clear understanding of customer behaviour. Until the 1990's, banks in India suffered from lack of competition, low capital base, low productivity, minimal role of technology, low quality of service and low profitability. They functioned in an overprotected environment. However, subsequent to the report of the Committee on Financial System (1992) (Chairman: M. Narsimham), and Committee on Banking Sector Reforms (1998) (Chairman: M. Narasimham), far reaching reforms were introduced in the banking sector. Greater stress was laid on structural measures and improvement in standards of disclosure and levels of transparency, so as to align Indian standards with best international practices.

The contours of development of Indian banking industry have undergone radical changes since 1991. Liberalisation and globalisation of the Indian economy, together with the increasing entry of foreign banks have opened new vistas for the development of banking organisation in the Indian perspective. At the end of March, 2005, with a network of 28 public sector banks, 30 private sectors banks, 31 foreign banks, 4 local area banks and 196 regional rural banks (total 289 banks out of which 285 banks were scheduled banks and 4 were non-scheduled banks) and 68,251 branches (of which 47 per cent were located in rural areas). With an aggregate deposits of Rs. 17,00,198 crores and bank credit of Rs. 11,00,428 crores, Indian banking system is among the largest in the world. There has been a great surge in retail banking which has occurred due to shift in commercial banks from traditional banking activities to a broad-based lending portfolio and increasingly viewing retail banking as an attractive market segment with opportunities for growth. Retail portfolio constituted 21.5 per cent of total advances as in March 2004. *(Report on Trends and Progress of Banking in India, 2003-04, p. 59)*. Apart from diversification objective various other factors have influenced banks' lending to the retail sector in India. These relate to lower interest rates, fiscal incentives from the government, various reform measures as brought about by the Securitisation Act, lower default rates, low credit off-take from the commercial and corporate sector, lower costs of housing, consumer durables, etc., due to competition and technological innovations resulting in increased use of credit/debit cards, ATMs, direct debits,the Internet banking, mobile banking, phone banking, etc. Technology has enabled a significant reduction in the cost of external finance for borrowers and banks have benefited from product innovations and lower transaction costs, associated with collection, processing and use of information. While the new generation private-sector banks (especially the ICICI Bank and the HDFC Bank) have invested in creating and sustaining a retail brand, their public sector counterparts too have kept pace with. Efforts were renewed in 2004-05 for facilitating improvements in customer service in banks by constituting Customer Service Committees. Banks are also using data sharing as a means of improving the selection of customers. The use of advanced and user-friendly technology has been largely successful in bridging the gap between the services promised and the services offered in tune

with the changing expectations of customers. Analogous tailoring of marketing inputs, in line with the changing business environment, has also been helpful in increasing the market share of varying sectoral banks.

Nevertheless, there has remained a gap between the services offered by retail banks and the expectations of the customers. The major problem with the banks has been that they have typically gone for standardisation of products across a mass market. In fact, even in the mass market there are different needs affected by customer life-style. Market segmentation, therefore, requires analytical tools which would differentiate among the mass markets.

Segmentation gap, therefore, depicts a situation where studies are undertaken to find out the gap between what the banks have been offering and what their customers expect from them. So far, banks have been trying to provide all things to all people. Customer segmentation has so far laid emphasis on income, age, and gender. However, in the fast-changing scenario, specialisation is required because banks have not been successful in delivering consistent, independent, unbiased advice and personalised treatment that customers now expect. The focus in branches must shift to a much improved and personalised customer service and providing customers with solutions, not products and addressing their needs. Further, bank managers must bear in mind that customers' expectation change rapidly over a period of time. Therefore, they must create positive attitudes towards the identification of needs and wants of the target customers.

In the age of hypercompetition, things are changing very fast. The important issue among the marketers is how to increase their share of the wallet and this, in the present scenario, is difficult to overcome. It is high time that the sectoral banks in India attempt to identify customer life-time value and truly practise relationship marketing, supported with the use of technology-based tools to deliver the highest possible customer satisfaction to its target customers.

With that end in view, the present study was undertaken.

OBJECTIVES OF THE STUDY

The study was undertaken in respect of 200 bank customers of Varanasi city, with the following objectives:

- To ascertain from the customers the type of bank they would prefer for operating their accounts.
- To identify the various types of services offered by banks which the customers are presently availing and which type of services are preferred over others.
- To ascertain the level of satisfaction about the different types of services offered by the banks.
- To ascertain the ideal level of services which they expect from the bank.
- To identify the extent of segmentation gap among the services offered.

METHODOLOGY

Random sampling technique has been used to select the sample size of 200 respondents, from whom responses through questionnaire were collected. An overview of perception gap and customer profile gap has been obtained in the study.

Sample

A sample of 200 respondents was selected out of the customers of the HDFC Bank, Kuber Complex, Rathyatra crossing, ICICI Bank, Chowk, certain other private-sector banks and certain nationalised banks in the city of Varanasi.

Data Collection Procedure

A questionnaire was prepared to have an overview of the perception gap. It was filled in by 200 respondents. The information so obtained has been compiled in a tabular form and has also been presented through charts and graphs.

Limitations of the Study

Data from 200 customers was collected on a random basis. It was not feasible and practicable to divide the respondents among different banks in Varanasi equally. Therefore, the majority of respondents were those who had an account with the HDFC Bank. However, this did not, in our opinion, influence or alters the results because the majority of such respondents also had accounts with other private-sector banks and nationalised banks. Further, the number of respondents selected was only 200, whereas the total number of customers of different banks runs into lakhs. Therefore, the results obtained would give only the trend or opinions and it is difficult to make any generalisation.

FINDINGS

In order to obtain first-hand information about the segmentation gap in retail banking, a questionnaire was prepared and responses were obtained from 200 customers having accounts in different banks such as HDFC Bank, ICICI Bank, IDBI Bank and other nationalised banks. These responses were obtained on a random basis. Therefore, the number of respondents was not the same in each bank. Hence, there might have been some bias in the number of respondents who had accounts with a particular bank. Nevertheless, the information so obtained has been adequate to obtain an idea about the different types of services that customers were availing from these banks, and their scale regarding the degree of satisfaction in respect of the retail services being offered by these banks. These responses helped in ascertaining an idea about the segmentation gap in respect of the retail services offered by these banks.

CUSTOMER'S PREFERENCE OF BANK

The respondents were asked whether they would prefer a private bank or a nationalised bank for keeping their accounts. They were also asked whether they would like to have an account both in the private and the nationalised bank. These responses are presented in Table 1.

Table 1
Customer's Preference of Bank

Sl. No.	*Type of Bank*	*Preference of Respondents*	
		No.	*%age*
1	Private	44	22
2.	Nationalized	36	18
3.	Both	120	60
	Total	200	100

A majority of respondents (60 per cent) preferred to have accounts both in private and public sector banks, probably to take advantage of the services offered by both types of banks. Further out of the remaining 80 respondents, majority (22 per cent) preferred a private sector bank. This might be because of the various and newer products/services offered by private banks as compared to the nationalised banks.

Customer's Preference for Banks by Age-group

A further analysis of customers` preference for a type of bank was done according to their age group. The results are presented in Table 2.

The Table shows that younger persons prefer to have an account either exclusively with a private bank or both in the private and nationalised banks. As age advances, preference for nationalised bank increases. In the age group of 40-50 years, out of 26 respondents, 14 had their account only with nationalised banks and 10 had account with both types of the banks, whereas only 02 customers had account with private banks. Further, beyond 50 years of age. out of 12 customers, 10 had accounts with nationalised banks, two customers had accounts with both types of banks and none had

Table 2
Customers` Preference for Banks by Age

Age group (in years)	*Private Bank*	*Nationalised Bank*	*Both Types of Banks*	*Total*
20-30	34	08	64	106
30-40	08	04	44	56
40-50	02	14	10	26
Above 50	-	10	02	12
Total	44	36	120	200

an account exclusively with private-sector bank. This phenomenon is most probably due to the late entry of private-sector banks in the Indian banking industry and the existence of nationalised banks for a long time. This might be due to the general human behaviour of not frequently changing their account from one bank to the other.

Customer's Preference for Banks according to Occupation

Responses received from customers depending upon their occupation revealed the preferences, as depicted in Table 3.

Table 3
Customer's Preference according to Occupation

Occupation	*Private Bank*	*Nationalised Bank*	*Both Types of Banks*	*Total*
Service	30	22	76	128
Business	12	08	36	56
Self-Employed	–	04	06	10
Others	02	02	02	06
Total	44	36	120	200

From Table 3, it is revealed that 64 per cent of the respondents belonged to the service class because in their cases salary is generally credited to the bank account. Further, private sector employers have a preference for opening the salary account of their employees in private sector banks on account of faster and better services offered. Out of 200 customers, 28 per cent belonged to business class and 5 per cent belonged to self employed category.

Customers Preference for Banks according to Income Groups

Information through the questionnaire was also collected in respect of the level of monthly income to which these 200 customers belonged to. Table 4 presents the responses received from these respondents.

As shown in Table 4,the level of income is not a very important determinant of the customer's preference for a particular type of bank. During the discussion with several respondents, it was learnt that the proximity to the place of residence and the place of work was an important consideration while opening an account with the bank because this saved time and energy for them in operating their account.

Table 4
Customer's Preference for Banks according to Income-Group

Monthly Income (Rs. 000)	*Private Bank*	*Nationalised Bank*	*Both Types of Banks*	*Total*
10-15	20	16	60	96
15-30	18	14	44	76
Above 30	06	06	16	28
Total	44	36	120	200

Services Availed by Customers

In order to attract customers, the banks offer varied and improved services to their customers. The respondents were asked about the services which they were availing of from their bank. The responses were classified into three categories: services offered by HDFC Bank, other private banks and nationalised banks. The results are presented in Table 5.

As shown in Table 5, savings account is the most popular product of all banks–whether private or nationalised. Out of the 200 respondents, 94 had a savings bank account with the HDFC Bank, 88 customers had an account

Table 5
Services Availed by Customers

Sr. No.	*Types of Services availed*	*HDFC Bank*	*No. of Respondents*	
			Other Private Banks	*Nationalised Banks*
1.	Savings Accounts	94	88	110
2.	Current Account	14	24	32
3.	Locker	08	26	46
4.	Credit Card	02	08	30
5.	Car Loan	02	04	06
6.	Personal Loan	02	00	06
7.	Insurance	10	08	04
8.	Mutual Fund	10	12	04
9.	Housing Loan	08	14	06
10.	Salary Account	36	06	28

with other private banks and 110 customers had an account with nationalised banks. This total need not be 200 because one customer may have a savings account with different banks and may avail several services from the same bank or from different banks. The popularity of the savings bank account may be due to the fact that this product/service has been available to the customers since the advent of the commercial banking system and presently there is 3.5 per cent return on savings deposits. Current account is more popular with business entities and less popular with service class because no interest is earned on such account. Further, some products/services are more popular with the nationalised banks and some are more popular with the private banks.

Nationalised banks have been in existence for a considerable period of time with a wider network of branches. Therefore, the number of customers who had availed the facility of current account, locker, credit card, etc. was more with the nationalised banks as compared to the HDFC and other private banks. Nevertheless, it goes to the credit of the private sector banks that, within a short period of their existence, they have made a mark by making difference types of services available to their customers, especially the new services. This is probably the reason why relatively larger number of customers availed of insurance, mutual fund facility and housing loans from private sector banks, as compared to the nationalised bank.

Intra-bank analysis of various products/services gives some interesting results. In the case of nationalised banks, savings account is most popular; this is followed by the locker facility. The general human behaviour is that once a customer has availed of the locker facility with one bank, s/he does not want to surrender it. Instead, s/he may have locker facilities with other banks. After locker, current account, credit cards and salary account are other important products with the nationalised banks.

In case of other private-sector banks also, savings bank account was found to the most popular deposit account. This was followed by current account, locker facility, housing loans, and mutual funds. Private banks and institutions have come in a big way to extend housing loans. Their aggressive marketing, together with tax benefits available on such loans, have made them popular among the borrowers. As a result of aggressive promotion by private banks, other products/services offered by them have become popular.

SATISFACTION LEVEL FOR DIFFERENT SERVICES

In order to assess the extent of satisfaction which the customers derived from different services/products offered by the banks, respondents were asked about the actual level of satisfaction from different services, namely mobile banking, net banking, phone banking, ATM/Debit card, level of documentation, ambience, service delivery, query-handling and the turn-around time. They were requested to rank their level of satisfaction on a 7-point scale: 7 being highly satisfactory and 1 being highly unsatisfactory. Further, they were also requested to give an account of the ideal level of services which they expected from these services from banks-again on a 7-point scale. These two questions were considered necessary for ascertaining the gap between the customers' expectations and the actual level of services which they were getting. This study will give, to some extent, an idea about the efforts required for reaching near the expection level of customers. Further, such information would also help the banks to modify their approach towards prospective customers and retain them with their bank.

The responses received in respect of the level of satisfaction from the respondents in respect of different services provided by the banks are summarised in Table 6.

In respect of Mobile Banking, only 22 respondents expressed their full satisfaction. Thirty-two ranked such services at the scale of 6, 28 at the scale of 5 and 32 at the scale of 4 in the seven-point scale. It can be inferred that those

Table 6
Level of Customer Satisfaction from Different Banking
(On a 7-Point Scale)

Services	Services Level of Satisfaction							
	1	2	3	4	5	6	7	Total
Mobile Banking	18	26	42	32	28	32	22	200
Net Banking	22	36	28	30	18	40	26	200
Phone Banking	32	22	24	34	34	32	22	200
ATM/Debit Pin	14	02	04	14	30	38	98	200
Level of Documentation	02	04	04	10	28	96	56	200
Ambiance	00	00	06	06	38	62	88	200
Service Delivery	02	04	06	10	26	94	58	200
Query handling	02	06	00	08	38	88	58	200
Turn around time	02	06	00	10	26	90	66	200

Note: Scale 1 indicates highly unsatisfactory and Scale 7 indicates highly satisfactory level of services.

who provided the 4th rank on the 7-point scale derived average satisfaction, those who gave the rank of greater than 4 were well-satisfied and those who gave rank below 4 were not satisfied with these services.

From the responses received in respect of level of satisfaction relating to Net Banking, similar results can be inferred. Out of 200 respondents, 86 respondents (43 per cent) gave a rating of less than 4 and 84 respondents (42 per cent) indicated a rating of higher than 4. This implies that nearly 43 per cent customers were not satisfied with the level of services, whereas 42 per cent were well-satisfied. Only 30 respondents (15 per cent) derived average satisfaction.

With regard to Phone Banking, the distribution of respondents according to the level of satisfaction was nearly the same as in respect of net banking. Eighty-eight (44 per cent) respondents gave a rating of greater than 4 and 78 (39 per cent) a rating of less than 4 on the 7-point scale. Only 34 respondents (17 per cent) provided the average rating of 4.

However, the results were significantly different in respect of other services of the banks. A rating of greater than 4 was given by a large majority(83 per cent) of respondents for ATM/ Debit Card, by 180 (90 per cent) respondents for level of documentation, by 188 (94 per cent) respondents for ambience, by 178 (89 per cent) respondents about service- delivery, by 174 (87 per cent) customers in respect of query handling and by 182 (91 per cent) respondents in respect of turn- around time. It appears that ATM has become quite popular with the bank customers who are generally satisfied with the different types of services, such as amount of documentation, ambience and service delivery provided by the banks.

However, these results should not be interpreted to imply that the customers are fully satisfied with different types of services offered by the banks because the level of services provided is still below the level of their expectation. The difference between the expected level of satisfaction and the actual level of satisfaction is a measure of the segmentation gap between the services provided.

The responses received from the sample with regard to the desired level of satisfaction, on a 7-point scale, in respect of different services are summarised in Table 7.

It would be clear from the table that the majority of customers expect quite a good standard of services from the banks. There is not a single service in respect of which the actual satisfaction is very close to the desired satisfaction.

Table 7
Desired level of satisfaction o.n a 7-point scale in respect of different services

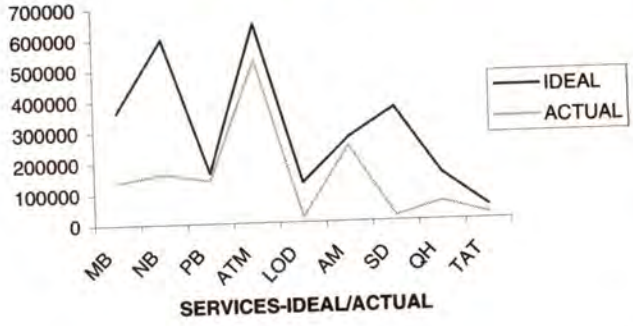
Services	1	2	3	4	5	6	7	Total
Mobile Banking	00	00	06	14	44	56	80	200
Net Banking	00	00	06	18	48	50	78	200
Phone Banking	00	00	08	18	40	40	94	200
ATM/Debit Pin	00	00	00	02	14	51	133	200
Level of Documentation	00	00	00	05	15	85	95	200
Ambience	00	00	02	00	08	83	109	200
Service Delivery	00	00	02	05	07	55	131	200
Query handling	00	00	02	00	08	51	139	200
Turn around time	00	00	00	00	06	81	113	200

Note: Scale 1 indicates highly unsatisfactory and Scale 7 indicates highly satisfactory level of services.

However, the segmentation gap is quite high in respect of mobile banking, net banking and phone banking, moderate in respect of ATM/Debit card, level of documentation and ambience and again fairly high with regard to service delivery, query handling and turn-around time.

An overall view of the level of segmentation gap can be obtained from Figure 1.

Figure 1
Segmentation Gap



A very high segmentation gap in respect of mobile, net and phone banking may be due to the fact that although these services have been introduced but many people are not yet aware about these services, they are not conversant with all the functions and users of mobile phones and very few of them have computers and the Internet connection. Further, one needs to be well-versed with computer techniques to make proper use of net banking.

CONCLUSION

The study has revealed that the majority of customers prefer to have accounts both with private and public-sector banks, that relatively younger people prefer private-sector banks, majority of service-class customers have accounts with nationalised banks, income is not a very important determinant of the preference for a particular type of bank, savings account is the most popular product of banks but current account is more popular with business entities. The study has further revealed that the level of customer satisfaction varies across different types of services offered by banks and the level of services provided is still below the level of expectations of the customers. There is not a single service in respect of which the actual satisfaction is close to the expectations and the segmentation gap exists across services. Therefore, commercial banks need to improve their services in different areas. However, banks, which work on public funds, must also safeguard against sustainability of private consumption. (Thus, commercial banks need to improve their customer services). While mobile, net and phone banking services need to be popularised, they need to improve their service-delivery and query-handling and reduce the turn-around time. The amount of documentation required also needs to be re-examined. Further more, despite their zeal for increased retail lending, banks must have to guard themselves against the sustainability of private consumption and implications for banks' asset quality. They should provide customized, cost-effective and courteous banking service to their customers.

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PUBLIC-PRIVATE PARTICIPATION IN INFRASTRUCTURE PROJECTS

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Abstract

The infrastructure-project sector has emerged as one of the most technically-advanced and tempting field in developing countries. Earlier, this sector was considered to be the sole concern of the Government. Technological advancement, demand for high quality, and the need for economic development attracted the private-sector players in this sector. The private-sector participation has accelerated public utility and infrastructure development to a great extent and helped in achieving operational efficiency and investment objectives in the global scenario. This paper seeks to evaluate the different models which can be used for cost minimisation, efficient resource-utilization, and quality enhancement.

Key Words : ***Infrastructure development, Private sector, Public sector, Public utility.***

INTRODUCTION

WITH globalisation, there has been an increased emphasis on infrastructure development in all countries, particularly in developing countries, including India. However, the government often found it difficult to allocate resources for this purpose out of the budgetary revenue, maintain the existing assets in good health and operating conditions, and recover the cost by levying charges on the users of the asset. The users of infrastructure do not feel satisfied with the existing status of the asset, the efficiency of service provided is low and due to historical reasons (used to toll-free service) there is a marked reluctance to pay for the use of the asset. Private enterprises are not interested in making investment in the infrastructure unless there is an assurance of realising a reasonable return on the investment. This has brought into sharper focus the need for evolving an alternative model for infrastructure development.

The participation of the private-sector in funding, implementation, and operation of infrastructure projects is suggested as one possible alternative. Some of the arguments given in support of such an arrangement are as follows:

1. Unbridled free market capitalism and dominant state control both have been seen at their best and in worst form during the last 200 years. The Public-Private Partnership (PPP) that is built on expertise of these partners for meeting clearly defined public need through appropriate allocation of

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resources, risk and reward should now be given a trial.

2. Infrastructure development, which requires not only investment but also efficiency and best practices in their operation, can be achieved by providing service delivery standards under the PPP model.

3. Even when it allows exclusive rights over certain assets to the operator, the PPP does not suffer from the evil of monopoly, i.e., high user charges and low service quality, as this can be ensured through competitive bidding.

GENESIS

The practice of permitting private-sector to develop and operate infrastructure projects has a long history. The Suez Canal was built through private financing arrangement. In the United States of America, by the1980s, approximately 15,000 miles of toll roads had been built. Many of these roads were constructed with the assistance of Federal government in the form of land grants and subsidies, while some others were built by wealthy businessmen who formed stock-based companies where investors could receive the return on their investment from the toll-tax. Canada's ambitious programme for privatisation of transportation projects, construction of highways and by-pass roads was based on this approach.

In Europe, such projects were called 'concessions' wherein the government would establish the objectives of the project, but would allow some private company to design, finance, construct and operate it for a certain period of time. During first four decades of the nineteenth century more than 450 chartered toll roads were built throughout England, the major area of mercantile and financial activity at that time. Likewise, many other countries embarked upon infrastructure privatisation programme, based on a comprehensive long-term legal, institutional, regulatory framework, for this purpose. The concept of 'build, operate and transfer' (BOT) was applied for the construction of nuclear power plants in Turkey.

India has a long history of private sector institutions and individuals contributing to social welfare projects in a massive way. Credit for the construction of schools, colleges, universities, dharmasalas, temples, wells, water tanks, hospitals, etc., goes to a large number of philanthropic institutions, trusts and wealthy individuals in the country. The enthusiasm may not be at the same level now. Still, in some States trusts and individuals continue to construct schools and hospital buildings. Some of these institutions are also managed by these trusts.

NEW PUBLIC-PRIVATE PARTICIPATION MODELS

In the wake of globalisation public-private participation in the implementation of infrastructure projects has grown significantly. Over the last few years, in India, it has taken a variety of forms, ranging from asset sale on one extreme to management contract on the other. Different models developed in this respect and their implementations are introduced below.

1. **Asset Sale**: 'Asset sale' is a traditional system of transfer of ownership of an asset from a public-sector enterprise to a private party. The private entrepreneur, under such an arrangement, undertakes the entire responsibility of implementing, owning and operating the project. Many private entrepreneurs in India were allotted land by the government at concessional rate, to set up projects such as construction of hospitals, and educational institutions. These projects were then implemented and operated by private entrepreneurs. In theses cases, the government plays the role of a promoter.
2. **Full-Utility Concession:** Under full-utility concession, all activities related to a project, such as investment, operation, tariff collection and management, except for ownership, are

transferred to a private entrepreneur. The ownership of asset continues to remain with the government. The private enterprise operates the project merely as a licensee, under an agreement.

3. **Build-Operate and Transfer (BOT):** Build-Operate and Transfer (BOT) is an arrangement under which the asset (project) owned by the government, while the BOT operator invests in its implementation. This includes the designing, financing, and the construction. He maintains the project and retains the right to operating revenue from the asset during the concession period. The concession period is the period (number of years) during which the promoter of the project is expected to recover the investment and earn a specified rate of return on the investment. The agreement specifies the date of concession and concluding commercial operations under the project. Thereafter, the asset is transferred to the government. Regular and reliable cash flows and a long economic life of the asset are the essential pre-requisites of such a project.

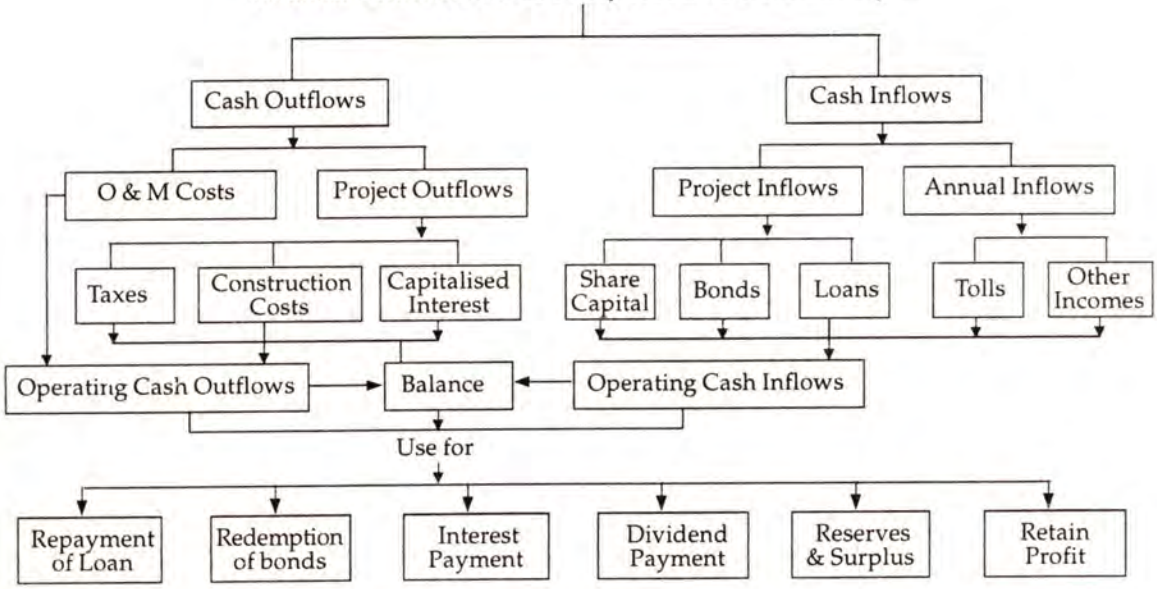
The BOT contract is settled through competitive bidding process. Each bidder is required to submit 'technical bid' and 'financial bid' both. The technical bid includes information on technical parameters of the project. A letter of comfort from some financial institution that may fund the project is also asked for. The financial bid includes information on the concession period, tariff rates, terms and conditions, cost and return of project and related activities. An illustration of the financial structure (cash flows) under BOT project is given in Table 1.

Build-Operate-and-Transfer (BOT) model has been used in India by the Central Government as well as some State governments for infrastructure development, particularly for the construction of highways, bridges, and roads. It has helped the government to tap private capital, enterprise and skill, both from within the country and from abroad, for increasing the efficiency in building and operating the project.

The Delhi–Noida Bridge, built in 1998, was first bridge built in India on the BOT basis. This Rs. 350 crore bridge, the feasibility report for which was prepared by Infrastructure Leasing

Table 1

Financial Structure of a BOT Project and Cash Flow Analysis



and Financial Services (IL&FS) was developed as a toll bridge to connect Delhi to New Okhla Industrial Development Area (NOIDA). It includes an eight-lane link across the Yamuna River, three minor bridges, embankments, and an automatic toll plaza.

A Special Purpose Vehicle (SPV), Noida Toll Bridge Company Limited (NTBCL), floated for this purpose was appointed contractor for construction, operation and maintenance of the bridge. The equity component of Rs. 105 crore for the project was contributed in the ratio of 2:3:1 by NTBCL, IL&FS, and the Asian Development Bank, respectively. The debt component of the project was Rs. 240 crore. The principle employed to fix toll was 'saving to the user should be greater than the toll paid by user'. The concession period is 30 years and the financial structure has been linked to the revenue profile over the concession period.

The National Highway Authority of India (NHAI) has used the BOT model for the construction of bridges, Golden Quadrilateral Highway and 26 express ways, stretching over 4,885 Kms. across the country, with an investment of Rs. 47,982 crore. Among expressways for Moradabad a by-pass project on National Highway 24 in UP a special purpose vehicle (SPV), Moradabad Toll Road Company (MTRC) was set up to construct expressway and by-pass road and operates the two. Towards the investment of Rs. 103 crore in the project Infrastructure Development and Finance Corporation (IDFC) contributed Rs. 40 crore, State Bank of India (SBI) Rs. 32.4 Crore, NHAI Rs. 23.4 crore and the remaining Rs. 7.2 crore was contributed by builders. The rate of return was fixed at 20 per cent. The tenure of debt was fixed at two-and a half years for construction, 3 years for post-construction moratorium and 9 years thereafter, i.e., 14.5 years in all. The interest was to be charged at 13.75 per cent per annum.

4. **Build, Own, Operate (BOO):** Under the Build, Own, Operate (BOO) model the franchise scheme is open-ended. Option remains open for both the parties. There is no provision for sale or for transfer of the project to government. However, at a later stage the government by entering into a fresh agreement with the franchisee may take it over or the franchise may transfer or sell it to the government on his own, as per agreement between the two parties.

5. **Build, Own, Operate and Transfer (BOOT):** Under the Build-Own-Operate and Transfer (BOOT) model, the concession-holder not only builds and operates the asset but its ownership also remains with the operator till the end of concession period. At the end of concession period, the asset stands transferred back to the government.

6. **Build, Own, Operate and Sell (BOOS):** Under the Build, Own, Operate and Sell (BOOS) arrangement, initially the project is built, owned and operated by a private entrepreneur, but after a certain period of time it is bought over by the government.

   There may be some provision for the sale of concession (asset) to government under the agreement or such an agreement may be arrived at through open-ended negotiations at the end of the concession period as per the mode agreed upon initially.

7. **Build, Own, Operate, Share and Transfer (BOOST):** Under the Build, Own, Operate, Share and Transfer arrangement the concession agreement includes 'share' clause. Here, though the government does not have any equity stake initially in the project it claims a specified share in the revenue/ income/surplus of the project as it becomes operational. At the end of the specified concession period, the asset stands transferred to the government.

8. **Build, Operate, Lease and Transfer (BOLT):** In case of Build-Operate-Lease and Transfer (BOLT) the operator raises funds for investment in the building facility (project)

and leases it out to the government for operation on fixed rental. Selection of builder is done through competitive bid. The builder is offered a specified rate of return and tax concession. The track construction, electrification and wagon leasing projects of Indian Railways are successful examples of this type of arrangement in India. Initially, there were only two parties to the BOLT agreement, viz., Indian Railways and builder. Later realising the important role of financial institutions, in the revamped BOLT scheme tripartite agreements were entered into between Indian Railways, financial institutions and builders.

9. **Lease, Rehabilitate, Operate and Transfer (LROT):** The Lease, Rehabilitate, Operate and Transfer (LROT) concept of a concession may be offered to a private operator. In case, due to shortage of funds, it is not in a position to rehabilitate an existing asset (plant, machinery, etc.), which has not been giving satisfactory performance and needed major repairs and maintenance for the extension of life and use. Under the arrangement, the concession holder meets the total expenditure on rehabilitation in lieu of the right to operate the asset for a specified concession period to recover the investment and earn required return on investment. Owners (government) continue to hold the ownership right and to receive the lease rent on the asset from the concession-holder. At the end of the specified concession period, the facility (asset) is transferred back to the owner (government).
10. **Lease, Develop and Operate (LDO):** Under the Lease, Develop and Operate (LDO) concession arrangement, the facility (asset) is leased out by the owner (government) to a private enterprise, which upgrades and expands the facility and manages the cash flows. The position of private enterprise is that of a lessee, and the owners (government) continue to hold the ownership right and to recover the lease rent from the concession-holder on the property.
11. **Operation and Maintenance (O & M):** An Operation and Maintenance contract provides for limited involvement of a private party. The function of maintenance and operation of the facility is passed on to the private party, while the owners (government) not only retain the ownership right on the property but also to collect revenue. The concession-holder may be given a fixed payment in lieu of the investment made for the maintenance and operation of the facility.
12. **Management Contract (MC):** Under the management contract (MC), owner (government/public authority) maintains ownership and makes investment in the project. However, the right of operation of the project, and its management including collection of tariff are transferred to a private party. In India under such an arrangement, some hotels and tourism-related facilities, owned by Central Government and some State governments have been transferred to private parties for management.
13. **Service Hire (SH):** Service hire (SH) arrangement is just the reverse of the management contract arrangement. Under the service-hire contract while the ownership of the asset remains with the private party, the facility is operated by a public-sector franchisee. Some road transport undertakings in India, including the Rajasthan State Road Transport Corporations, have taken buses on hire from private parties. The owners of bus coaches are paid hire-charges at a fixed rate per kilometer of journey under the contract. These bus coaches are operated under the control of the corporation.

SIGNIFICANT FEATURES

The innovations described above have certain special features and require certain groundwork and decisions by the government before an

agreement is made with a private party. The points to be considered for decision-making are given below.

1. **Initiative for Project:** The initiative for preliminary survey and project report has to come from the government in such cases. After making an assessment of the utility and establishing the need, a detailed project report is to be prepared. Consultants may be engaged for this purpose or the job may be entrusted to some government department having expertise in the area.

2. **Selection of Enterprise:** Under Build-Own-Operate (BOO) or Build-Operate-Transfer (BOT) model, the parties are first short-listed on the basis of their financial and technical strengths. These short-listed enterprises are then invited to participate in commercial bid for the project. From amongst short-listed parties, final selection of the enterprise is done on the basis of competitive bid. Transparent and competitive bidding procedure is an efficient mechanism for generating information on appropriate performance targets, selecting qualified operator and setting the tariff at an appropriate level in such cases.

3. **Implementation of Project:** After the selection of an enterprise under the agreement entered into with the franchisee, land for the project is handed over to the selected enterprise for the duration of the concession period. The selected enterprise implements the project as per the specifications given in the project report approved by the government.

4. **Risk:** The risk during the pre-construction and construction phases is borne by the operator. To cover this risk, he is expected to undertake a preliminary survey and appraisal of financial and social risk involved. For mitigating the risk under the BOO/BOT contracts, provisions governing the private participation are included in the concession agreement. The agreement document acts as a security for investment and the asset developer and tenderer are expected to abide by the agreement. Once the project is completed, the franchisee operates the project for the period determined by the agreement, collects fee/user charges from the users at notified rates to recover the investment made by him.

5. **Cost of Project:** The cost of project depends upon the nature of the project. The estimate of cost has to be worked out at the out-set by the government before selection of entrepreneur after a detailed survey. However, the franchisee may have to work out once again the cost estimates considering the requirements as specified in the project report. BOO/BOT/BOLT projects are often criticised on the ground that their cost estimates are high and incomplete. For instance, for the Pune-Mumbai Expressway, the estimate of cost by the government was Rs 1,200 crore, while Reliance Industries quoted Rs 1,800 crore. It was realised later on that the government estimates did not include the cost of borrowing funds (interest), inflation effect, and the cost of project supervision. For a private operator the cost of these activities forms part of the overall project cost.

6. **Financing:** The funds required for projects are arranged by selected private enterprise. The government is not required to make investment in the project. In India, during the early phase, BOT operators had problems in raising funds for projects from market and also from financial institutions, as they did not have ownership right, but had only operating right under the agreement. In case the requirement of funds is large innovative arrangement, such as syndication of loan, escrow mechanism, structuring of debt-equity ratio, etc., have to be done. Some times, the private entrepreneur/operator needed and secured foreign participation in such

projects. These foreign participants may contribute not only the funds but also the technical expertise.

7. **Tenure of Concession:** The tenure of concession period is decided as per the agreement between the two parties. Typically it ranges from 15-20 years for road projects to 40-50 years for projects like industrial zones and car parks, where the return comes slowly. At the end of the tenure, the asset is transferred to the government free of cost.

8. **Cost Recovery:** Different methods have been adopted in different countries for cost recovery. Prominent among these are the BOT Toll Method, Annuity Based Returns Method and Shadow Toll Method. These are briefly described below.

   (i) *BOT Toll Method*: Under the BOT Toll Method, the investor is responsible for making initial investment, establishing toll points, collecting toll at pre-determined rates from users and recovering the cost. The toll rates are determined in such a way that besides the operating cost, initial investment may be recovered fully over the concession period.

   (ii) *Annuity-Based Return Method*: Under the Annuity-based Return Method, the returns are not linked with tariff density. The investor receives a predetermined steady regular return over a pre-determined concession period, irrespective of traffic. The promoter agency (Government or Local Body) raises revenue through toll charges and passes it on to the contractor. The surplus of revenue through toll charges is passed on to the contractor. The surplus of revenue over fixed charges accrues to the promoter agency, which also meets the deficiency, if any.

   (iii) *Shadow Toll Method:* Under the Shadow Toll Method, there are no visible toll booths and the users of facility do not pay any charges for the facility. The contractor makes initial investment in the facility and is paid at a pre-determined rate on the basis of actual number of vehicles making use of the facility by the promoter agency. The promoter agency does not give any traffic guarantee and, therefore, if during the concession period, the traffic gets diverted to some other route leading to plunge in the traffic density, the investor may loose. Toll, for the use of the facility is fixed on the basis of user-benefit and cost-saving. The principle employed to fix toll is that the savings to the user should be the higher than the toll paid by him. For instance, in the case of Delhi-Noida bridge on Jamuna, the average travel time saving was calculated as 27 minutes and the corresponding distance saving as 3 Km. The toll was fixed at 30 per cent of this saving to the user.

9. **Tax Implications:** Under section 10 (23) (g) of the Income Tax Act, 1961, an infrastructure construction company can claim tax-relief, only if, the asset is transferred to the government. Accordingly, while the tax relief could be claimed in case of BOT and BOLT arrangements, such a relief was not available in case of BOO and BOOS contracts. Under section 80 (IA), in case of a company registered in India engaged in development and maintenance of infrastructure facilities under an agreement with Central Government, State Government or Local Authority after 31st March 1995 its income would be exempt from tax. As per circular No. 733, dated January 3, 1996 from the Central Board of Direct Taxes (CBDT) contractors working under the BOLT scheme of Indian Railways were made eligible for benefit under Section 80 (IA), as it was not possible for any other enterprise to legally maintain the facility. Under this provision, 100 per cent of the profit is deductible for the first 10 years

from the initial year, provided other conditions, like owned by Indian Railways, maintained by entrepreneur under agreement with Indian Railways, commencement on or after April 1, 1995, etc., are fulfilled.

A COMPARATIVE VIEW OF DIFFERENT ARRANGEMENTS

There can not be a single correct model for public private participation in infrastructure/public utility projects. There is considerable diversity in practice ranging from 'management contract' on the one hand to 'asset sale' on the other. Under 'management contract', while the investment is made by government, operation and maintenance are given to private contractor. Under the 'lease contract', a private company is given the responsibility of operation and tariff-collection while the government makes initial investment.

Under the BOT and the BOO arrangements, the responsibility of financing, building and operating the infrastructure/ service is shifted from government to a private entrepreneur. These contracts are particularly attractive for countries with an urgent need of such a service but not having adequate funds to finance the project. From the point of view of government the BOT and BOO contracts are efficient mechanism for associating private capital and management for projects without affecting their utility. However, some times it fails to address the utility's fundamental operating deficiencies, like over staffing, poor tariff collection etc., and may delay much needed improvement in service.

The long-term arrangements, such as, Build, Own, Operate (BOO); Build, Operate, Transfer (BOT); Build, Own, Operate and Sell (BOOS); Build, Operate, Lease and Transfer (BOLT) are more comprehensive as they involve not only the private investment but also the private management. Implications of public-private participation, under different arrangements, are summarised in Table 2.

Table 2

Implications of Different Public Private Participation Arrangements

Feature	*Service Hire*	*Management Contract*	*Lease Contract*	*BOT Concession*	*Full Utility Concession*	*Asset Sale*
Responsibility Allocation						
Ownership	Private	Public	Public	Public	Public	Private
Investment	Private	Public	Private	Private	Private	Private
Operation	Public	Private	Private	Private	Private	Private
Tariff Collection	Public	Private	Private	Private	Private	Private
Cash Flow and Risk Profile						
Time Horizon	1–2 Yrs	2-5 Yrs	10 Yrs	10-20 Yrs	20-30 Yrs	In Perpetuity
Customer	State	Retail Customer	Retail Customer	State	Retail Customer	Retail Customer
Cash Flow Profile	Fixed Charge for Service	Subject to Market Risk	Contract Payment after Construction		Subject to Market Risk	Subject to Market Risk
Construction Risk	None	None	High	High	Low	Very High
Regulatory Risk	None	Medium	Low	High	High	Very High

Source: *David Haarmeyer and Ashoka Mody, "Private Capital in Water and Sanitation"*, World Bank Discussion Paper

CONCLUSIONS

Private-sector participation in public utility/ infrastructure development projects is expected to be of great help in achieving operational efficiency and investment objectives in the global scenario. However, this may become a reality only when two requirements are met in this respect, viz., the project generates adequate revenue to cover operating costs and debt-service payment, and the internal risk (of construction and operation) and external risk (regulatory) are minimised.

Thus, in order that private enterprises may make investment in such projects, there should be adequate assurance of a reasonable return on investment on the one hand, and the users of service should be prepared to pay for the service availed on the other hand. This will create conditions for service efficiency, cut frivolous and wasteful investment/expenditure and eliminate public subsidies. At the same time to ensure that private enterprise maintains quality and efficiency, cost of project should be minimised, wherever possible.

The PPP model may lead to loss of public control in case the agreement is not properly structured. A transparent bidding process should be evolved for the identification of the private partner. Comments and suggestions should be invited from stakeholders before finalising the contract to ensure fair treatment to all concerned.

The government should set up a regulatory mechanism and establish service standards to safeguard the users' interest. In order to facilitate such an environment, an independent regulator should be appointed, who may act as a neutral umpire and resolve issues in case of any conflict.

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BOOK REVIEWS

B. Jankiraman and R.K. Gopal, *Total Quality Management: Text and Cases* (New Delhi: Prentice-Hall of India, 2006, Eastern Economy Edition), Pages 250, Rs. 195, Softbound.

The book, comprising 17 chapters, two appendices, Bibliography and Index, spanning over 250 pages, addresses the topical subject of Total Quality Management (TQM). It covers basic quality concepts, TQM philosophy, tools and technique of TQM, and some new concepts, including Six Sigma, QFD, BPR, CMM, and CRM. Each chapter begins with the learning objectives of the chapter and ends with a list of questions, and, in some cases, a case study. A brief, chapter-wise appraisal of the book is given below.

Chapter 1 introduces the basic concepts pertaining to quality and emphasises the importance of quality in business and industry. It elaborates on the determinants of service quality. However, in Fig. 1.1, linkages are not clear, particularly in the lower portion of the figure.

The objectives of quality control and the evolution of quality assurance are described in Chapter 2. The concepts of process capability and design of experiments for managing the quality of products and services are elaborated. One finds the sequencing of these concepts too early in the text.

Chapter 3 discusses the seven QC tools, which are commonly employed in quality improvement projects. The description of these tools could have been more elaborate because these are vital for proper analysis in any quality-improvement project. However, a model case study, appearing at the end of the chapter, makes good this loss, to some extent.

The philosophy of TQM, its basic concepts, steps in implementing it, and its benefits and failures are given in Chapter 4. Logically, the chapter should have come prior to Chapters 2 and 3, which are basically tools-dominated. Bullet points in terms of language/style; for example, 'Lack of disciplines requires transforming' or 'Inability to maintain momentum for transportation', do not convey what the authors perhaps wanted to do.

Chapter 5 focuses on the three quality *gurus*: Deming, Juran and Crosby. It briefly describes their philosophy, approaches and road-map. Here, the 'Four Absolutes' of Crosby do not find a mention, which are vital to the understanding of his philosophy. One would like to see more names, like Taguchi, Ishikawa, Kano and Feigenbaum (who was perhaps the first to use the word 'total' before 'quality') to be included in the chapter.

Quality Circles (QCs) are the subject matter of Chapter 6. It explains the concept, objectives, steps in the formation, organisation structure and problem-solving techniques. It focuses on the teamwork. It would have bean desirable to include a brief history of QCs in India, QCFI and its role in promoting QC activities in India. It also gives a critique on the success and failures of QCs in India.

Chapter 7, titled 'Reactive Improvement', very briefly deals with the process control and presents Deming's PDCA cycle. It is a very small chapter and does not include any case study. The contents do not justify the title. More elaboration on the techniques for reactive improvements would have added value to the subject.

The concepts of QFD and the Seven Management and Planning tools are given in Chapter 8, titled 'Proactive Improvement'. Again, there is no case study or even a numerical problem to illustrate the uses of these tools.

Chapter 9 outlines the concept of Six Sigma, a buzzword in quality, today. It profiles the DMAIC methodology and lists key analytical tools for implementing the Six Sigma techniques. The required organisation structure and the role of various functionaries in the Six Sigma project implementation are given. However, there is no word about the Six Sigma implementation in Indian companies. Moreover, there is no case study on the issue.

Chapter 10 is devoted to the concept and benefits of Just-in-Time (JIT). The focus is on the Kanban system only. The presentation on JIT is somewhat 'sketchy' and its linkages with TQM and 'elimination of waste' are not clear. The success of JIT in Japan and the need to adapt it in the Indian context would have added value to the chapter. Here again, there is no case study.

Chapter 11 bears the title 'Taguchi and Hoshin'. It appears that the authors meant 'Taguchi Methods and Hoshin Plan', since the two-words chapter only mentions the names of two quality experts, which probably was not the intention of the author. It also mentions 5 S's and Kaizen, but the chapter is over-compressed and, as a result, good and powerful concepts got only sketchy attention. At least, Taguchi's Quadratic Loss function could have been illustrated with a case example.

Chapter 12 deals with National Quality Awards. The Deming Prize, the Malcom Baldridge National Quality Award, and the European Quality Awards are described. However, EQA is disposed of in just a paragraph, whereas most Indian awards are patterned after EQA. Surprisingly no Indian Quality Award is mentioned in the Chapter. There are numerous Quality Award provided in India. These included: the Golden Peacock, RGNQA, MAIT Quality Recognition, CII Business Excellence Model, JRD Tata, and the IMC Ramakrishna Bajaj Quality Award. The MBNQA criterion weights change frequently. Authors give weights of 1990, whereas the 2004 version of the MBNQA is so different. This chapter does not do justice to this vital area.

Chapter 13 describes the ISO 9000:2000 QMS and ISO 14000 EMS and briefly mentions QS 9000. A brief history of the ISO movement in India; changes in the ISO structure before the 2000 version, success (or otherwise) of the ISO in Indian industries, or a case study, would have added value to the chapter.

Chapter 14 deals with the BPR. It describes the concepts, methodology and myths about the BPR and the systems approach to change initiatives. It outlines why the BPR projects fail. A case study is given at the end of the chapter. This chapter describes the BPR reasonably well.

Another powerful concept in TQM, viz., Benchmarking, is explained in Chapter 15. It outlines basic concept, types of benchmarking, steps in the benchmarking process and lists advantages and limitations of benchmarking, followed by a case study.

Chapter 16 describes the Capability Maturity Model (CMM). Various levels of CMM-process capability and prediction of performance at various levels are included. There is no case study. Though CMM is a good inclusion, more about it, particularly in the Indian software industry, would have added value to it.

Lastly, Chapter 17 spells out the myths, advantages and limitations of Customer Relationship Management (CRM). It also describes the concept of e-CRM. Although the chapter gives a rudimentary treatment to the subject of CRM, that too in a verbose manner, it is still a useful inclusion.

There are two appendices, appearing at the end of the book: Appendix A deals with ISO90001: 2000, which describes the latest version of the ISO 9000 system. However, the title IS/ISO 9000:2000 gives an impression that ISO 9000 is same as IS 9000. In fact, IS 14000 is in no way different from

ISO 9000. This fact is nowhere mentioned in the text. It is likely to cause confusion in the readers' mind. Appendix B pertains to ISO 14000 EMS.

At the end, the book provides a good bibliography on the subject.

On the whole, the book is an elementary useful work on the subject of TQM. For its cost of Rs.195, it may be just about o.k. in terms of the value for money. However, in terms of the quality grading on TQM, it would score only an average level. Sequencing of chapters need a thorough re-look. Quantitative orientation and numerical illustrations are not adequate. Though the title of the book says, 'Text and Cases', only 7 cases in as many as 17 chapters are given, which do not justify the title.

The chapter-end questions are too simple and straightforward to intellectually challenge the reader. There are no numerical examples or illustrations, contrary to the general expectations on such a topic. The book does not include some of the relevant concepts, like sampling, reliability, and value engineering.

Despite many weaknesses, the book is a welcome addition to the literature on TQM.

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Asish K. Bhattacharyya, *Financial Accounting for Business Managers* (New Delhi: Prentice-Hall of India Private Limited, 2006), Pages xxix + 742, Rs. 325, softbound.

Financial accounting is of paramount significance for working executives as it helps them prepare and analyse financial statements. Executives use financial accounting to understand the results of operations and financial position of the business. It facilitates managerial decision-making and allows executives to ascertain the financing of acquisition of fixed assets during the year and as to what types of sources have been used for describing the capital structure of the organisation. Similarly, the financial performance of subsidiaries functioning in different countries cannot be compared without financial statements made as per international accounting standards. This helps executives to understand the difference between Indian accounting standards and international accounting standards. Executives can also understand the accounting treatment of leasing transactions, the changes in foreign exchange rates, and consolidation of financial statements, among other topics.

Financial Accounting for Business Managers, by Asish K. Bhattacharyya, is a welcome addition to the existing literature on the subject. It is divided into eighteen chapters.

In Chapter 1, Bhattacharyya explains the basic concepts of capital structure of business firms, public limited companies, share capital, publicly-traded companies, equity valuation, objectives of corporate financial reporting, characteristics and components of financial statements, internal control, internal auditing, external auditing, 'true and fair view', and the framework of financial statements.

However, while some of the accounting concepts and conventions have been explained with examples in the book, some major accounting concepts and conventions have not been explained.

Chapter 2 deals with accounting equation, concept of trial balance, balance sheet, profit and loss account, debit-credit rules, assets, and liabilities, income and expenses, accrual basis of accounting, accounting policy, and accounting standards. Here again the author should have spelt out the cash basis of accounting. An in-depth description of the classification of assets and liabilities is given in Chapter 3, which is very useful for management students and business managers. But this chapter should have come prior to Chapter 2. Chapter 4 deals with accounting cycle, including journal, cash book, ledger and trial balance with suitable examples. However, a simple example of petty cash book could have been given.

In Chapter 5, the procedure of preparing profit and loss account and balance sheet is explained alongwith an appropriate description of rectification of errors, adjustments, bank reconciliation statement, etc., with suitable illustrations. The exercises at the end of chapter should help readers gain clarity. However, the author has left out certain adjustments, such as the loss by fire or theft, wages paid for erection of a fixed asset, and goods sold on return basis.

In Chapter 6, an understanding of the issue of shares and debentures, the redemption of preference shares and debentures is sought to be provided. It is followed by the description of share split, bonus shares and buy-back of shares. The accounting treatment of all these aspects has been properly explained. However, for the sake of clarity, accounting entries for the issue of shares at premium, at discount and for the issue of debentures should have been given. Final accounts of companies and related issues have been brought out in detail, with the help of appropriate and adequate illustrations in Chapter 7. Chapter 8 deals in-depth with fund flow and cash flow statements. The analysis and interpretation are given through appropriate illustrations.

A deep understanding of initial recognition of an item of property, plant and equipment, accounting for subsequent expenditure on an item of property, plant and equipment, accounting for start-up and commissioning cost, principles for accumulating costs of a self-constructed asset, accounting for intangible assets, including expenditure on research and development, principles for charging depreciation on an item of property, plant and equipment, principles for amortization of intangible assets and the concepts of impairment and measurement of impairment loss has been elucidated in Chapter 9. The measurement of assets and liabilities is well explained keeping in view the international accounting standards in Chapter 10, with due emphasis on illustrations.

Important financial instruments and accounting practices relating thereto in view of international accounting standards and Indian GAAP have been brought out in Chapter 11. However, the accounting treatment of financial derivatives requires some more details as do the topics on securitisation and hedging.

Chapter 12, dealing with the accounting for leases needs some more illustrations, especially on the treatment of operating lease. The treatment of operating lease in the books of the lessee should also be incorporated. The tax implications of leases have also not been taken care of, an area most business managers are keenly interested.

Recognition of income is adequately covered in Chapter 13, but it requires some more focus on the recognition of expenses. The accounting treatment of changes in the exghange rates has been briefly described in Chapter 14. However, the foreign currency transaction needs more emphasis. Some light should also be thrown on tax and foreign exchange related issues of MNCs. In Chapter 15, business combinations, and their accounting treatment and income tax implications have been brought out keeping in view Indian and foreign accounting standards. However, it would have been more purposeful if combinations had also been defined in terms of the provisions of the Companies Act, 1956. The topic of 'forms of combinations' required more description in view of their growing importance in India as well as at international level. The term 'purchase consideration' also required better treatment. Chapter 16 deals with the consolidated financial statements. The author ought to have incorporated the accounting treatment of dividends, unrealised profits, and revaluation of assets and liabilities.

Disclosure in financial report is the subject matter of Chapter 17. The author has suitably described the various components of corporate disclosure, including the economic value added (EVA), segment reporting, and earnings per share. However, the coverage of mandatory disclosure under the Companies Act and the Securities and Exchange Board of India (SEBI) Act would have added value to the book. The last chapter has covered the financial analysis at

length, supporting it with analysis of statements of some companies. The six case studies given at the end of the book must be very useful to the readers.

However, some more chapters could have been added on classification of costs and cost-volume-profit analysis. Overall, the book is a laudable attempt, providing a ready reference for both the working executives and post-graduate management students, rather than as a text book.

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C.S. Venkata Ratnam, *Industrial Relations* (New Delhi: Oxford University Press, 2006), Pages ix+747, Rs. 345, Softbound.

The present day culture and context, particularly in industries such as information technology and related business, the term industrial relations (IR) appears to be irrelevant. These days, human relation professionals are more concerned with designing sophisticated systems for human resource development, and the focus seems to have shifted from collectivism to individualism, yet people feel the need for good IR not only for payment of salaries and other benefits, but also for protecting themselves against unfair dismissals. The study of IR covers all aspects of relations between employees and employers and includes both unionised and non-unionised situations. It also assumes significance due to globalisation and the pressure on industries to have universal labour standards because of increased awareness of labour laws, therefore there is a need to learn and apply what is relevant from the experience of other cultures and countries.

The book under review is an attempt to analyse and explain IR in the context of recent trends in the globalised economy. It covers the conceptual and legal frameworks, labour policy and labour law reforms and the impact of technological change on IR. Traditionally, IR was the concern of employers, employees and the government. But now, consumers and the public have begun to assert themselves and increasingly trade unions are getting isolated and see a future for themselves only by aligning with the interests of the society at large. There is also a changed mindset in the judiciary and conciliation machinery regarding retraining, redeployment, and modernisation, etc.

The present book contains 25 chapters and covers five key components of IR: the conceptual foundations (chapters 1-3), the institutional structure and policy framework (chapters 4-9), the role of the government (chapters 10-12), maintenance of labour (chapters 13-17), and participation, grievance and discipline, layoff, impact of technological change and approach of mana hest possible level of mutual understanding and goodwill between several interests, related with production and other activities. This will depend primarily upon fair dealing and a spirit of working together for a common purpose.

The IR system in one country cannot be transplanted into another country. Many believe that there is no point in comparing the IR situation in India with that in the USA because of the intrinsic differences between the two. While, in China, the political systems and social safety nets are different, we do not have the Confucian values as practiced in Japan. The German situation also cannot be compared as our legal system and institutions are different. As regards Singapore, many assert that a city state cannot be compared with a country of large proportions. Even within India, when we want to compare IR in a western State with that of an eastern State, many would say east is east and west is west. When one gives an example of steel or banking to others in power or coal, many would assert that there is no comparison between oranges and apples. On the other hand, there are those who say that oranges from Nagpur are different from those from Washington, DC. But studying comparative IR across countries would help understand and appreciate the relative

significance of various factors, such as economic strategies, legal and institutional framework and cultural factors in determining the types of IR system adopted by different countries.

In India, employers' organisations (EOs) deal with many aspects relating to employment relations, labour policy, union-management relations and collective bargaining. Chambers of trade and commerce and industry associations are members of EOs too. They select delegates from representative organisations of trade unions to attend the meetings and conferences of the ILO. EOs represents members' interests and can, therefore, be called interest group organisations. They provide a variety of services in the area of IR.

Similarly, employees have formed trade unions (TU) that are closely connected with political parties. The Trade Unions Act, 1926, provides for registration of trade unions and registered unions represent the grievances of individual members. The principal methods of union recognition are membership verification, check-off, secret ballot and code of discipline. When management recognise unions between agreements the two have to be mutually accepted by both.

Trade unions have their own constitution which defines their objectives and functions according to their ideological predispositions. But TUs face challenges both internal (like demographic changes in the work force and the aspirations of TU members and weak finances) and external (global competition, rapid advances in technology, shifting attitude of government and management, etc.). Attempts have been made to maintain good IR through collective bargaining whereby EOs, TU and sometimes the government is involved as a third player. Collective bargaining provides the opportunity to formulate rules by mutual consent. In some countries, like Cyprus and Malaysia, collective bargaining can take place on interest issues only (i.e., wages and working conditions) and not on rights issues (i.e., the interpretation of do's and don'ts in the course of an employment relationship. But in India, it even addresses rights issues. Democratic governments believe collective bargaining is a means of promoting harmonious and co-operative relationships and encouraging the growth of workers and employers. However, only 2 per cent of the total workforce or about 20 per cent of the organised labour-force is covered by collective bargaining, in the unorganised sector, it is rare. Another attempt to maintain good IR is through tripartite committees. There are 44 tripartite committees at the national level. In the public sector, there is bipartite machinery at the national level. Tripartite social dialogue is a process of decision making through discussions among the government, employees and workers. But there is a need for wider consultation between various ministries in the government, employers' organisations, workers and their organisations.

The government need to focus on some of the persistent problems it faces with regard to its role in IR situations. The interface between the Centre and State and the distribution of power and authority regarding policy-making should be tackled in a federal set-up, such as India. Competition between the States results in pluralism and diversity, which becomes counter-productive and unhealthy in terms of maintaining basic labour standards across the country.

The issue of reward and work system, occupational health and safety, incidence of industrial conflict, and the statutory provisions for social security are important in maintaining good IR. Therefore, there should be a paradigm shift in labour policy. At the State level, since 1991, several State governments have made far-reaching changes in their policies. Uttar Pradesh, for instance, requires the labour inspector to obtain prior permission from the Labour Minister before proceeding for inspection.

With changing times, the focus is shifting towards managing work rather than managing the worker. Changes in labour policies and labour

laws in many countries around the world are increasingly focusing on flexibility and competitiveness. Good IR holds the key for success and long-term viability of any enterprise. Management and employees should take the initiative for building a conducive climate to develop good IR.

The present book covers all aspects of IR, including indiscipline, sexual harassment, misconduct, down-sizing or right-sizing, voluntary retirement scheme, retrenchment, termination, retraining, technological change and so forth. It discusses IR in the Indian context while citing landmark Supreme Court judgements and relevant ILO conventions. The book examines contemporary IR practices in world class organisations, such as Honda Motor Cycles, Scooters India Ltd., Maruti Udyog Ltd., Steel Authority of India Ltd., etc. It also provides review questions, critical thinking exercises, classroom and field projects, such as group discussions and analytical reporting. At the end of each chapter, references given for further reading are appropriate and up-to-date. Each chapter concludes with case material and the cases are useful in helping the reader appreciate the process involved in IR. An annexure to most of the chapters contains details about the issues discussed. Each chapter introduces learning objectives to highlight its key areas. These objectives are useful review tools, especially for comprehensive and essay examinations. It captures the interest of the reader.

The book suffers from certain weaknesses. The very definition of IR, given in the Preface, is inadequate and faulty. Improved presentation style and better editing would have improved its quality. For students, many complex and lengthy sentences are difficult to grasp. There is neither Name Index nor Subject Index to allow the reader easy access to the topics/names. The book does not cover some to of the recent court decisions on Family and Medical Leave Act, 1993. Issues, like shifting focus on voluntary retirements from production to productivity, need for psychological counseling, inter-union rivalry, ethical issues in selection and promotion of employees, wage and salary, and income differentials, employee privacy, occupational safety and health, and employee involvement could have been raised.

The book meets the requirement of commerce and management students, as well as the personnel management and IR executives. It has adopted an application-oriented approach. It will serve as a useful handbook for practising managers and professionals active in training and consultancy.

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Barry Berman and Joel R. Evans, *Retail Management: A Strategic Approach* (New Delhi: Pearson Education, 2006), Pages 602, Rs. 395, Softbound.

Retailing comprises the business activities involved in selling goods and providing services to customers for personal, family, or household use. It is the last stage in the process of distribution. Today, it is at an interesting crossroads, with many challenges ahead.

The study of retailing is very important to the professional businessmen and MBA students interested in employment opportunities with large retail chains. It is a fast-emerging area of study in B Schools in the world. In India too, we have seen an increasing interest in retailing among MBA students during last few years since the retailing sector is creating many employment opportunities.

There has been a boom in the retail sector in India owing to a gradual increase in the disposable income of the middle-class households. Many players are venturing into the retail formats building like shopping malls, supermarkets, department stores, and even

changing the traditional look of bookstores, chemist shops, and furnishing stores.

The shopping mall phenomenon is now exciting beyond metros and coming up in large towns across the country. The total mall space in six A-Grade cities—Delhi (including Gurgaon and Noida), Mumbai, Bangalore, Hyderabad, Chennai and Kolkata—exceeded 21.1 million square feet by the year 2005. It has also increased in seven non-metro cities—Pune, Ahemdabad, Lucknow, Ludhiana, Jaipur, Chandigarh, and Indore—in the same duration, and the grand total has touched about 26.2 million square feet by the year 2005.

At the beginning of the last century, the retail sector in developed countries was highly fragmented but the emergence of large chains in The USA, like Wal- Mart, Sears, and McDonald's led to a rapid growth of organised retailing and consolidation of the industry. Rising income levels and accompanying life style changes greatly contributed to the growth of organised retailing in the West.

The book under review provides a clear and balanced presentation of the subject matter, which is of great value to the readers in developing an in-depth understanding of recent developments in retail management. In recognition of the widespread application of retail management concepts, many examples and problems highlighted in the text deal with issues, like not-for-profit, service, retail, wholesale organisations, and manufacturing organisations. Thus, it is a complete text for retail management students and other learners.

One notable feature of this book is that it allows the reader to build the retailing phenomenon from elementary concepts to more complex topics. More importantly, it draws a balance between conceptual and latest approaches to retail management. The author has sought to make the book as self-contained. The book contains many graded illustrations and case studies, which provide enough study material to gain a thorough understanding of the tools and techniques of retail management and their application. The watchwords for this book are relevance, balance, and clarity.

This book divided into eight parts consisting of 20 chapters. Chapter 1 provides an introduction to retailing business. It focuses on the framework of retailing, reasons for studying retailing strategy, retailing concepts, and the special characteristics of the entire distribution chain and the role of retailers and wholesalers.

Chapter 2 describes the building and sustaining of relationships in retailing. It discusses the difference in relationship building between retailers of goods and services. It also emphasises the ethical performance and relationships in retailing. Chapter 3 focuses on the strategic planning in retailing. It covers topics like identification of consumer characteristics and needs, situation analysis, and overall strategy in retailing. The author examines the opportunities and threats in global retailing.

Various retail institutions categorised by ownership have been described in Chapter 4 including independence, chain franchising, leased department, vertical marketing system, and consumer cooperative in retailing which affect customer bahaviour can serve as the basis for segmenting market.

Chapter 5 examines a wide variety of food-oriented retailers, categorised according to its strategy mix, the firm's particular combination of store location, operating procedures, goods/ services offered, pricing tactics, store atmosphere and customer services, and promotional methods.

Chapter 6 looks at the characteristics of the three major retail institutions involved with nonstore-based strategy mixes, i.e., direct marketing, direct selling, and vending machines. This chapter also emphasises the emergence of electronic retailing through the World Wide Web.

Chapter 7 examines the different ways for identifying and understanding consumers' behaviour. The author stresses upon the retailers'

actions with mass marketing strategies, concentrated marketing strategies and environmental factors affecting consumers' attitudes and characteristics.

In continuation, Chapter 8 delineates the flow of information in retail distribution channels which helps consumers become aware of the retail information system. The author has explained why retailers should avoid strategies based on inadequate information and described the marketing research in retailing based upon both primary and secondary data.

Chapter 9, titled 'Trading-Area analysis' deals with the crucial nature of store location for retailers and outlines a four–step approach to location planning. The three major factors explained in this chapter are: population characteristics, economic based characteristics, and competition and the level of saturation.

Chapter 10 highlights three important steps of locations available to a retailer: isolated store, unplanned business district, and planned shopping centre. Several criteria for evaluating general retail locations and specific sites have been discussed in this chapter.

Chapter 11 describes a retail organisation and human resource management which has vital tools for retail management. The significant organisational pattern in retailing has been illustrated.

In Chapter 12, titled, 'Operation Management and Financial Dimensions', the author has discussed profit planning and asset management. He has also described budgeting and resource allocation to make this chapter interesting.

Chapter 13 presents operational dimensions and operation management in operating retail business and how it can be tackled systematically.

The philosophy of developing merchandise plans, buying organisation formats, and processes which are helpful for merchandise planning have been dealt with in Chapter 14.

Major steps in implementing merchandise plan, like gathering information, selecting and interacting with merchandise sources, evaluation, negotiation, and concluding purchases are the subject matter of Chapter 15.

Chapter 16 describes the major aspects of financial merchandise planning and management. It details the cost and retail methods of accounting, forecasting, and budgeting process. The alternative methods of inventory unit control have been elaborated with the help of short and comprehensive cases.

The concepts of pricing in retailing have been discussed in Chapter 17. It includes the external factors affecting retail strategy which are considered significant for retail price policy.

Chapter 18 focuses on the significance of retail image, creating a retail atmosphere that encourage customers to spend more time shopping.

Chapter 19 deals with promotional strategy, specifically how a retailer can inform, persuade, and remind its target market about its strategic mix. It also highlights the concepts of integrity and controlling of the retail strategy.

Lastly, Chapter 20 ties together the elements of retail strategy that have been described all through this book. It also elaborates how industry and company data can be utilised in strategic planning.

The book will undoubtedly contribute to the understanding of retail management. The strategic approach can be applied in specific situations, such as diversifications and starting new ventures in a group of retail organisations.

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