SCMS JOURNAL OF INDIAN MANAGEMENT

Contents

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The Chairman speaks ...

With this issue, ***SCMS Journal of Indian Management*** *has entered the third successful year of publication. During the last two years we have introduced several changes to improve the quality of the journal. Our efforts were always to give the very best to our readers. The overwhelming response we get from our readers, by way of opinions, letters to the editor, contribution of articles, requests for subscriptions etc, speaks volumes about the quality of our Journal.*

The lead articles in this issue explore two of the hottest areas in marketing i.e., branding and globalisation. These topics are of immense concern to practitioners as well as academics. How to go global with a brand? How to make sure that the brand realizes its full potential as it stretches across diverse societies and markets? These are key issues of interest to brand marketers. Perhaps, one of the best ways to get a fresh perspective on these issues may be to look at the best practices that successful global companies have adopted. The lead articles serve this purpose.

This issue of the journal contains ten selected research papers written by authors of repute. I trust you will find it insightful and helpful to stimulate your thought process.

Dr.G.P.C.NAYAR
Chairman, SCMS Group of Educational Institutions

SCMS Journal of Indian Management

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SCMS

Editorial

You have to accept the fact that man is not simply **Homo sapiens**; *he's* **Homo symbolificus** - *he's someone who makes symbols* (Walker Percy 1916-1990).

The student puzzles over a project proposal.
The writer labours over a monograph.
The researcher records the findings in a paper.
The journalist finishes an investigative report.
The executive outlines a business proposal.
The novelist narrates a touching story.
The poet captures a fleeting feeling.
The diarist jots down the day's events.
However, their tasks vary.
But each of them accepts a challenge.
They create coherent ideas in their private worlds of thought.
Each of them maps those ideas into the public worlds of linguistic symbols.
In composing them, these individuals create meaning for themselves.
And at once they create meaning for their readers.
They engage in a special form of thinking.

This is making of meaning.

Thus they may well define one of the most unique characteristics of our species.
We are **Homo symbolificus.**

Creative people come in all shapes and sizes, all colours and ages, and all sorts of personality types: introverts and extroverts, maniacs and depressives, schizophrenics and hysterics, sociopath and good citizen. It is not the personality type that makes the difference, but the self. To the self, I ascribe motivation and style, the choice of meaning, and the making of meaning in work, career, and life course. This is the reason why our management journal strives at getting perfection through articles from all over the globe. We wish and hope to get many articles in the field of management from greater selves to our journal to make it greater.

Dr.D.Radhakrishnan Nair

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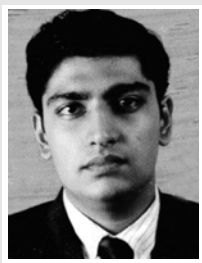
Challenges of Managing and Growing Brands Globally

Prashant Salwan and Jitin Munjal

Technically, Brand value accounts for 38 per cent of the global stock market valuation. While brands are amongst the most stable assets of a company and can increase value in difficult market conditions, brands can lose their value if not managed well. Companies are increasingly expanding the geographic scope of their operations, setting up or acquiring companies in other countries, or entering into alliances across national boundaries. As a result, firms need to pay greater attention to coordinating and integrating their marketing strategy across markets. Rich with experiences from his visits to Samsung, Tetley, Procter and Gamble, Unilever and Coca Cola International in UK and their subsidiaries in Asia, the author has studied the processes followed by them and the best business practices required to meet the challenges of making, growing and consolidating the brands globally.

Importance of Brands in today's world ...

While brands have always been important for a company, since they help sell the companies products in a more profitable manner, the trend in the marketing world is now unmistakable...in the West brand valuation became critical for strategic management a long time ago. As per Jan Lindemann, Global Managing Director for Brand Valuation - Interbrand, "Brands are one of a company's important assets... and they have created shareholder value since the creation of stock markets." Technically, Brand value accounts for 38 per cent of the global stock market valuation!



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As one can see, while on an average, brands account for 38 per cent of a company's valuation, for companies such as Coca Cola, McDonalds and Disney, they account for 59 per cent, 64 per cent and 61 per cent, of the company's valuation – substantially more than the value of physical assets owned by these companies! Just as an interesting comparison, the value of the world's top two brands is more than the foreign exchange reserves of India!

The Interbrand list again indicates the dominance of U.S. brand

As per interband, the top 15 brands globally (and their valuation) are:

Sl.No.	Brand	Value	Brand's Share of Company Value
1.	Coca-Cola	$83.9 billion	59%
2.	Microsoft	$56.7 billion	21%
3.	IBM	$43.8 billion	28%
4.	General Electric	$33.5 billion	10%
5.	Ford	$33.2 billion	58%
6.	Disney	$32.3 billion	61%
7.	Intel	$30.0 billion	21%
8.	McDonald's	$26.2 billion	64%
9.	AT&T	$24.2 billion	24%
10.	Marlboro	$21.1 billion	19%
11.	Nokia	$20.7 billion	44%
12.	Mercedes	$17.8 billion	37%
13.	Nescafé	$17.6 billion	23%
14.	Hewlett-Packard	$17.1 billion	31%
15.	Gillette	$15.8 Billion	37%

Source: Interbrand study, 2000

names – with all the top ten brands being from the United States.

Value of brands can vary substantially, year to year…

Interestingly, the valuation of brands can vary substantially from one year to another, thus making the task of managing brands globally a tricky task. While brands are amongst the most stable assets of a company and can increase value in difficult market conditions, brands can lose their value if not managed well.

Last year Coca Cola, Microsoft and IBM retained the top three positions. However Ericsson was, the biggest value loser in the Top 100 as it went down by down 49 per cent to $3.59 billion and 71st spot. The brand that has gained the most in valuation has been Samsung, which saw a 30 per cent gain, resulting in its value being lifted from $6.37 billion to $8.31 billion - by far the biggest jump among the top 100 brands.

Very few Asian Brands in the top 100 …

Samsung is one of just seven Asian brands in the list. The other six predictably are Japanese, headed by automaker Toyota, with a brand value of $19.45 billion. Honda is next with a value of $15.1 billion, followed by consumer electronics giant Sony at No. 21 and $13.9 billion. Nintendo at No. 32 ($9.22 billion), Canon at No. 43 ($6.7 billion) and Panasonic at No.81 ($31.4 billion) make up the remainder of the Asian brands.

Globalisation and Criticality of Global Brands

Large markets in the Developing Countries …

With increasing globalisation – in all arenas, such as politics, economics, finance etc., the world is turning into a global consumer marketplace. The growth rates of the economies of the developed countries have slowed down considerably, while that of developing countries (specially the BRIC economies) is growing much faster. Hence, the markets of the developing countries are becoming more and more lucrative, not only from the volume point of view, but also from the value point of view (with the per capita income also growing more rapidly than in developed countries). The media and communications explosion, awareness about products and brands available in developed countries is growing, and a latent demand for these very goods is emerging in these countries.

Increase in Global Expansion of Brands …

With the globalisation of markets and the growth of competition on a global scale, companies are increasingly expanding the geographic scope of their operations, setting up or acquiring companies in other countries, or entering into alliances across national boundaries. At the same time, with the spread of global and regional media, the development of international retailing, and the movement of people, goods, and organizations across national borders, markets are becoming more integrated. As a result, firms need to pay greater attention to coordinating and integrating their marketing strategy across markets.

Making Management of Global Brands Critical …

An important element of a firm's international marketing strategy is its branding policy. Strong brands help to establish the firm's identity in the market place, and develop a solid customer franchise (Aaker 1996, Keller 1998, Kapferer 1997) as well as providing a weapon to counter growing retailer power (Barwise and Robertson 1992). They can also provide the basis for brand extensions, which further strengthen the firm's position and enhance value (Aaker and Keller 1990). In international markets, an important issue for the companies is whether to use the same brand name in different countries, leveraging brand strength across boundaries, or whether to maintain local brands responding to local customer preferences. A related issue is what level of branding to emphasize, i.e. corporate/house or product-level brands or some combination of both.

The central role of branding in defining the firm's identity and its position in international markets means that it is critical to develop explicit international brand architecture. This implies identifying the different levels of branding within the company, the number of brands at each level as well as their geographic and product market scope. The most critical element in this structure is the number of levels, i.e. corporate, house/product business and product and how these are used in conjunction with each other. Related to the development of this architecture, is the question of how to manage brands that span different geographic markets and product lines. Who should have custody of international brands, and be responsible for coordinating their positioning in different national or regional markets, as well as making decisions about use of a given brand name on other products or services?

In such times, establishing global brands and managing them globally becomes critical to success and profitability of a company. The challenges can be manifold, and these are discussed in the next section.

2.0 Challenges in Managing Brands Globally

Various Kinds of Challenges Faced in Managing a Brand Globally …

At the core lies the challenge of making the global brand relevant to the local market, while still maintaining the same positioning that it enjoys globally. Since the market conditions, the consumer preferences, the competitive situation is different in every market, this can be a very daunting task.

Some of the aspects influencing these issues are detailed in this section.

Older brands vs newer brands

One of the issues faced by Global brands is a situation wherein the brand has a very old heritage, which has been in existence for many years, and has developed as per the requirements of the particular local market. Over a period of time, this may have developed in a direction very different from the positioning of the brand globally. At this point, to try and move the positioning to be in alignment with the global positioning, can lead to a massive loss in consumer franchise. Such problems are being faced by companies such as Unilever, Nestle etc., which have very old brands, which had grown, outside of the domestic markets several decades back.

On the other hand, in case the brand does not exist in the local market and is making an entry, the task is marginally simpler, as the global positioning can be used to launch the brand in the local market. In this case the challenge lies in ensuring that the global positioning is presented in a manner that is relevant to the local conditions. Such are the challenges being faced by companies such as Samsung, Tetley and LG etc.

Domestic base vs Export Orientation

Traditionally, the reason for expanding to international markets has been the lack of further opportunities in the domestic market. Thus, companies after becoming leaders in their respective domestic markets, find future growth more easily feasible by expanding into other countries. Traditionally, the developed economies have had a larger market size, and if a

company had a dominant market share in the domestic (and developed economy) market, it has access to large volumes of steady cash flows that could be used to fund the expansion overseas. This has been the route followed by many large MNCs such as P&G, Coca Cola etc. These companies had "deep pockets" which they could rely on when competing with the established players in the new international markets.

Additionally, since the consumers in the developed countries were more demanding, these companies had already developed technologies / products that were quite sophisticated. Hence they had the advantage of superior technology, when going into the developing countries.

Contrasted with that are companies such as Samsung, TCS, Haier, Infosys, who derive bulk of their sales from international markets. While they had a leading share in the domestic market, the size of the market (being in the developing world) was much smaller, and hence the availability of cash flows to expand internationally was lesser in comparison. It then became critical for these companies to decide how best to compete with the more established players in the markets they expand into. Not only do they need to be smarter in the way they spend the limited monies they have, they also need to invest in R&D to make products that meet the exacting standards of the consumers in the developed countries. Hence the limited cash flows further get split between the two areas – investing in R&D and investing in marketing.

This slows down the pace at which these companies can expand internationally … it is only in the past decade or so that easier access to global capital at affordable rates have helped the cause of such companies.

Monies Commitment for Developing a Brand

If one were to look at the quantum of monies needed to sustain a brand in a market, the comparison between the monies required for developed and developing countries is substantially different. Just as an indicative example, it is possible for a company to dominate the media and consumer landscape for marketing purposes for a cost of £4m / annum in a country the size of India, whereas to achieve the same dominance in a much smaller country like UK, would require expenses to the tune of £10-15 m / annum (as per estimates from executives in MNCs).

Criticality of Local Knowledge

Since the consumer habits, practices and needs can vary across countries… and even if these are somewhat or very similar, the cultural context in which the consumers operate, may be different. Hence an in-depth understanding of the local market conditions, consumer preferences, media habits, distribution mechanics, competitive landscape, legal standards etc. are key to development of the global brand in the local market.

Today, while market research can help understand these aspects, the company needs to be in a position to use this data effectively. In many cases, due to the centralized nature of managing global brands, these local cultural nuances may not get addressed by the global brand's marketing / advertising campaign. And this can lead to sub-optimal results when the marketing mix is implemented.

Speed of Response to change in Market Conditions

The speed at which a company responds to changes in the competitive marketplace or to changing consumer preferences can impact the success it achieves in the marketplace. Depending on the degree of centralization with which the operations of the company are organized, the speed with which it responds in the market can vary dramatically, e.g., though P&G gives fair degree of autonomy to the local country team, any significant marketplace intervention needs to be approved from the regional headquarters. As compared to P&G, Unilever has a more decentralized approach to managing local markets, and is thus seen to be faster in responding to changes in the marketplace.

This becomes critical specially in today's scenario, where manufacturing of goods in developing countries offers significant economic advantages, and companies need to be able to co-ordinate between production, R&D, design and Marketing managers, who are often located in different geographic locations. It then becomes the key task of the organization to ensure that physical distance does not become a reason for slow speed of response to consumers. Alternately, if that cannot be managed, then companies need to be willing to let go of some of the cost advantages and have various departments in the same location, even though it is not cost optimal.

Developing Countries – Size of Market vs Size of Branded Market

Another aspect of critical importance is accurate estimation of the size of the market. Often companies make errors when

estimating the size of the market in developing countries, as they overestimate the pace at which consumers can be made to shift from buying commodities to buying branded goods. This is often based on companies' previous experience of selling in more advanced economies, where branded goods are substantially more accepted.

This often leads to unrealistically high expectations from the local market and results in "underperformance" and pulling out / reducing investments in the new country.

Developing Countries – Basic Business Model and Impact on Cost

Consumers in developing countries are very often less demanding and discerning as compared to consumers in the developed countries (though at the premium end of the market, the differences are becoming lesser and lesser, irrespective of whether the consumer are in developing or developed countries). Due to this, several local brands are able to meet their needs through low cost products, more fluctuations in quality and with little marketing expenses. Larger companies, who are more used to working with large marketing expenses, and stringent quality controls often get priced out of the market.

In such cases, the companies need to be able to adopt local practices to compete effectively in the marketplace. This is perhaps best highlighted by the success of "Wheel" in India, which effectively took on the local champion "Nirma" in the washing powders category. At the same time, P&G tried to develop a detergent "Ariel Supersoaker" which was more highly priced as they cost structures were in line with global "best practices" and not "local realities." Needles to say, the brand fizzled out very soon.

Quality of Products vs Power of Branding

Interestingly, there is a substantial difference in cultural mindset between the East and the West, in terms of understanding the importance of branding in selling to the consumers. While most companies in the West realize that good quality is a necessary, but not sufficient condition for selling and that good branding is very critical in ensuring that the consumer comes and asks for the product (commonly referred to as the "pull" strategy in marketing), the same is not shared by many companies in the East. It is for this reason that several companies in the electronics good arena, such as Panasonic, Hitachi etc have not been able to make significant inroads in the Western markets. While their products are technically superb, due to weak branding, the consumers do not perceive them to be good buys. The strong exception to this mindset has been SONY, which realized the criticality of branding very early and have made significant investments in building the brand globally. Of late, companies such as Samsung have also been investing heavily in building the brand globally.

Awareness, brands and power brands

Many companies fall into the trap of confusing awareness with brand recall, and brand recall with brand strength. This becomes particularly tempting when one is operating in another country and is keen to get a "quick return" on brand investment, specially when the domestic company does not have "deep pockets" (we have already seen the substantial amount of monies needed to sustain a brand).

While all marketers know that moving on the path of awareness to creation of a brand to creation of a power brand required decades, and not just years, they may be having a power brand status in their domestic market [achieved over several decades], and hence assume that once they launch the brand in a new market, it will automatically acquire the status of a power brand ["…why shouldn't it? It's a power brand back home …"].

Similarly, companies may be lured into thinking that the market is just "waiting" for their brand, and hence companies can find themselves getting frustrated at the "slow progress" being made by the brand in new markets. Product availability is of course just one of the several things that need to fall into place before achieving market success (presenting the brand in the appropriate local context, with modifications in the product to make it suitable for the local market etc. would be among the other critical ones) … however success in the domestic market can make the companies myopic in their view on the pace at which a brand will become a success in a new market.

Examples of this can be seen from India, where Coca Cola achieved success only in the last two-three years, once they incorporated strong local idioms into their brand communication strategy, rather than following "sterile" globally accepted communication platforms. McDonalds on the other hand suitably modified their products for the Indian palate and hence "tasted" success much sooner. Each of these brands has achieved a "Power Brand" status only after being in the market for close to a decade, and have had to spend substantial monies to reach this position.

The points discussed are by no means the only challenges facing a company trying to grow / manage a brand internationally, but provide enough of a flavour of the complexity of managing a brand globally.

In the next section we will take a look at the processes followed by a few global companies in their quest for global expansion of their brands.

3.0 Processes Followed by a few Global Brands

Let us now look at examples of two Asian brands (Samsung, Haier) that have tried to make an impact on the global arena and then look at how one Western company (Unilever) manages its brands globally.

Samsung

Samsung Electronics, a South Korean company, since its establishment in 1969, has manufactured products not with the aim to sell in the domestic market, but for export to the overseas market (due to the limited size of its domestic market). Currently 79 per cent of it's sales are derived through exports, and they operate across approximately 100 offices for production, sales, distribution, and do R&D in 50 countries throughout the world. The sales figures for Samsung, and the area-wise break up is shown in the Table below:

Samsung's 2003 sales: $36.4 billion (unconsolidated)

Area	%
Korea	21.3%
Rest of Asia	34.9%
U.S.	20.4%
Europe	22.9%
Africa	0.5%

Source: Interbrand

Building the Global Brand

The experience of Samsung Electronics shows how hard it can be to build brands. Today, with more than $33 billion in annual sales, it is a global leader in consumer electronics: half of those sales are mainly to Europe and North America. But Samsung spent much time and money on its globalization campaign. Starting with domestic operations, the company acquired basic product-development skills through joint ventures and more than 50 technology-licensing agreements. Branded exports began in the early 1980s, with US prices set at a discount to those of Japanese and US competitors as a way of appealing to price-sensitive customers. Samsung also acted as a private-label supplier to retailers and brands.

It slowly learned the requirements of its markets by conducting extensive consumer research and building up its overseas sales and manufacturing operations in the United States, Germany, the United Kingdom, and Australia. The company increased its R&D budgets, and by the early 1990s its aspirations had led it to invest in products and technologies (for example, flat-screen monitors and televisions, digital high-definition televisions, and digital mobile phones) that would raise its brand profile.

Finally, in the late 1990s (post the East Asian Currency led crisis, when Samsung realised the need to insulate itself from such fluctuations) Samsung launched its global brand with more than $1 billion in advertising, including sponsorship of the Olympic Games. The theme of this campaign was to show Samsung as an organization accomplishing "outstanding feats as a part of day-to-day operations" – which helped create a leadership imagery with the consumers (and hence began the journey to Samsung from an OEM producer to a producer of world class brand).

It formed alliances with high-tech partners such as the US telephone company Sprint and introduced a wave of cutting-edge products, spending more than $7 billion, or five per cent of sales, on R&D from 1996 to 2000 and upward of $400 million on brand advertising in 2001 alone. In the meantime, the company positioned itself as a premium brand by shifting its channel focus from mass merchants to category killers. In a 2003 survey of global brands, Interbrand, a brand strategy and design consultancy, ranked Samsung as number 25, with a brand worth $10.8 billion—a 31 per cent increase from the previous year.

Samsung owes its rapid brand appreciation in part to its 2001 "Everyone's Invited" advertising campaign for its consumer electronics. Gartner said Samsung had 9.6 per cent of the global mobile phone market last year. Since then the company has released more of its 3G camera phones. In May Samsung said it would spend $200 million on its new "DigitAll Experience" global ad campaign, which it said was designed to extend the 2001 campaign and build on its Salt Lake City Winter Olympics sponsorship.

Samsung also got a boost from the World Cup soccer tournament co-hosted by Korea and Japan during June. Sales of its plasma screens and flat-screen television sets jumped during the hugely popular tournament.

This year, the advertisement account has been shifted to WPP, and the size of the account is estimate to be in excess of $ 600m – quite an increase in the last seven years.

Global Branding

The Samsung Electronics brand needed to be managed in a unified manner and maintained consistently for the mid-to-long-term. The company produces and sells a variety of products that must be unified under the premium-brand positioning that they are seeking. Prior to Samsung's decision to manage the brand image through a central organization, many of the marketing activities were localized to the region. However, this was found to be leading to a dilution of the brand and a misconception of the corporate identity.

Hence all large sized branding activity was centralized out of Korea (such as the "DigitAll Experience," Olympics Sponsorship, "Matrix–the movie" sponsorship) and only the smaller, country specific branding activity was decentralized, that to after laying down the boundaries within which the branding needs to operate.

An additional way to keep improving on the premium imagery of the brand is to focus on at least five-six "Hero Products" in the year, which are necessarily cutting edge products, which can lend premium sheen to the brand. An example would be the launch of the 80 inch plasma TV – the largest in the world. While some of the Hero Products will not have a substantial market (like the above mentioned 80 inch plasma TV), they would serve the cause of enhancing the premium imagery for the brand.

There is substantial cross-fertilization of ideas through regular "Global Seminars / Meetings" where the pros and cons of marketing ideas are debated at length.

Managing Globally

According to the executives at Samsung, the key to monitoring the progress of the entire company is in setting the right incentives, controls, and standardized processes in the corporate environment. At Samsung each division is empowered through a system called the Global Business Manager. Implemented several years ago, this system places responsibility on the division head for the profits generated. At the same time, the head is given the flexibility to make prudent decisions, which are crucial for the division's advancement.

However, this centralised approach has some drawbacks, specifically relating to how relevant the brand is seen to be in local markets. Samsung advertising was centralized with an American advertising agency for the past five years and creative were made in New York and then post some tweaking at the local level, they were telecast across the globe … while this may have had some success in the developed countries, there was a basic problem of the creative lacking cultural empathy with consumers in the developing countries [unlike the protagonists shown in the advertisements, there are not too many blonds in developing countries!].

It is now when the brand has developed a common theme across several countries that Samsung is in the process of making the advertising for the brand more de-centralized. Thus, India, which has been identified as a focus area is likely to get the responsibility of making advertisements specifically for the local markets. Of course, all of this will be guided by a detailed Brand Manual, which will ensure that the basic equity of the brand remains consistent across countries, while the local renditions can be made as per local cultural requirements.

Haier

Haier, a Chinese white goods manufacturer, has factories and offices in more than 100 countries, a $15m American headquarters in mid-town Manhattan, and a cult following among American college students who chill their beer in its mini-fridges, sold at Wal-Mart. And Haier is gearing up to become even more global - of the $8 bn / annum sales, about $1 bn sales are achieved from overseas markets.

Market Leader in China, looking for growth beyond China …

Domestically, by 1991 it was a market leader in China, and the company had expanded beyond fridges into a range of white goods by taking over other moribund state enterprises. Today Haier's factory sheds cover more than a square kilometre of Qingdao. Haier is the leading seller in China of most home appliances, with market shares of 20-70 per cent. However, Haier's Chairman, Mr.Zhang admits that plunging returns in his core white goods business domestically, are driving him abroad. After China joined the World Trade Organisation, he said, "every

multinational set up in China. Margins are low here. If we don't go outside, we cannot survive."

Driven by the Lure of Better Profits …

Higher prices for branded goods translate into huge profits. For household appliances, the US profit pool is worth more than $2 billion, nine times the profit pool of China and 100 times that of Brazil. For consumer electronics, it is worth more than $1 billion, ten times more than China's and 20 times Brazil's. Moreover, developed countries offer a wider range of sizable segments to target. The US market for projection televisions (screens of 45 inches—115 centimeters—and up) is worth more than all of the video products sold in India, while the $400 million worth of compact refrigerators sold in the United States in 2000 amounted to twice the total value of all refrigerators sold in South Africa or Poland.

It has had some success in the global market, with overseas sales of approx. $1 billion - Haier claims 30 per cent of the market for small fridges and half the market for wine coolers in America, and a tenth of Europe's air-conditioner market. Haier is now the world's fourth-largest white-goods maker behind Whirlpool, Electrolux and Bosch-Siemens and ahead of GE—though that is mostly owing to its big domestic production volumes. The company wants to improve this position to number three.

The Strategy is driven towards Building the Brand …

The strategy that it is using in the U.S. is to build up consumer awareness. And they are attempting to make consumers feel that Haier meets their needs significantly better than competition. So their strategy has focused on developing innovative products. For example, they chose the dormitory refrigerator (used by students) not because the product was cheap, but because they felt their dormitory refrigerators could satisfy the needs of American college students better than competition. So they designed this product for that group of consumers - the design was innovative and different from what was offered by the competitors (e.g. they added a foldable flap that could be used to place laptop computers, which are owned by most college students in America – hence, attention to such small details made the difference!) resulting in them having been able to outsell similar products made by competition (which fell into the trap of considering this as being too small a niche to cater to specifically with product innovations).

From the Lower End to the Higher End of the Products …

Now they are moving into higher-end refrigerators - so one can say that they have first focused on the low end, and now will move into the medium end and later on into the higher end.

But the college dorm and oenophile markets will take Haier only so far. To reach his goal of $1 billion sales in the USA by 2005 (current sales are $300m), the local manager says, "we need core products to attain mass retail presence." That means mainstream items like air conditioners and washing machines especially, family-sized refrigerators, the product with which Haier got its start. But while Asian brand names have become common on everything from televisions to cars, the major-appliance market in the U.S. is still dominated by Whirlpool, General Electric, and Maytag. The biggest foreign player is Sweden's Electrolux, which got into U.S. kitchens by buying Frigidaire. The four companies together make 98 per cent of the nine million standard refrigerators sold in the U.S. each year. Haier's goal: ten per cent of that market by 2005. "Given what we've done in other categories," he says, "I don't see why we can't achieve that."

But are the Resources and Focus in Place? …

But size does not automatically mean quality; just as buying name recognition at any price (that $ 15m Manhattan HQ) does not equal careful brand building. Haier's drive into markets abroad mirrors a push into new markets at home. In both, diversification is driven by opportunism and not good strategy. Predicting that profits in 2004 will be flat at two billion yuan for a third successive year, despite an expected 20-30 per cent rise in sales, outside China, Haier has so far concentrated on niche products like — mini-fridges (to which it adds a handy fold-down flap for a laptop) and wine coolers. But to continue to grow globally it will have to compete with the likes of Whirlpool in their main markets. Yet Haier lacks such firm's R&D, design skills, research strength (it employs just ten researchers in America). In addition, their distribution and their service networks also has poor backing. Mr.Zhang (Chairman of Haier) says his biggest problem is hiring decent managers, since he cannot pay as well as rivals. Haier does not have established brands—or the money to build one.

Nor is Haier being careful to keep costs low. Mr.Zhang insists that Haier must produce outside China to be responsive to customers. Yet, with that strategy, that deprives Haier of its greatest advantage: China's vast pool of low-cost labour.

Meanwhile, Haier's attempt to reward creativity—allowing every engineer the freedom to design and build his own products has worked very well, leaving it with a bewildering 96 categories of goods in 15,100 specifications, including a fridge that pickles Korean *kimchee* cabbage and a washing machine that also cleans sweet potatoes! Most of these variants add more to production costs and complexity than they will ever add to sales. Worse, the group has moved beyond white goods into computers, mobile phones (where sales have been disappointing), and even interior design and pharmaceuticals. All with unlimited potential, insists Mr.Zhang. "This is a globalised era. No single industry can survive. There is a great future in these markets."

Tackling the tough Developed Markets First …

Haier's development strategy is to explore the difficult markets first and then go into the easier markets. So the first efforts are to explore the European and American markets rather than the developing countries. While they realize that it is very hard to go directly to developed markets and fight face-to-face with more advanced competitors, the stated objective is not just to earn hard currency but also to build up the company's brand awareness and recognition. And in order to enter developed countries, products have to pass through a very stringent certification process. Usually this process takes almost one year. And once they enter the market, often people will feel that products from China are just cheap junk. So in order to sell it's goods at a decent price, they have to regularly improve on their quality. While this puts pressure on Haier, it also helps them to improve and build up their brand reputation in the home country.

Retail Partnerships…Based on Meeting their Needs Better than Competition

On the retail front, they already have relationships with the top ten largest chain stores. But instead of only managing relations with the retailers, they are focussing on what they feel is something which is much more important – to help the retailers make more monies. Instead of just building good relations, they intend to help the retailers identify who are their target consumer groups and then design products specifically for them.

Different chain stores have different consumers - some of them target a lower-end consumer — one example of that is Wal-Mart. Others target a higher-end consumer like Sears. So they intend to help retailers by developing products that meet their specific needs. This is not something that is likely to be lucrative for the large white goods brands in the US, and will thus be an extension of the "niche market exploitation" and "product differentiation" strategy, which has worked well for them till now.

The Path ahead …

Haier also realizes the importance of having a powerful brand in the U.S. market, there are many mature brand names such as Maytag, Whirlpool, and G.E, and Haier realizes that people feel that those are the most trusted brand names. It is also the same in the European market - there it is Bosch and Siemens that are most trusted. Most of these brand names have been in existence for more than 100 years, but Haier has a history of only ten-plus years. In addition it has only been a few years since Haier first moved into these overseas markets, hence Haier's focus on the "niche market exploitation" and "product differentiation strategy."

As stated by Mr.Zhang "Also key to strengthening Haier's brand name is our speed and our ability to differentiate ourselves from our competitors. While other companies may also recognize a consumer's needs, they may not be able to convert this knowledge into real products in a timely enough fashion. At Haier, we can convert ideas into products in a very short time. This is especially after our recent business-process reengineering. Secondly, our products must not appear similar to any other company's products. We must develop products that clearly differentiate us from all of our competitors."

In 2000, Haier became the first Chinese company to open a major manufacturing facility in the U.S. Last year its first products went on sale. And this year the $40 million factory expects to turn out 200,000 family-sized refrigerators. If it seems odd for a Chinese company to open a factory in the U.S.— since the traffic is typically in the other direction, since labour costs are so much lower in China—Haier has its reasons. First, it is expensive to ship big, hollow refrigerators from China. Second, Haier likes design and production to be close to its markets. (The group has eight design centers and 13 factories outside China). A U.S. factory also allows Haier to stick a made in the U.S.A. label on its products and is a sign to retailers that the company is in America to stay. As for Chinese workers, there aren't many - out of 220 employees, only factory president Zhang Zinmin, a small support staff, and about half a dozen engineers are Chinese.

Just as the Camden facility represents Haier's determination to fit into the American market, the company's sales headquarters in Manhattan represents another attempt to put down roots.

Haier spent $15 million to buy the former Greenwich Bank building, a 1924 landmark that embodies solidity. In addition to offices and research labs, the company plans to put a showroom and a restaurant in the former banking hall. Haier likes to see itself as different. "We can't just do me-too products," says Jemal, the local manager. "The competition is much more established, with great brands and distribution, so if we're like them, we'll be crushed." The fridges from Camden, for example, are your basic white boxes. But the company points to distinctive features like see-through vegetable crispers and door shelves that hold gallon jugs - small things, but Haier hopes these touches will help to distinguish the refrigerators in the entry-level market segments they're in.

As it ventures out of niches into the mass market, Haier is starting to do consumer advertising. Previously most of its ads were limited to brand promotion on billboards and airport luggage trolleys. Now it wants to reach shoppers directly, so that some day people will no longer wonder, "Haier who?" But the company's first effort, an ad in the September issue of Good Housekeeping for the Access Plus freezer, looks old-fashioned—a brand-building effort equivalent to a basic white box.

American appliance makers are aware of what Haier plans."I take it very seriously," says GE Appliances chief executive Jim Campbell. Not that he feels threatened. GE has unrivalled brand recognition, a vast range of products, and a nationwide service network. Haier has one small factory and a dream.

Nonetheless, Haier's bid to take a chunk of the American market is a serious one. "Over five years," says analyst Nicholas Heymann of Prudential Securities, "it could become a force." With good-quality products and low prices - a Haier 14-cubic-foot unit costs $370, about $50 less than a Whirlpool - it is not fanciful that Haier could break into America the way Sony did in the 1950s or Samsung did in the 1980s. In one important way, Haier has an advantage over the earlier Asian pioneers. Marshall Meyer, of the Wharton School of Business, notes that given China's vast geography, disparate markets, and multiplicity of national and local authorities, Haier has dealt with many of the problems of globalisation without leaving home.

"Haier has meticulous planning like a Japanese company and execution like GE," says Camden general manager Guberski. "And when these guys decide to do something, boy, do they act fast."

Other Chinese Companies

Background

Many companies in China have shown quite convincingly that they can manufacture competitively priced, high-quality products.

In fact, Chinese companies have shown convincingly that they can produce competitively priced, high-quality goods. Galanz, for instance, makes microwave ovens on an OEM basis for almost all of the world's leading consumer electronics companies. Swan supplies General Electric with dishwashers. And Changhong Electric supplied Wal-Mart Stores with televisions sold under an unrelated brand, Apex Digital, in a giant one-day promotion in 2002.

The Chinese companies most likely to succeed in establishing brands in overseas markets are those that have a track record in low-cost, high-quality manufacturing and show marketing prowess on the local level. In general, Chinese manufacturers have relied on a fully integrated model in the domestic market. They start off using foreign technology and then try to develop their own technology and products. Most of these companies are heavily asset-based and have large manufacturing organizations, and almost all have their own distribution networks and large, cheap sales forces. Replicating this model with traditional products in developed markets would be prohibitively expensive, time-consuming, or beyond the skills of management. Only a few Chinese companies, such as Haier, have built factories in the United States; Haier's leaders believe that the added expense of producing goods there will be outweighed by the ability to respond more quickly to changes in local consumer tastes.

More specifically, the Chinese have no overseas distribution channels or service networks, little promotional or advertising savvy, and limited pricing skills. It is questionable whether these companies could quickly develop a feel for the design and feature preferences of Western customers.

Alternate Business Models to grow the Brand Globally

There are two business models that would help a Chinese consumer products company move its branded goods quickly into developed markets while taking the time to become familiar with them.

The first model is a step-by-step procedure in which products exported from China penetrate overseas markets through independent distributors serving discount channels. This gradual process would permit Chinese companies to gain an understanding of customer behaviour and to build brand recognition.

In the second model, Chinese companies buy an established brand that has fallen on hard times and then move its production to China to benefit from lower labour costs.

The Step-by-Step Approach

Channel consolidation in advanced markets has long been seen as a barrier to outsiders. Mass-market retailers in the United States for example, control more than half of the consumer electronics market, and the trend is accelerating. This development means that there are fewer competitors to which manufacturers can pitch their goods and that they have less power over pricing. Exclusivity deals can also block access to consumers. Nonetheless, a big problem in retailing today is sameness. Retailers are looking for distinct brands and products, and if these provide good margins and fair prices for the consumer, so much the better.

Working with distributors provides a Chinese company with a chance to learn more about US markets and build its overseas capabilities.

Buying your Way in

The alternative to entering a market step-by-step is to buy into it through mergers and acquisitions. Suitable targets would be companies with valuable assets—brands, customer bases, technology, or channels—as well as products that have become overpriced as a result of management's failure to monitor costs, to move production offshore to low-cost locations (such as China), or to extract the best prices from overseas factories or offshore OEMs.

A buyer could move the bulk of the acquired company's production to China and retain the brand name, distribution channels, and some of the local talent. Over time, it could co-brand the product with its own name to build consumer awareness of its Chinese brand. Once the association and awareness had been firmly established, the buyer could phase out the target brand. The biggest obstacle for a Chinese company would be locating qualified turnaround managers for its typically distressed targets, since it would be unlikely to have postmerger-management and marketing skills in-house.

The TCL Case

A leading Chinese electronics maker is pursuing a variant of this approach. TCL International Holdings purchased an insolvent German television maker, Schneider Electronics, for $8 million in September 2002, in an attempt to break into the European market. Included in the acquisition price were Schneider's plants; its distribution network of chain stores, hypermarkets, and mail order; and trademark rights to a series of brands, including Schneider and Dual. TCL, hoping to avoid European quotas on the importation of Chinese TV sets, expects to continue production in Europe. A professional management team is helping TCL understand the local market and sales networks, and some Schneider employees have been re-hired to oversee production. If the strategy is successful, TCL could one day introduce the TCL brand to the European market; electronics products bearing the name are already exported to Australia, the Middle East, Russia, South Africa, and Southeast Asia. In a twist, TCL is using its Schneider brand to position its mobile telephones in the high-end segment of the Chinese market. More recently, TCL bought GoVideo, of Scottsdale, Arizona, which makes DVD players.

Unilever

Managing the Brand Identity …

For Unilever, there is a common approach to measuring equity of a brand in different countries. There is global vision for a global brand…where they think the brand should be in terms of its personality, values, etc. Brands in individual countries are then accessed against this global vision and gaps are identified. Hence each country knows where they are with respect to where they should be.

Unilever realizes that the biggest challenge in managing brands across regions is that these brands have very different heritage in different countries. Global brand management is a recent phenomenon and most of their brands have been in local countries for over 100 years. Overcoming this could mean changing what the brand has stood for many years…hence it is a slow process and needs to involve the local brand team (custodians of their consumers' needs) at each stage.

Most brands of Unilever's are global brands. There could be some regional brands (Fair and Lovely - a fairness cosmetic cream in the Indian subcontinent) and some local brands (Wheel - a washing powder in India). Even if names are all different most brands today belong to a global brand set.

Global Brand Team Structure …

Global brands have a global brand director, who works with a team of people; together they form the Global Brand Team. All directions, development work, strategic communication is carried out by this team. The team members come from the regions i.e. people working on the brand at the regional/local level. Hence "operating company" interests are well represented, as is the need for one global direction and strategy.

Best Practice in Innovation…

All innovations are GBT approved innovations only. But the project leader would be from a lead region (the region that will launch first and be responsible for roll-out). It could also be a simultaneous launch in more than one region, still the project leader will be from one region and responsible for the global launch. The project team will have representatives from different regions. The gate keeping will be done by the GBT.

Best Practice in Communication …

The advertising agency is by and large the same for the brand around the world. The global brand team and the agency would work together to produce communication/ communication strategy, which gets adapted or parallelly developed for the other regions. The strategy development process is centralised, but the actual communication development is decentralised. Also there could be additional communication needs for local countries based on competitive pressures, equity in the market, size of the brand etc, which is managed by the regional team.

The advertising for the local markets is quite decentralised. It is rarely an adaptation of a global campaign. It would be parallelly developed for the region. Two of three regions will develop the campaign jointly (single briefing). This way the starting point is the same, but local considerations are there from the start as well. The single brief helps to ensure common parameters/guidelines.

Other Global Majors

Insights from other Globally renowned marketers are shared below:

P&G and Coca Cola

- Common advertising agencies globally, with local countries being given fair amount of leeway to make advertisements that are relevant to the local conditions. However, to ensure that the brand identity is maintained, the final approval comes from the Global Brand Manager, who works in close consultation with the local brand managers.
- Interestingly, both companies have moved towards this more decentralized development of advertisement campaigns only in the last decade or so, and prior to this, they used local adaptations of global themes as the primary mechanism for advertising in new countries.
- Both companies believe that each brand should stand on it's own and hence do not follow the "umbrella branding" format wherein the corporate brand is used to strengthen the brand's position in the marketplace (unlike Unilever).
- P&G invests heavily in ensuring that different departments (often located in different parts of the globe) interact in an effective and efficient manner, to ensure that speed to market is not compromised due to diverse locations.

Whirlpool

- Has an understanding / alliance with P&G in the USA and Unilever in Europe, for sharing of ideas on product development and consumer insights, for mutual benefit.

4.0 Conclusions:

In this debate, the cornerstone is to ensure that the brand has a consistent positioning globally, while giving enough leeway to the local managers to tailor make the advertisement campaign to meet the particular needs of the market.

Hence, a combination of strong direction in terms of what are "must haves" and what are the "must not dos" for each brand need to be specified very clearly (perhaps using a detailed brand

manual). At the same time, with the "must haves" having been met, enough flexibility needs to be given to the local teams to decide on the most appropriate execution of the advertisement campaign. There is also a need for a Global Brand Manager who is the sole custodian for the brand worldwide, and who must work with regional / local brand teams to ensure that the needs of the corporate (consistency in the brand's equity) and the needs of the local market (tailor the brand to appeal to the local consumers) are met.

Managing the Brand Identity

A common metric for analysis of adherence to the global equity of a brand needs to be followed, so that there is an objective way of dealing with conflicts between the corporate requirements and the requirements of the local country teams. Almost all major global marketers have a partnership with a Market Research agency to develop such a metric for use across the globe.

Corporate vs Product vs Hybrid brands

Very often it is easier to make inroads into another country by acquiring a local brand. Also, sometimes the parent brand / corporate brand may be well-known in a country, while the corporate's brand may not be all that well-known (e.g. P&G may be well-known in India, but Pantene was an unknown brand till seven years back). In such cases the company needs to decide on how best to handle the branding strategy. It has an option of choosing between the following approaches:

- Corporate Branding: where the corporate brand is the one that is advertised and is the brand face consumers are exposed to. This approach is used by brands such as Nike, Adidas, Shell, Bennetton etc.
- Product Brands: where the consumer is exposed to the product brand e.g. Camay, Tide, Ariel and the corporate brand are not used. This approach is also used when a strong brand is acquired by a company e.g. Castrol brand that was bought over by British Petroleum, or the Kwality biscuits brand (which was a local brand in India) that was bought over by Britannia (the largest biscuit manufacturer/marketer in India).
- Hybrid approach: wherein for some of the brands the product brand is used and for some brands a combination of the corporate and product brand is used. Examples would include Nestle, Kit Kat, Cadbury's Dairy Milk, and Cherry Coke etc.

Local Knowledge and Control
(Manpower Deployment – expats vs local)

One of the ways of retaining control on the local operations is to have expat managers occupy key positions in the company. While this helps in ensuring that the corporate culture gets replicated in the local company, it runs the risk of not being able to extract the local knowledge that is likely to be crucial for market success. Hence, substantial standardizations in procedure / process, training / exposure across countries should be used to ensure commonality of culture, and at the same time, ensuring that local talent is used for gaining the best local insights.

This is particularly an area where large software companies from India, such as Wipro, Infosys and TCS fail to grow the business as rapidly as they could, since a large part of the Sales Development and Marketing is done by expat Indians (for reasons of lower cost to company). It is only in the last few years that these companies have started hiring local talent to take advantage of the local knowledge base.

Advertising Agencies – Global vs Local

The case for a common advertising agency handling the brand globally is fairly obvious, for reasons of maintaining consistency across countries. However, here there are two critical aspects that need to be considered:

- The local arm of the agency needs to be given enough flexibility to work on a communication that is relevant to the local consumers / rooted in local idioms.
- In case the local arm of the global advertising agency is weak, then the local arm of the company needs to be given the flexibility of working with another advertising agency / pressure must be put on the global agency to improve the quality of its people locally.

Growth Strategy: Slow Testing of the Waters vs all out Frontal attack vs buying your way in …

The strategic route to be taken for growth in a market needs

to be very well thought out. Often this is a function of the risk appetite of the parent corporate / availability of funds.

A less risky approach is of course to do a "soft launch" in a few selected / niche markets, thereby ensuring that financial liabilities are limited and at the same time, enough time is spent in the market to understand market structures and consumer preferences. This is the most popular strategy and is the strategy being followed by Haier, and most other companies these days.

An alternate option is to buy out a strong local brand, so that one can enter the market with a "bang" and start off with a strong and dominant market position, which can then be buttressed with the launch of its own brands. This was the path followed by Coca Cola in India, with the acquisition of the Thums Up – a local brand of cola.

Korean companies such as LG and Samsung went ahead with a full frontal attack on the Indian market with the launch of a slew of products in the white goods category, albeit after substantial homework having been done.

View on the Time Horizon

The company also needs to decide on what time horizon is it giving itself for success ... this has obvious implications in terms of the amount of monies it needs to budget, and in a way also underline the intent of the company, e.g. Kellogg's invested without holding back for a period of 18 years in Japan before turning profitable, similarly, Coca Cola continues to lose money in India for the last decade, but still does not sting on market investment. Whereas, Titan (an Indian watch brand) pulled the plug on the global journey of its brand within two years, when it realized the true extent of the monies commitment needed.

Speed of Response to Markets

Irrespective of the location of various departments (specially manufacturing departments which are increasingly being outsourced to developing countries), mechanisms for smooth inter-departmental co-ordination need to be worked out, to achieve faster response times to markets. P&G has gone several steps ahead in this direction in managing this on a global basis, through investments in IT and by undertaking Business Process re-engineering and tracks its response time to market year after year.

Point of Differentiation

The corporate needs to be sharply focussed on what is the true point of differentiation between their brand and the incumbent brands. Typically, brands from the developing countries expanding into the developed world use the natural price point advantage as the key point of differentiation. While this is bound to work well in the short term, the corporate needs to ensure that parallelly another significant point of differentiation is created, lest it be branded as a brand that operates in the lower end of the market.

Examples would include Samsung, which started off as a brand operating in the lower end of the market, and it has had to spend more than $ 400m last year to upgrade its image in the minds of the consumers. And by the looks of it, it will need to sustain this kind of spending for the next four-five years before it can assure itself of a premium positioning.

Another candidate for this aspect would be the software company from India, which till now have relied essentially on low cost software engineers to create an arbitrage opportunity. Over a period of time it needs to build its capabilities and brand in being able to offer industry specific solutions / move up the value chain and become more of a "consultancy" type of outfit. This is already being attempted by companies such as Infosys which is making a conscious attempt to build its brand and exploit its "Global Delivery Model" as the new point of differentiation vis-à-vis other consulting companies.

Key words: Brand Valuation, globalisation, leveraging brand strength, brand Orientation, market share consumers, Building the Global Brand, Hybrid brands.

Bibliography

Aaker, David and Kevin Keller, "Consumer Evaluations of Brand Extensions," *Journal of Marketing*, 54, 1, 27-33, 1990.

Aaker, David, "Building Strong Brands," New York: The Free Press, 1996.

Allan R. Gold, Glenn Leibowitz, and Anthony Perkins, "A computer Legend in the making," *The McKinsey Quarterly,* Number 3, 72–83, 2001.

Barwise, Patrick and Thomas Robertson, "Brand Portfolios," *European Management Journal*, 10, 3 (September), 277-285, 1992.

Battle of the brands, *Consumer Reports*; *Aug., Vol. 70* Issue 8, 12, 4, 2 charts, 8, 2005.

Berner, Robert,Kiley, David Der Hovanesian, Mara,Rowley, Ian Arndt, "Michael GLOBAL BRANDS," *Business Week*; 8/1/2005 Issue 3945, 86, 4, 2 charts, 4c, 2005.

Clark, Duncan, "Going Global," *Forbes,* August, 2004.

Court, Freeling, Leiter and Parsons, "If Nike can just do it, why cant we," *McKinsey Quarterly*, 3, 1997.

Featherstone, Mike, "Global Culture: An Introduction," *Global Culture: Nationalism, Globalization and Modernism*, *in Mike Featherstone* (ed.), London: Sage Publications, 1990.

Filho, Calicchio and Lunardini, "Brand Building in Emerging Markets," *McKinsey Quarterly*, Special Edition, 2003.

Fischer, Bill, "The Enigma of Shanghai Brands," *Sunday Column, 2003.*

Foy, Peter and Kumar, Anil, "Rolling Out the Red Carpet," *McKinsey Quarterly*, 4, 1997.

Hoschka and Liningston,"Winning Asian Strategies," *McKinsey Quarterly*, 1, 2002.

Interbrand reports on the gainers in the global brand war, *Design Week*; 7/28/2005, Vol. 20 Issue 30, 5, 1/5, 2005.

Kapferer, Jean-Noel, *Strategic Brand Management, second edition,* London: Kogan Page. Olins, W. (1989), Corporate Identity, London: Thames and Hudson, 1997.

McGregor, "Jena Brand Aids," Fast Company; Aug., Issue 97, 28, 1/3, 2005.

McIntyre, Paul, "Samsung Shouts, Coke Goes soft," 2004.

Ming-Huei Hsieh, "Measuring Global Brand Equity Using Cross-National Survey Data," *Journal of International Marketing*; Vol. 12 Issue 2, 28, 30, 8 charts, 2004.

Parsons, Andrew J., "Nestle: The vision of local managers," *McKinsey Quarterly*, 2, 1996.

Paul Gao, Jonathan R. Woetzel, and Yibing Wu (2003), "Can Chinese Brands make it abroad?" The *McKinsey Quarterly*, Special Edition: Global directions,2003.

Sapsford, Jathon, "Toyota Introduces a New Luxury Brand in Japan: Lexus," *Wall Street Journal - Eastern Edition;* 8/3/2005, Vol. 246 Issue 23, B1, 2, 1c, 2005.

Schuiling, Isabelle, "How different are branding strategies in the pharmaceutical industry and the fast-moving consumer goods sector," *Journal of Brand Management;* May 2004, Vol. 11 Issue 5, 366, 15, 2004.

Smith, "Carl The Importance of the IMA Brand," *Strategic Finance;* Aug., 2005, Vol. 87 Issue 2, 6, 1, 1bw, 2005.

The 100 Top Brands, *Business Week*; 8/1/2005 Issue 3945, 90, 4, 2005.

Tischler, "Linda SMELLS LIKE BRAND SPIRIT," *Fast Company;* Aug., 2005 Issue 97, 52, 6, 3c, 2005.

Wu, Yibing, "China's Refrigerator Magnate," *McKinsey Quarterly*, 3, 2003.

A Conceptual Framework on Brand Architecture in Indian Context

C.Anandan, M.Prasanna Mohan Raj and K.Ravichandran

Brand architecture is a key component of the firm's overall marketing strategy. It provides a structure to leverage strong brands into other markets, assimilate acquired brands, and rationalize the firm's branding strategy. Brand architecture defines and orders the relationship between brands, the corporate entities and families of products and services. This article looks at how firms have developed brand architecture and the drivers that shape that architecture. The importance of designing clear and effective brand architecture and managing brands in order to maintain a harmonious balance within this architecture are discussed. Various Models adopted for Brand architecture are also discussed with Indian examples. The paper concludes by emphasizing the need for the effective managing the firm's brand architecture in the light of ongoing global trends of industry consolidation, global competition and lowering the information costs.

With the globalization of markets and the growth of competition on a global scale, companies are increasingly expanding the geographic scope of their operations, all firms have multiple brands and they manage them as a team to work together and to help each other and to avoid getting in each other's way.

The central role of branding in defining the firm's identity and its position in markets means that it is critical to develop explicit brand architecture. This implies identifying the different levels of branding within the firm, the number of brands at each level as well as their geographic and product market scope. The most critical element in this structure is the number of levels, i.e. corporate, house/ product business and how these are used in conjunction with each other.

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1.1 Definition

Brand Architecture is an organizing structure of brand portfolio that specifies the brand roles and relationship among the brands and different product market context.

Brand Architecture is the vehicle by which the brand team functions as a unit to create synergy, clarity and leverage.

If it is assumed each brand as artists, the brand architecture will play the role of Director's job of providing the artists correct roles and making them function as team rather than a collection of artists. The Brand architecture creates a system, like a road map, that helps consumers and key corporate constituents to navigate easily among brands and make the right choices.

2. Drivers of Brand Architecture

Brand architecture, like any living organism, is continually changing, both shaped by and evolving in response to these drivers:

1. Firm's Administrative Heritage
2. Corporate endorsement
3. Product Diversity
4. Product Market integration
5. Consistency

2.1 The Firm's Administrative Heritage

The firm's administrative heritage is central to understanding its branding strategy. Firms with a centralized organizational structure and global product divisions, such as Sony or Siemens, are more likely to have global brands[i]. Both Siemens and Sony adopt a corporate branding strategy emphasizing the quality and reliability of their products. A firm that has historically operated on a highly decentralized basis where country managers have substantial autonomy likely to have a substantial number of local brands. Unilever's are adopting this strategy and having the local brands.

2.2 Corporate Endorsement

Corporate endorsement of product level brands is increasingly used as a mechanism to integrate brand structure across markets, providing a unifying element across product offerings. Companies such as IBM and Apple, place considerable emphasis on corporate identity[ii]. In the case of IBM, "Big Blue" is associated with a solid corporate reputation and projects the company's image of a large reliable computer company, providing products and services worldwide[iii]. Equally, Apple used its colored apple logo to project the image of a vibrant challenger in the personal computer market[iv]. Indian company with highly diverse product lines such as TATA having Automobiles, FMCG, Information Technology and Finance services rely on the corporate brand name (and its logo) to project an image of reliability.

2.3 Product Diversity

The interrelatedness of the product businesses in which the firm is involved will be one of the major drivers in determining the Brand architecture. Firms that are involved in closely related product lines or businesses rely on similar core competencies often emphasize corporate brands. Amul, for example, is involved in a range of product businesses from Dairy products and Chocolates to Ice Creams. All of them are relying heavily on Quality Conscious. The Gujarat Co-operative Milk Marketing Federation Ltd. has emerged as the top scorer in the service category of the prestigious IMC Ramkrishna Bajaj National Quality Award - 2003[v]. Use of the Amul name provides reassurance and reinforces the firm's reputation for Quality and reliable products.

Conversely, when firms are involved in a range of diverse product businesses that target different customer segments, and have different associations, opt to develop separate identities and associations for individual businesses or products. For example, Hindustan Lever and P&G has no corporate brand and emphasize either product or house brands, thus establishing separate identities for their businesses such as personal care, feminine care and detergents[vi].

2.4 Product Market Integration

Another driver influencing the firm's brand architecture is the degree of product market integration. This can be viewed not only in terms of whether customers have similar purchase needs and interests worldwide, but also whether the same competitors are present in these markets. Where the same competitors compete in all or most markets, but local competitors are also present, use of a multi-tier branding structure, including global corporate or product brands as well as local brands is desirable. For example Coca-Cola and Pepsi, not only have their global brand of colas, but also numerous local and regional brands catering to specific market tastes like Fanta and Mirinda in India. Similarly Colgate has also regional brand variants such as Colgate herbal, Colgate gel.

2.5 Consistency

Consistency is the important factor relative to the diversity of products and product lines within the company. There should be balance between the number of brand names and a common identity across different products. Establishment of strong and distinctive brand images for different product lines help to establish their separate identities, conversely, use of a common

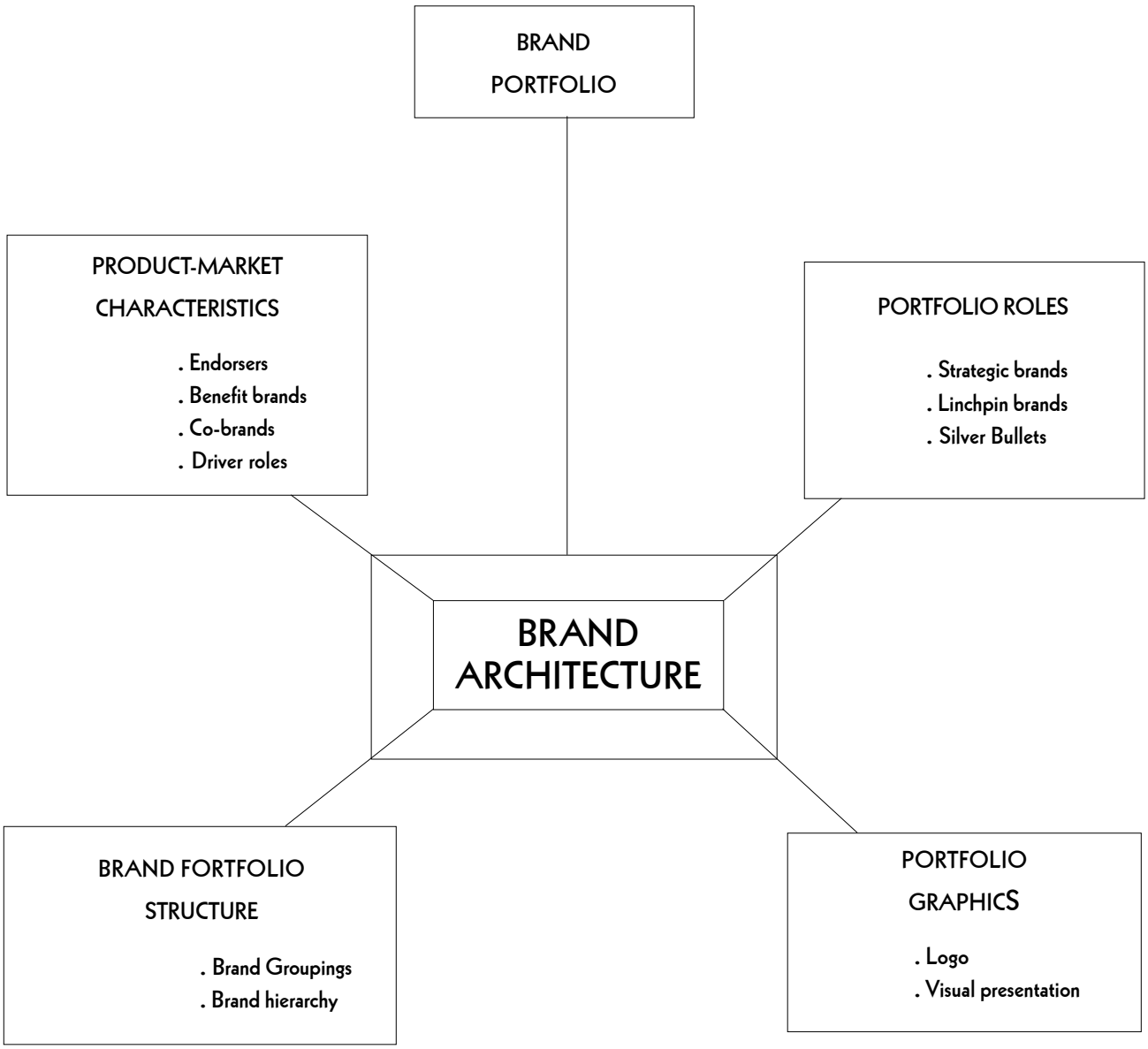
brand name consolidates effort and can produce synergies.

3. Framework of Brand Architecture

Management needs to design an efficient harmonious brand architecture that spans operations in different countries and product lines. Brand architecture defines and orders the relationship between brands, the corporate entities and families of products and services. Ultimately, the architecture creates a system, like a road map, that helps consumers and key corporate constituents to navigate easily among brands and make the right choices. Brand architecture is defined by five dimensions as follows (Figure is shown in Annexure I).

Annexure I

Figure No.1 Framework of Brand Architecture



i. Brand portfolio
ii. Portfolio roles
iii. Product market context roles
iv. Portfolio structure
v. Portfolio Graphics

3.1 Brand Portfolio

The combination of all brands and sub brands attached with Product-market offerings, including co-brands with other firms is called Brand Portfolio. Brand architecture involves the management of brand portfolio. The Brand portfolio of Hindustan Lever Ltd consists of 110 brands with 950 of different types of packs, which are operating under different market context like health care, personal care, beverages etc[vii]. The brand portfolio can be strengthened by both addition and deletion of brands in view of portfolio perspective.

3.2 Portfolio Roles

Portfolio roles are the toll to provide the systems view of brand portfolio, include the following:

- Strategic Brand
- Linchpin Brand
- Silver bullet
- Cash cow brand

These portfolio roles are not mutually exclusive. The brand may be simultaneously a linchpin and silver-bullet brand.

3.2.1 Strategic Brand

The strategic brand may be the dominant brand, which is projected to maintain or grow its sales and profit. These brands are also called as Mega Brands. Reliance Infocomm is the strategic brand of Reliance Group of companies, because the future of the organization is to move beyond traditional plastic and textile industry. Vicks is a strategic brand for P&G as it laid the foundation for a position in Over-the-Counter Category[viii].

3.2.2 Linchpin Brand

Linchpin brand indirectly influences the business by providing the basis for customer loyalty. It is the leverage point of future vision of the firm. Vimal may be called as Linchpin brand for reliance industries[ix].

3.2.3 Silver Bullet

A Silver bullet is a brand, which can be powerful force in creating, changing or maintaining a brand image. It positively influences the image of another brand. Successful silver bullets are listed as follows:

HP laser Jet's resolution Enhancement is the branded feature served to make credible claims that Hewlett-Packard had achieved another breakthrough in printer technology.

Colgate gel is positioned as having branded feature of "Freshness." Colgate gel, silver bullet brand of Colgate has served to position in the freshness platform." It has changed the image of Colgate that it is not only providing the Strong teeth but also freshness. It has served to make the claim that Colgate had achieved another breakthrough in oral industry[x].

3.2.4 Cash Cow Brands

Strategic, linchpin and silver-bullet brands need investment in order to fulfill their strategic mission. The cash cow brands having significant customer base that need not require the investment that other portfolio brands need. There is loyal customer base that will be stay on with the brand, even though sales may be stagnant or slowly declining. Resources generated by the Cash cow brand will be invested in other brands, which will be the bases for future growth of the brand portfolio. For example Maruthi 800, which has seen its sales drop in recent months, it has not been phased out as it is the bread and butter model for Maruthi Udyog Limited. Now Maruti 800 is targeted new customer segments like two-wheeler owners and teachers[xi].

3.3.Product -Market Context Roles

The Product-Market context roles of the group of brands should be well defined and coordinated for effective Brand architecture. There are four sets of product-market context roles as follows:

- Endorser/Sub brand roles
- Benefit brands
- Co-brands
- Driver roles

3.3.1 Endorser/Sub brand roles

An endorser brand is an established brand that provides credibility and substance to the offering[xii]. It is the master brand;

the prime indicator of the offering to define the specific offering while sub brands may augment the master brand. These brands usually represent organizations rather than products. Endorser brands explicit the organizational associations such as innovation, leadership and trust, for example "Nescafe Sunrise" create association with its mother brand Nestle. Wipro, operating in different business sectors, which are endorsed under mega, brand WIPRO[xiii]. To achieve clarity, synergy and leverage in the brand portfolio, endorser brand and sub-brands should be properly utilized.

3.3.2 Benefit Brands

The benefit brand is a brand that provides features, Component ingredient or services, which augment the branded offering. The branded benefit will be most powerful when it is relevant to the brand promise and contributes to the functional benefit. Benefits may represent points of differentiation lead to get competitive advantage.

Branded Features

Following Brands are providing the benefits to the customers through their features.Table No. 1 (Branded Features) is shown in Annexure III.

Branded Components

Following Brands are providing the benefits to the customers through the ingredients or components in their product. Intel inside, a classic branded component program has consistently produced substantial price premiums.

Table No. 2 (Branded Components) is shown in Annexure III.

Branded Services

The special attributes of these following Service brands will provide the benefits.

Table No. 3 (Branded Services) is shown in Annexure III.

3.3.3 Co-Brands

Two or more well-known brands are combined in an offer to address to the common target is called as Co-branding. Each of the brand sponsors expects that the other brand name will strengthen the preferences, purchase intention and brand image and hopes to reach new audience. One of the co-brands may be the component or ingredient brand (such as ITC's "Sun feast" biscuits with "Aavin" milk) or an endorser. Image reinforcement may take place due to co-branding[xiv].

3.3.4 Driver Role

Brand architecture design involves selecting the set of brands to be assigned as major driver roles. Driver role represents the extent to which a brand drives the purchase decision and defines the use experience. These brands will have priority in brand building. The brand with a driver role will have significant loyal customer base. The driver Brand is usually a master brand or sub brand. For example, "Fair ever" is in the driver role for CavinKare Brand Architecture. Even, endorsers and branded benefits can also have some driver role[xv].

3.4 Brand Portfolio Structure

Brand Architecture provides clarity to the customers by designing the structure of all brands. These brands in the Portfolio are sharing the relationship with each other. Brand portfolio structure will decide purpose, direction and sense of order to the organization. There are following three approaches can be utilized to present the portfolio structure.

- Brand Groupings
- Brand Hierarchy Trees
- Brand range

3.4.1 Brand Groupings

The logical grouping of brands that has a meaningful characteristic in common is called as Brand Groupings or configuration. The groups provide logic to the brand portfolio and help to grow overtime. Generally, Brands are grouped based on Segment, Product, and Design. For eg. Brand Grouping of Procter & Gamble Ltd. can be made as follows[xvi].

Segment	-	Children (Vicks) and women (Ariel, Tide, Rejoice, Whisper)
Product	-	Health care and Feminine care
Design	-	Classic and Contemporary

These are the dimensions that define the structure of many product markets. Portfolio brands grouped along such basic product-market segmentations tend to be more easily understood by consumers. Distribution channels and applications can also be used as categorical variables for grouping the brands. Now companies are introducing branded variants, which are specific brand lines supplied to specific distribution channels.

ANNEXURE III

Table No: 1 Branded Features

Brands	Features	Benefits
Gillette's Racer	Sensor	It shows the time to replace the racer
Oral-B toothbrushes	Power tip bristles	It shows the time to replace the toothbrush
Close up	Whitening indicator	It shows the level of whiteness of our tooth

Table No: 2 Branded Components

Brands	Components	Benefits
Margo	Neem	Neem provides clear skin, free from blemishes
Fair ever	Saffron	Saffron provides the fairness
Compaq	Intel	High Processing Speed

Table No: 3 Branded Services

Brands	Attributes	Benefits
LIC	Credibility	Assures the safety of invested money.
Taj group of Hotels	Customer Service	Provides the ultimate comfort to the inmates
Apollo Hospitals	Expertise	Assures the early recovery by having their expertise

For example Hide Sign leather products are available only in metro cities and they are targeting high-income household who travels internationally, interested in buying only qualitative products.

3.4.2 Brand Hierarchy Tree

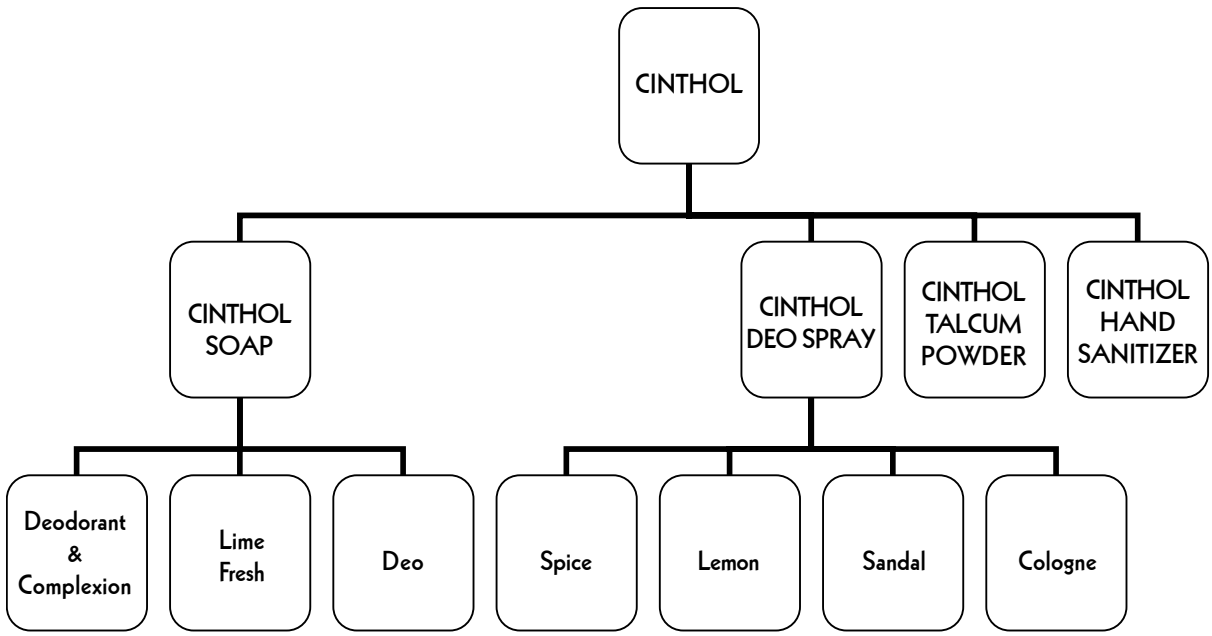
The logic of the Brand structure can be clearly understood by a Brand family tree. It can be called as Brand Hierarchy tree. It functions like an organizational chart, with both horizontal and vertical dimensions. The scope of the brand in terms of the sub brands or endorsed brands can be denoted as horizontal dimension in the brand hierarchy tree. Vertical Dimension denotes the number of brands and sub brands that are needed for an individual product-market entry.

Brand Hierarchy tree of Cinthol Body care Products[xvii]

The hierarchy tree for the Cinthol body care (hierarchy tree is shown in Figure no 2 in Annexure II) reflects that Cinthol name covers bath soap, talcum powder, deo spray and hand sanitizer. These brands are needed for an individual product-market entry for Cinthol. Under, Cinthol soaps, it has sub brands like Deodorant and complexion,

Annexure II

Figure No.2 Brand Hierarchy Tree of Cinthol Body Care Products



Lime Fresh, Deo. Cinthol Deo spray has the sub brands like spice, Lemon, Sandal and Cologne. These horizontal dimensions reflect the sub brands and endorsed brands that reside under brand umbrella of Cinthol. Brand hierarchy tree is used as tool to evaluate the brand architecture .It helps to provide the clear picture whether brand system has logic and clarity. Having a logical hierarchy structure among sub brands, helps in generating clarity.

3.4.3 Brand Range

The range of the Portfolio brands is the Key issue in Brand architecture. It answers the key issue such as, how far should the brands be stretched across markets and products? Endorser brands and sub brands not only extend leverage but also protect associations of a brand that needs to be leveraged.

Leveraging brand assets and creating synergy by generating brand associations in different contexts are the two major objectives of Brand Architectures. These are fulfilled by Extensions. Brands, having credibility in intangible associations are more able to extend to new categories because those intangibles can work in a wide variety of contexts. For eg. Dettol is having intangible associations of "Hygiene and Protection against germs." So it has extended successfully in wide variety of contexts such as Dettol soap, Dettol plaster, Dettol shaving cream, Dettol hand wash. Similarly Denim has successful extension of Denim soap and Denim talcum powder by having association of "Macho image[xix]."

If the extensions are poorly executed, It will dilute the brand association. When the brand is tied closely to a product class, its potential for extension is limited. For eg, even though Brand name of "Horlicks" has positive associations, it has not done well when it is extended to Biscuits[xx]. Customers should sense the strong associations between the extensions and should feel comfortable with new category.

3.5. Portfolio Graphics

Portfolio graphics are defined by Visual representations such as packaging symbols, Product design, layout of Print advertisements and taglines. The Most visible and central brand graphic is the logo that represents the brand in its

various roles. The corporate logo and visual identification (Apple, Philips) played a major role in identifying the brand and defining brand image worldwide. Apple used its coloured apple logo to project the image of a vibrant challenger in the personal computer market[xxi].

Portfolio graphics reflects the relative driver role of set of brands. The relative size and positioning of two brands on a logo will reflect their relative importance. For eg. In all variants of Colgate such as *Gel, Total, Herbal* Brand names appears in smaller typeface than *Colgate.* This portfolio graphics reflects that *Colgate* is the primary driver of the product[xxii].

Portfolio Graphics denotes the brand portfolio structure. Visual Grouping of brands can be reflected by the colour and a common logo. For eg., the use of Maggi colour and package layout (Yellow letters in the Red background) provides the very strong master impact over its brands, indicating that they are sharing the Common brand associations.

4. Brand Architecture Models

There was, however, considerable variation even within a given type of structure depending to a large extent on the firm's administrative heritage and international expansion strategy as well as the degree of commonality among product lines or product businesses. In addition, these models are continually evolving in response to the changing configuration of markets or as a result of the firm's expansion strategy in international markets. To develop a viable brand strategy, Firms need to fit their Brand architecture into suitable Models. The Brand architecture models establish the relationships between the corporate brand and various sub-brands. Brand architecture may typically fit into one of the following models[xxiii].

- Corporate Brand Model
- Divisional Model
- Hybrid Model
- Exception Model

In selecting these four models firms should consider the degree of synergy that exists across its divisions and product lines. Synergy is an elusive concept raised by CEOs that essentially translates as "One plus One equals three."

4.1 Corporate Brand Model

Companies, having real synergies may be suited to pursue the corporate brand model. In this model, Companies will predominantly use the single corporate brand. GE, Philips, Wipro BPL and Himalya health care are using their corporate names in all of their products. Their prime objective was to establish a strong global identity for the brand rather than respond to local market conditions.

Cost saving is one of the advantages of this model and maintaining the single corporate brand may be less expensive supporting multiple divisional names. Firms, which are not having strong corporate brand, may incur significant short-term costs to establish message.

4.2 Divisional Model

Divisions will use respective names in the Divisional Model and corporate names may be muted. Products were tailored to local preferences. Customer preferences were highly localized Hindustan Lever Ltd. follows this model. It has different brand names across the brand category such as Lux, Lifebuoy, Close-up, Pepsodent, etc. Brands will develop considerable goodwill over the time. Even if, firm having this brand is acquired by another firm, the brand name will not be changed. For eg. though HLL acquired Ponds and Brookebond, it retains its old brand names, because customers trust that brand name[xxiv].

4.3 Hybrid Model

Firms may go for Hybrid model to balance the goodwill and synergies. This model not only sends corporate wide message but also allows individual divisions the flexibility to position themselves against competitors in their respective niches.

A number of companies had hybrid brand structures with a combination of corporate and product brands. Coca-Cola, for example uses the Coca-Cola name on its cola brand worldwide, with product variants such as Diet Coke, Coke Vanilla. In addition, Coca-Cola has a number of local or regional soft drink brands such as Fanta, Limca[xxv]. Similarly Hindustan Lever Ltd. is also having regional brands like Wheel washing powder, Bru instant coffee etc[xxvi].

This model implements the dual message approach through combined names such as TATA Indica and TATA Chakra Gold. Thus companies could capitalize on the goodwill inherent in their divisional brands (Chakra Gold), yet still sending the broader corporate image by associating Corporate name (TATA) with divisional brand name[xxvii].

4.4 Exceptional Model

Companies may create or acquire new product /divisions to deviate from the corporate brand position. The new product may focus on a new customer segment. In these exceptional situations, this model can be applied. Aditya Birla Group of companies has recently adopted this model. L&T Cement Division, later acquired by Aditya Birla Group of companies, created the new brand cement called "Ultra Tech[xxviii]."

These models are continually evolving in response to the changing configuration of markets or as a result of the firm's expansion strategy. There was, however, considerable variation even within a given type of model depending to a large extent on the firm's administrative heritage as well as the degree of commonality among product lines or product businesses.

5. Conclusion

Global trends of industry consolidation, global competition and lowering the information costs enforce the firms to consider how to modify their brand architecture in the Indian perspective. They are capturing for opportunities to reduce the number of brands and improve efficiency as well as to harmonize brand strategy across product lines. Focus on a limited number of strategic brands in markets enables the firm to consolidate and strengthen its position and enhance brand power. These strategic brands are called as "Power brands or Mega brands." Effective management of brand architecture in the light of changing market conditions and the firm's market expansion is crucial to retain its position and strengthening power brands in the markets. Companies, which properly manage their brand architecture, will emerge as the winners of battle of Indian market.

References

i http://www.gujmedia.de/_content/10/00/100044/CorpBrand_Praes_engl.pdf

ii www.crmuk.co.uk/downloads/ACID01.pdf

iii www.cdf.org/cdf/atissue/vol4_2/IBM/big_blue.html.

iv http://pages.stern.nyu.edu/~sdouglas/rpubs/intbrand.html

v www.amul.com/awards.html

vi Harsh Verma, "Brand Management," Excel books, First edition, 2002, 237- 242

vii www.indiainfoline.com/bisc/jbmk06.html

viii http://www.pg.com/india/hhcl/finresults.htm

ix http://www.ril.com/eportal/VirtualPageView.jsp?page_id=598

x http://www.financialexpress.com/fe/daily/20000619/efe16024.html

xi http://www.blonnet.com/2004/10/15/stories/2004101502320200.htm

xii rcw.raiuniversity.edu/management/ mba/brand-manag/lecture-notes/lecture-24.

xiii M.G.Paremeswaran,"Brandbuildingadvertising," Tata McGraw- Hill Publisher Co. Ltd, I edition, 2002, 145-148.

xiv http://www.itcportal.com/newsroom/press_sept27_1_04.htm

xv www.chennaibest.com/cityresources/Fashion_and_Beauty/interview06.asp

xvi http://www.pg.com/india/hhcl/finresults.ht

xvii http://www.cinthol.com

xviii http://www.agencyfaqs.com/www1/news/company_news/Marketing/1135.html

xix http://filmfaremagazine.indiatimes.com/articleshow/472314.

xx http://www.etstrategicmarketing.com/SmJul-Aug04/Strategic-Article6-.html

xxi http://pages.stern.nyu.edu/~sdouglas/rpubs/intbrand.html

xxii http://www.themanagementor.com/kuniverse/kmailers_universe/mktg_kmailers/BPS180

xxiii http://www.franklynn.com/news/articles/Brand%20Architecture.pd

xxiv www.ipan.com/press/99jan/2701bb.htm

xxv www.domain-b.com/news_review/ 200007july/20000710newsa.html

xxvi www.iimcal.ac.in/community/marcell / articles/KB/Hindustan_Lever_Limited.htm

xxvii Harsh Verma, "Brand Management," Excel books, First edition, 2002, 253- 257

xxviii http://www.grasim.com/media/Press-releases/200410oct/20041026-ultratech-cement.htm

Key Success Factors of Franchising Systems in the Retailing Sector

Ilan Alon

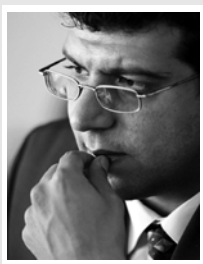
This article examines the key success factors of franchisors in the retailing industry by focusing on the impact of ten organizational variables on the "success" of the franchising firm. Success is measured in terms of both size and growth simultaneously. The significant variables show that the time it takes the firm to franchise is negatively related to its success, while the internationalization, the proportion of franchising, the number of company-owned units and the age of the franchisor are positively related to its level success. Franchisors in the retailing sector can benefit from this study by concentrating on creating the organizational conditions that form the key success factors for a retail franchisor.

Franchising was shown to exert a powerful force in the US economy. According historical statistics from the Department of Commerce, franchising has increased tenfold between 1972 and 1988 (Kostecka 1988). At present, franchising sales in the US exceed $1 trillion, or about ten per cent of the total private economy (Alon, 2005). Better understanding of the key success factors of franchising contributes to the literature of success/failure and may have far-reaching economical and managerial implications.

Over the last decade, franchisors in most of the traditional industries, particularly in fast food and retailing industries, have experienced increasing competition, greater market saturation, slowing growth, and growing numbers of territorial disputes (Fortune 1995). The increased competitive environment has raised the need to examine the impact of competitive practices on the level of success. A surrogate measure of success is the ability of the company to achieve economies of scale through scale and growth.

This study focuses narrowly on the retailing industry because (1) franchising accounts for as much as 40 per cent of US retail sales and (2) retailing has experienced increased competitive pressures over the last decade. The concentration on a single industry is also experimentally preferred (Dant et al. 1996; Sen 1998; Alon 1999).

Growing, but contrasting, evidence on the success and failure of franchisors needs to be examined. While some studies point to the success of



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franchising over independent businesses (e.g., Justis et al., 1992; Castrogiovanni et al. 1993; IFA 1998), a growing literature that is critical of this view is emerging (e.g., Bates 1995; Stanworth et al. 1997). An examination into the causal factors of success among franchisors should, therefore, broaden the body of knowledge on this critical issue.

This study attempts to develop a managerially useful framework, which has the potential to help franchisors develop better strategies to achieve competitive advantage. The focus is, therefore, on the controllable elements of the franchising organization (organizational factors). The factors that are selected are also readily available to prospective franchisees and investors prior to the purchase, potentially increasing the wiseness of the decision.

Model Development

The literature of success/failure of franchisors has shown inconclusive findings. While studies sponsored by franchising associations, most notably the International Franchise Association and the British Franchise Association, have found that franchising is a highly successful method of doing business, a few other reports argued to the contrary.

An IFA survey of 1,001 franchisees selected randomly from 4,000 registered franchisors conducted by the Gallup Organization between September and October 1997 and released in March 1998 found that:

- Eight out of ten were small businesses with only one franchise,
- 92 per cent of franchisees considered themselves very or somewhat successful,
- The majority of franchise owners were satisfied with their business,
- 65 per cent say they would purchase the franchise again if given the opportunity,
- 93 per cent believe that being associated with the franchise gives them a competitive advantage,
- 72 per cent said their expectations were met, and
- On average, gross earnings ranged from $76,000 for a single unit franchisee to $142,000 for a multiple-unit franchisee.

The picture that emerges is that franchising is a highly successful method of doing business, which provides sustainable competitive advantage and a reasonable standard of living for its owners.

In contrast to the IFA findings, another group of research suggested that franchise associations have an interest in promoting the franchise concept, particularly to politicians and investors. Thus, they are more likely to be biased (Stanworth et al. 1997). Fortune magazine (1995), for example, reported that since the mid-1980s, franchising growth either matched or lagged behind GDP growth. Stanworth et al. (1997) found that US franchising growth has kept pace with whole US economy, while in the UK, the franchise industry experienced negative real growth. The authors noted that in the UK franchisee survival rate is no different from other start-up firms over a five-year period.

Franchising is viewed as a hybrid organization form that has element of markets and hierarchies because the franchisor retains some ownership and control, but gives up the operations of the units. Two popular approaches to explaining the use of franchising have been resource-scarcity and agency theories. Most studies using these theories have tried to explain the factors associated with the proportion of franchising. The theory of resource scarcity suggests that firms initially franchise because they lack the resources for expansion. Such resources are not merely financial (capital scarcity), but also managerial, knowledge- based, organizational, etc. The agency perspective, on the other hand, focuses on the monitoring skills of the franchisor. According to the agency perspective, firms franchise because they are unable to monitor their managers efficiently. Because franchisees have a residual claim on sales, shirking is avoided and the need for monitoring is diminished (Shane 1996a). A number of recent studies have shown that these theories are complementary (Combs and Castrogiovanni 1994; Combs and Ketchen 1999; Alon 2000).

Franchising Speed: Years-to-Franchising

Franchising reduces the agency problems of firm growth because (1) it reduces the cost associated with selecting, assimilating and monitoring new employees, (2) limits the cost of determining the abilities of store managers, and (3) decreases shirking and moral hazard since the franchisee is a residual claimant. Franchising promotes rapid development of economies of scale and economies of scope, lowering the cost per unit and increasing the firm's competitive stance (Shane 1996a). Franchising also provides the franchisor with the resources, such

as managerial input, local market knowledge, labor and capital, for growth. Franchisors in the retailing sector, particularly emerging ones, are faced with high levels of competition and market saturation. This competitive framework necessitates franchisors to grow rapidly. "When new franchisors enter industries in which they face established competitors, the speed with which they grow to a size at which they can operate at a competitive cost is important" (Shane 1996a, p. 221).

H1: The shorter the length of time it takes the retailer to franchise, the higher its chances of success

Franchising Internationalization

The internationalization of franchising systems has received a lot of attention in recent years from researchers and practitioners alike. The general consensus is that franchisors that internationalize their systems can achieve critical scale and be more competitive in the long run (Welsh and Alon, 2002; Alon and Welsh, 2003). Operating a franchise system across heterogeneous locations develops the franchisor's monitoring capabilities and distance management skills (Alon, 1999). Franchisors that seek franchisees throughout the world expand their potential market of franchisees, appreciating their opportunities for success (Alon and Welsh, 2001).

H2: Franchisors that seek internationalization are more likely to be successful

Franchising Strategy: Proportion Franchising

While the determinants of the proportion of franchising have been examined (e.g., Alon, 2001), few studies focused on the impact of the proportion of franchising on the firm's success. Falbe and Welsh (1998) found that the proportion of franchising is positively related to system quality, brand name, and the level of communication, among other factors. Business belonging to franchisors and franchisees that have a higher proportion of franchising were less likely to fail. The franchisor failure variables included illegal/unethical conduct, misrepresentation/dishonesty, market saturation, faddish product appeal, over expansion, and competition from company-owned units. The franchisee variables consisted of unwillingness to follow the system or get involved, misrepresentation/dishonesty, failure to pay vendors on time, inadequate facility maintenance, expanding too rapidly, poor local economic conditions, overstaffing of facility, inappropriate inventory levels, and overcapitalization.

H3: Franchisors that have a higher proportion of franchising units are more likely to be successful

Company-Owned Outlets

The number of company owned units necessary by a franchisor may have an impact on the franchisor's level of success. The "rule of thumb" often used by franchising practitioners is that a franchisor should at the very least operate two units over three years or three units over two years. Franchisor owned outlets serve many important functions in the franchising system. It allows the franchisor to test new concepts, innovate with its management systems, stay in touch with the customers, and learn from ongoing operations. In a study by Alon (2001), retailers with a larger scale also were able to achieve higher growth rate in the number of outlets in early stages of franchising development, suggesting that company-based outlets are critical for expansion. Franchisors owned outlets also allow the franchisor to respond to environmental challenges during time of adversity, without the bureaucratic challenges, which may be mounted by franchisees in the system.

H4: Franchisors with a large number of company-owned outlets are more likely to be successful

Age/Experience

Falbe et al. (1998) argued that as firms get older, they become increasingly formalized and standardized, more rigid, less adaptive to change, more self-centered and detached from the external environment. Their findings surprisingly showed that older franchise systems were more aggressive, used more franchise councils and recognition to promote new ideas, tended to introduce more innovation than younger ones. Other studies of franchising argued that older firms have more resources, are more likely to operate in diverse locations (Alon 1999). Huszagh et al. (1992), for example, suggested that experience in site selection, store layout, procurement and operation policies can facilitate cost reductions based on improved know-how. Experience in itself is an indication of success, which may provide an edge in the competitive marketplace.

H5: Experience in the business, measured by age, will be positively related to franchisor's success

Methodology

The study uses ordinary-least-squares (OLS) regression to

analyze the impact of ten organizational variables on the franchising firm's level of success. The first eight of the ten variables are controllable elements of the franchising mix. We have hypothesized relationships with five of the controllable variables mentioned in the above section.

Sample

Data for the dependent and independent variables were derived from Entrepreneur Magazine 1997 Annual Franchise 500 list. A total of 52 retailing firms, consisting of the entire franchised retail sector available in the magazine, were examined. The choice of data source was based on several factors. First, this data present the most comprehensive data source on franchising in the United States (Entrepreneur 1998). Second, this data were used extensively by franchising researchers (e.g., Shane 1996a, Shane 1996b; Falbe and Welsh 1998; Sen 1998; Alon 1999). Third, the data were shown to be both unbiased (LaFontaine 1992) and valid (Mehta et al. 1999). Mehta et al. (1999) found no significant differences between the data available in Entrepreneur and the data found two other leading sources of franchising: The Franchise Annual and Bond's Franchise Guide. Finally, the magazine itself checks more than 80 per cent of its information through the Uniform Franchise Offering Circular, a publication required by US regulation.

Dependent Variable: Success

This study uses a composite multiplicative measure of size and growth as a proxy for success. The decision to use this composite measure was based on several factors. First, we explain why size and growth are important dependent variables of success. Then, we explain why the measures were combined. Finally, we explain how the dependent variable is measured.

Size, measured as the total number of units, is an important function of success because size is positively related to market share, market power and credibility, and economies of scale in purchasing, operating and promotion (Alon 1999). Size also increases the monitoring capabilities of the franchisor through learning allowing for further expansion (Huszagh et al. 1992).

The rate of growth in the total number of units is an important measure of performance because it is a more robust measure than growth in sales, assets or employment, and it is a good proxy of success when financial data is not available (Shane 1996a). Sen (1998) found that franchisor's growth in outlets is highly correlated to the growth of dollar sales for the leading restaurant chains.

Individually, neither the size nor the growth rate fully captures the essence of success. Using size by itself presumes that small firms, even ones that are growing rapidly, are less successful than big ones. Focusing only on growth suggests that big firms that are not growing are less successful than rapidly growing small firms. Neither proposition is by itself entirely correct. Relying on standardization and formalization, large firms are more often concerned with stability, leading to little change in the total number of outlets (size), while small firms tend to be more aggressive and innovative to achieve rapid development, economies of scale, brand name recognition, and competitive advantage (Falbe et al. 1998).

The use of a composite measure of size and growth differentiates more clearly between successful and failing franchisors. Small firms are not necessarily less successful than bigger ones, as suggested by the size measurement, and low growth is not necessarily detrimental for large firms, as it is presumed in measures growth.

A multiplicative measure was used because the variables are measured in different units of analysis. Multiplicative measures derived from Entrepreneur's data were previously employed by Shane (1996b) to measure monitoring capabilities. We derived the dependent variable by multiplying the rate of growth by the size (total number of outlets). We then followed a procedure similar to the one used by Shane (1996a). We added a constant of 55 to the product of the two measures, because some firms had a negative growth rate, and performed a logarithmic transformation to normalize the data.

Independent Variables

Ten independent variables relating to the franchisor were examined. Five of them are the hypothesized variables: (1) years-to-franchising, (2) internationalization, (3) proportion of franchising, (4) number of company-owned outlets, (5) age/experience. The rest are the control variables: (1) fee, (2) royalty rate, (3) financing, (4) availability of financing, (5) and (6) start-up costs. Similar conceptualizations of these variables were used in previous research (Shane 1996a, 1996b; Combs and Castrogiovanni 1994; Alon 1999). The use of this data is advantageous because the study can be replicated and because this data is available to all stakeholders of the franchising firm. Table 1 summarizes the hypothesized relationships and their corresponding measures.

Table 1: Measurements and Hypotheses of the Variables

Variable	Measurement	Hypothesis
H1: LYTF	Log (# of years prior to franchising)	Positive
H2: INT	Internationalization (0=no 1=yes)	Positive
H3: PF	# franchised / total # of units	Positive
H4: COMP	# of company-owned outlets	Positive
H5: AGE	# of years in existence	
Control Variables		
FEE	Franchising Fee ($)	
ROY	Royalty Rate (%)	
FIN	Financing (0=none 1=some)	
DISP	Dispersion (0=regional 1=national)	
LSTART	Log (start-up costs)	

Discussion and Results

Table 2 shows the descriptive statistics of the dependent and independent variables, while table 3 provides a correlation matrix. Taken together these tables show some of the simple relationships that exist among the variables under investigation. Finally, table 4 tests the key success factor model in the franchising sector.

Table 2: Descriptive Statistics of the Variables

Variable	Mean	Std. Deviations	Minimum	Maximum
SUCCESS	3.29	0.65	1.99	4.74
Years to Fran	8.09	12.05	0	50
LYTF	0.68	0.48	0	1.71
FEE	22.11	12.66	0	75
ROY	4.78	1.98	0	13
FIN	0.12	0.33	0	1
DISP	0.68	0.46	0	1
PF	0.81	0.23	0	1
COMP	10.42	21.24	0	100
AGE	18.09	19.2	2	113
START	124.7	137.57	2	700
LSTART	1.9	0.44	0.3	2.85

Table 3: Correlation Tables of the Independent Variables

	Lytf	fee	Roy	Fin	disp	Int	Pf	comp	Age	lstart
Lytf	1.00									
Fee	-0.10	1.00								
Roy	-0.07	0.15	1.00							
Fin	-0.04	0.03	-0.01	1.00						
Disp	-0.07	-0.06	-0.15	0.03	1.00					
Int	0.02	0.06	0.23	-0.07	0.26	1.00				
Pf	-0.31	0.12	-0.30	0.09	0.14	-0.03	1.00			
Comp	0.00	0.24	-0.05	-0.05	0.15	0.08	-0.19	1.00		
Age	0.68	0.08	-0.26	0.14	-0.03	-0.15	-0.05	0.11	1.00	
lstart	0.07	0.31	0.06	0.00	-0.08	0.05	-0.10	0.42	0.31	1.00

Table 4: Key Success Factors of Franchisors in the Retailing Industry

Dependent Variable: Success

R ^ 2 = 66%

Adjusted R ^ 2 = 57%

Prob Value of F = 0.00000

Variable	Coefficient	Std. Error	T-Ratio	P-Value
LYTF	-0.625	0.200	-3.132	0.003
NT	0.243	0.159	1.526	0.135
PF	0.983	0.296	3.324	0.002
COMP	0.013	0.003	4.130	0.000
AGE	0.023	0.005	4.432	0.000
Control				
FEE	0.002	0.007	0.283	0.780
ROYALTIES	-0.000	0.035	-0.002	1.000
FINANCING	-0.078	0.178	-0.438	0.664
DISPERSION	-0.019	0.137	-0.137	0.892
LSTART	-0.023	0.169	-0.137	0.892

The model has an adjusted R-squared of 57 per cent, which significantly explains the success of the franchisors in the retailing sector. the Independent Variables.

The variables, years to franchising, internationalization, proportion of franchising, company-owned outlets, and age/experience, exhibit a coefficient consistent with our hypothesized relationships. With the exception of internationalization all are significant at the p = 0.05 level. The internationalization variable is mildly significant in the hypothesized direction. One explanation for the weak coefficient is that internationalization is often a challenge for franchisors that drains resources and puts the franchisors in new competitive environments.

According to our study, franchisors that want to achieve a higher level of success in terms of growth and scale should become franchised quickly after opening, internationalize their system to appeal to a larger global audience, grow the franchising line of their business, operate a sufficient number of company-owned stores, and accumulate experience over time which will help them increase their competitiveness. Similar studies of different industries can be useful in demonstrating the validity of our findings and applicability of our propositions in other sectors.

References

Alon, Ilan, "Service Franchising: A Global Perspective," *New York: Springer*, 2005.

Alon, Ilan and Dianne Welsh, eds., "International Franchising in Industrialized Markets: Western and Northern Europe," *Chicago IL: CCH Inc.* Publishing, 2003.

Alon, Ilan and Dianne Welsh, eds., "International Franchising in Emerging Markets: China, India and Other Asian Countries," *Chicago IL: CCH Inc.* Publishing, 2001.

Alon, Ilan, "The Use of Franchising by US-Based Retailers," *Journal of Small Business Management*, 39 (2), 111-122, 2001.

Alon, Ilan, "The Internationalization of U.S. Franchising Systems," New York: *Garland Publishing*, 1999.

Bates, T., "Analysis of Survival Rates Among Franchise and Independent Small Business Startups," *Journal of Small Business Management*, 33 (2), 26-36, 1995.

Block, Z., and MacMillan, I., "Corporate Venturing," Boston: Harvard Business School Press, 1993.

Castrogiovanni, G. J., Justis, R. T., and Julian, S. D., "Franchise Failure Rates: An Assessment of Magnitude and Influencing Factor," *Journal of Small Business Management*, 16, 105-114, 1993.

Combs, James G., and Gary J. Castrogiovanni,"Franchisor Strategy: A Proposed Model and Empirical Test of Franchise Versus Company Ownership," *Journal of Small Business Management*, 32 (2), 37-48, 1994.

Combs, James G. and David J. Ketchen, "Can Capital Scarcity Help Agency Theory Explain Franchising? Revisiting the Capital," *Academy of Management Journal*, 42 (2), 196-207, 1999.

Dant, Rajiv P., Audhesh K. Paswan, and Patrick J. Kaufmann, "What We Know About Ownership Redirection in Franchising: A Meta-Analysis," *Journal of Retailing*, 72 (4), 429-444, 1996.

Falbe, Cecilia M., Thomas C. Dnadridge, and Ajith Kumar, "The Effect of Organizational Context on Entrepreneurial Strategies in Franchising," *Journal of Business Venturing*, 14, 125-140, 1998.

Falbe, Cecilia M. and Dianne H. B. Welsh, "NAFTA and Franchising: A Comparison of Franchisor Perceptions of Characteristics Associated with Franchisee Success and Failure in Canada, Mexico, and the United States," *Journal of Business Venturing*, 13, 151-171, 1998.

Fortune "Trouble in Franchise Nation," 131 (4), 115-117, 1995.

International Franchise Association, "IFA Educational Foundation Survey of Franchise owners, Conducted by the Gallup Organization, Finds 92 Per cent Successful, Majority Would Do It Again," Washington D.C., 1-2, 1998.

Mehta, Snajy S., Dawn Luza, Carey Counsil, and Balasundram Maniam, "Analysis of Franchising Data: A Comprative Evaluation of Leading Secondary Sources," in *Proceedings of the 13th Annual International Society of Franchising Conference*, Miami, (March), 1999.

Sen, Kabir C., "The Use of Franchising as a Growth Strategy by US Restaurant Franchisors," *Journal of Consumer Marketing*, 15 (4) 397-407, 1998.

Shane, Scott A., "Hybrid Organizational Arrangements and Their Implications for Firm Growth and Survival: A Study of New Franchisors," *Academy of Management Journal*, 39 (1), 216-234, 1996a.

Shane, Scott A., "Why Franchise Companies Expand Overseas," *Journal of Business Venturing*, 11 (2), 73-88, 1996b.

Stanworth, John, David Purdy, and Stuart Price, "Franchise Growth and Failure in the USA and the UK: A Troubled Dreamworld Revisited," 2 (2), 75-94.

Welsh, Dianne and Ilan Alon, eds., "International Franchising in Industrialized Markets: North America, Pacific Rim, and Other Developed Countries," Chicago IL: CCH Inc. Publishing, 2002.

Models for Attribute-Based Consumer Classification: Artificial Neural Networks versus MLR and MDA

Jose Maria Cubillo-Pinilla and Joaquin Sanchez-Herrera

The implementation of reliable models for the marketing planning process has been lately of great concern. Though some of the techniques frequently applied are useful for this purpose, results do not always satisfy marketing executives. However, research on this field has allowed develop a new technology, which provides higher accuracy than traditional ones: artificial neural networks (ANN). The present work details the methodological basis of this technique and compares its classification efficiency with the multiple discriminant analysis (MDA) and the multinomial logit regression (MLR) models.

Artificial Neural Networks. Definition and Conceptual Introduction

The simplest definition describing an artificial neural net, and also the most widely accepted, was formulated by Dr. Robert Hecht-Nielsen, the inventor of one of the first neural computers. According to that definition, a neural net is understood as a computing system made up of a number of simple processing units which are greatly interconnected and process information by means of their dynamic state of response to external inputs (Caudill, 1998). This definition serves as a bridge between the biological neural model and the artificial neural model.

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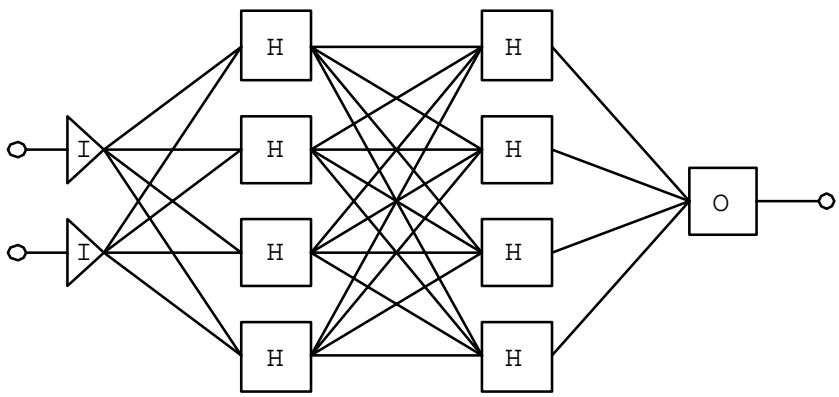
In order to establish a direct similitude between the biological synoptic activity and artificial neural nets, the following aspects have to be taken into account: signals which reach the synopsis are the neurone inputs; these are pondered (softened and simplified) through a parameter called weight, associated to the corresponding synopses; these input signals can excite the neurone (synopses with positive weight) or inhibit it (negative weight); the effect is the combination of the pondered inputs; if the

combination is equal or bigger than the neurone threshold, the neurone is activated, but if it is smaller, there is no activation of the neurone. In an artificial neural system, the same as in a biological one, the basic unit is the neurone, also called process element. Neurones are organised in layers, which can be input, output, or hidden layers, according to their position in the net.

Figure 1 shows the typical structure of an artificial neural net where an input layer receives external input (I). Though it is not always like that, this input layer is made up of two process elements or artificial neurones. There are also two hidden layers (H). In this case they are made up of four neurones each, but their usefulness will be explained later. They are called hidden layers because they have no direct relationship with input or output data. Finally, there is a last output layer (O), which represents the result of the previous process units. In this case the output layer is represented only by an artificial neurone.

Figure 1

Simulated NN Structure



The main feature of Artificial Neuronal Nets is that they are systems and, the same as their biological model, they learn as time passes. In neural systems, learning takes place by the modification of weights in the net. It is in this aspect where the "intelligence" of Neural Nets lies and this is what differentiates them from other modern computing systems. There are two basic learning systems which affect the net structure and the results achieved. The learning system can be either supervised or non-supervised.

In supervised learning both inputs and outputs of the net are known beforehand. According to this system the net gets training by knowing the relationships established between input and output data. In non-supervised learning only input data are known. The net, in this case, does not have any models to learn from. The reply achieved by means of non-supervised learning is a certain relationship within input data. Outputs generally take place in the form of datasets similar to each other; this is very much alike to a clustering procedure.

Learning in neural nets is inherent to the training process. As the neural net gets training, its ability to solve problems increases. From this we can deduce that the net needs known inputs and outputs and gets training from them so as to be able later to model phenomena based on that previous learning. There are at least twelve rules of neural learning though the most widely used is the Generalised Delta Rule. The delta rule is a central function within the nets. This rule uses back propagation; an abbreviation for back propagation neural network of error (BPNN), and it allows find a point where the error is minimum.

The same as for other scientific disciplines, neural error is understood as the difference between the desired value and the obtained value,

$\delta_{i.} = \lambda_d - \lambda_o$ where:

δ_i = the resulting difference

λ_d = the desired value

λ_o = the obtained value

Nets with back propagation adjust weights until they find the minimum possible error. The result obtained is compared with the result desired and the error or difference between them is calculated. This error signal spreads backwards from the output layer. The intermediate or hidden units receive however a fraction of that error, which corresponds to their contribution to the output.

This process is repeated layer after layer until all neurones get their relative portion of contribution to the total output error. Based on the calculation of the received error, the connection weights of each neurone are updated making them converge towards the minimum possible error. In this way the neural net learns and adapts itself in order to reach a satisfactory solution to the set up problem (Freeman, Skapura 1993).

2. Marketing and Artificial Neural Nets

The applications of Artificial Neural Nets to business in general and to marketing in particular have been really scarce up to now. Their most direct application is related to economy and stock exchange market predictions, where neural architectures have been more successful than any other technique.

In the field of marketing the possibilities of this new tool are countless, though for the strategic procedure the most valuable applications may be:

a) Consumer Research

b) Segmentation and classification

c) Demand forecasting

d) Advertising response models

e) Price modelling, etc.

All application fields mentioned can nowadays be assessed by means of traditional statistic techniques. Regression techniques can be used for modelling the behaviour of a segment; it is possible to find the relationship between some variables by means of a causal analysis; it is also possible to make predictions from temporal series by means of the ARIMA or Box Jenkins and the spectral analysis; in the same way some help elements can be found in the design and launching of goods with conjoint analysis. However, the ANN can solve problems with a non-lineal structure, highly complex data situations, and without any previous knowledge of the exact form of the model to be followed.

ANN applications for marketing issues are increasingly frequent, though scarcely used within the academic field. Table 1 shows some of the most interesting contributions to this area.

Table 1

Marketing Research and Neural Nets

Article Title	Author	Publication	Year	Findings
An Artificial Neural NetAttraction Business Review: ZFBF Model to analize market share effects of marketing instruments.	Harald Hruschka	Schmalenbach Business Review: ZFBF	Jan. 2001	For store-level data, neural net models perform better and imply a price response that is qualitatively different from the well-known multinomial logit attraction model. Price elasticities of neural net attraction models also lead to specific managerial implications in termsof optimal prices
Data mining and modeling as a marketing activity	James J. Vanecko, Andrew W Russo	Direct Marketing	Sep. 1999	What the data mining and modeling activity includes is illustrated and set in that high performance context via process schematics and a scenario description. Although there are many statistical modeling techniques, for marketing purposes two primary techniques are commonly utilized: regression and tree models. A third technique, neural nets, has recently become more widely used.

Article Title	Author	Publication	Year	Findings
Comparing performance of feed forward neural nets and Research K-means for cluster-based market segmentation.	Hruschka, Harald, Natter, Martin	European Journal of Operational	Apr. 1999	The performance of a specifically designed feed forward artificial neural network with one layer of hidden units is compared to the K-means clustering technique in solving the problem of cluster-based market segmentation. Classification of respondents on the basis of external criteria is better for the neural network solution.
Neural net analysis ferrets out 'totally satisfied' customers.	David C Foster	Marketing News	Oct. 1997	Several industry and private studies indicate that the number of customers who repurchase is 3-10 times greater for the "totally satisfied" than for the "somewhat satisfied" groups. Neural network analysis can be used for a number of action-oriented purposes, including: 1. impact rankings, 2. what-if scenarios, 3. survey upgrading, and 4. added decision support.
Applying neural computing to target marketing.	Zahavi, Jacob, Levin, Nissan.	Journal of Interactive Marketing.	Aug. 1997	The study explores the feasibility of using neural computing as a means for targeting audiences for promotion through the mail, from among a list of customers in a database either as an alternative and/or as a supplement to discrete-choice logistic regression models. It is shown that, at least for the data used in this study, the fit achieved for both methods is approximately the same, but the process of configuring and setting up a neural network for a database marketing application is not straightforward and may require extensive experimentation and computer resources. The results are therefore not encouraging for the neural net approach.
Prediction of customer segments with neural nets.	Kvaal, Knut, Djupvik, Harald	Marketing and Research Today.	Nov. 1996	The article shows the importance of being able to categorize the customers into segments in order to handle them more comprehensively, and to monitor the transitions of customers between different segments over time. The neural net segmentation model used classifies the customers based on their preference profiles on some chosen attributes.
Using neural nets to analyze qualitative data.	Moore, Karl, Burbach, Robert, Heeler, Roger	Marketing Research	Win. 1995	One of the most difficult things about using qualitative data is wading through the masses of text produced. Artificial neural networks (ANN) promise to aid research in reducing the complexity of text data cost-effectively. It appears that the unsupervised type of ANN holds the greatest potential for market research applications.
Modelling methodology: Basics to neural, nets - A return to ignorance?	Freeman, Paul Rennolls, Keith	Market Research Society. Journal of the Market Research Society.	Jan. 1994	There is an increasing focus on the benefits believed to await the researcher with a large enough data set and sufficient computing power, particularly in fast moving consumer goods (FMCG) companies. The problems of matching complex models to vast, complex and incomplete data sets means that such approaches will take some time to become accepted as tools for marketing modeling. Neural networks seem to offer an alternative paradigm for the modeling of complex dynamic data sets. The neural network does not know what it is doing or why it may be successful, and the user of a neural network is unlikely to know or understand why either. That is a truer reflection than the misplaced confidence in over-simplistic linear models.

3. Models for Attribute-Based Consumer Classification: Artificial Neural Networks, Multinomial Logit Regression and Multiple Discriminant Analysis Applied to the Spanish Video Game Console Market.

In order to reinforce the conceptual content of previous paragraphs and show the usefulness of Artificial Neural Nets for the marketing field, the attribute-based consumer classification model selected will serve as a practical comparative frame.

3.1. Data

In order to carry out a comparative study, we selected 150 current users of the three most important video-console brands: Sony Play station 2, Nintendo Game Cube, and Microsoft Xbox. Users proportion for each of the three console brands was calculated according to the market participation of the brands. Table 2 shows these relationships:

Table 2
Sample Distribution by Brand

Frquency	Sony Playstation	43
	Microsoft Xbox	33
	Nintendo Game Cube	42
	Total	118
%	Sony Playstation	36.4
	Microsoft Xbox	28.0
	Nintendo Game Cube	35.6
	Total	1 00.0

Individuals selected answered a questionnaire of seven items measured by a Likert scale of seven points. Items included were the following: 'technical quality,' 'videogames quantity,' 'videogames quality,' 'games are easy to find' (distribution), 'price,' 'accessories' and 'popularity' (market penetration). Reasons supporting this data structure were the following:

a) Since this market is limited to three brands, users had previous relative information about the structure of benefits expected and the features related to each brand.

b) This is a high implication product due to its long stay in the market (mean=5 years) and to the cost of consoles and games. Consequently, the decision-making process involves a thorough search and evaluation of information available.

c) However, our purpose is to assess the relationship between the customer final decision and his perception about consoles available in the market. This makes the analysis more technically complex since not lineal relationships may generate between attributes and the brand selected, as well as impurities deriving from the characteristics of individual perception.

After the collection, selection, coding, and loading of data, 118 individuals with valid responses to the questionnaire were analysed using MLR, MDA, and ANN in order to compare the classification efficiency of each of the three methods.

3.2. Results

First, data were analysed by MLR using each of the three brands as dependent variable and the seven items corresponding to the relevant features of the market as independent variables.

For the MLR model, p_{ij} probability for j category from subsample was:

where the last J category is the reference category for the assessment of parameters of the remaining categories (J–1). When J=2, current publications refer to binomial logit models; when J > 2, models are multinomial. Individuals were classified into each J category using estimated probabilities ( ) following the previous expression.

Estimation algorythm used was that of maximum verisimilitude, for the Newton-Raphson iterative method. After applying this method, individuals classification was shown by the confusion matrix presented in Table 3. This table compares classification assignments obtained by the model used, with the real ones. Correct classification percentage obtained for the classification was 63.6 per cent. This result is correct but it should be improved if marketing decisions are to be taken following this model. The highest deviation (33.6 per cent) is observed for Playstation 2 users, erroneously assigned to Nintendo Game Cube, and, symmetrically, 21.4 per cent Nintendo Game Cube consumers were assigned to Playstation 2.

Table 3
Multinominal Logit Regression Confusion Matrix

		Predicted			
	Video Game Console Brand	Sony Palystation	Microsoft Xbox	Nintendo Game Cube	Total
Observed Frecuency					
	Sony Plastation	24	5	14	43
	Microsoft Xbox	6	25	2	33
	Nintendo Game Cube	9	7	26	42
%	Sony Plastation	55.8	11.6	33.6	100.0
	Microsoft Xbox	18.2	75.8	6.0	100.0
	Nintendo Game Cube	21.4	16.7	61.9	100.0

63.6% correctly assigned

After MLR analysis, data were evaluated applying MDA model. This model stems from a table of data on *n* individuals in which independent or "explanatory" quantitative *p* variables have been measured as individual profile. An additional dependent or classifying qualitative variable, with two or more categories, allows a different definition of the group to which every individual belongs to (Kendall, 1996). It consists of a table $n \times (p+1)$, which details the profile and group assignment for each case. Following this assignment, a discriminatory mathematical model is obtained, allowing compare the profile of a new individual from unknown group that will be reassigned to the group, which most reflects his own profile.

The mathematical purpose is getting lineal functions from explanatory variables, that allow classify other individuals. These functions are applied to each individual and the function with the highest value will define the group to which every case belongs. If only two variables (x_1 and x_2) were measured for a set of individuals, values could be represented as follows (Lachenbruch, 1975):

$$D = b_1 x_1 + \ldots + b_p x_p$$

where *b* shows discriminatory coefficients of the function and *D* is the corresponding discriminatory function which must comply with the only requirement of optimizing discrimination or division of the groups considered. Once discriminatory functions have been extracted, it is time to check their prediction capacity for individuals whose groups we already know. From discriminatory punctuations we can create a rule allowing classify

individuals into each of the three video-console brands. Bayes theorem is the most common assignment method for this stage of the analysis. The probability of any *i* individual, with $d_{i1}, d_{i2}, \ldots, d_{ir}$ discriminatory punctuations, belonging to group *j*, is represented as:

$$P(G_j/D) = \frac{P(D/G_j)P(G_j)}{\sum_{j=1}^{k} P(D/G_j)P(G_j)} \qquad j=1, \ldots, k$$

where:

$D = (d_{i1}, \ldots, d_{is}, \ldots, d_{ir})$

$P(G_j)$ = a priori probability of belonging to group *j*.

$P(D/G_j)$ = probability for his discriminatory punctuations of being $d_{i1}, d_{i2}, \ldots, d_{ir}$, supposing the individual belongs to group *j*

The individual will be correctly classified if:

$P(G_j/D) = \max\{P(G_1/D), \ldots, P(G_k/D)\}$

The efficiency of the discriminatory function can be assessed according to the percentage of cases that were correctly assigned. Table 4 shows findings for the classification performed.

Table 4

Discriminant Analysis Confusion Matrix

		Predicted			
	Video Game Console Brand	Sony Palystation	Microsoft Xbox	Nintendo Game Cube	Total
Observed Frecuency					
	Sony Plastation	23	5	15	43
	Microsoft Xbox	5	26	2	33
	Nintendo Game Cube	9	8	25	42
%	Sony Plastation	53.4	11.6	34.8	100.0
	Microsoft Xbox	15.1	78.7	6.0	100.0
	Nintendo Game Cube	21.4	19.0	59.5	100.0

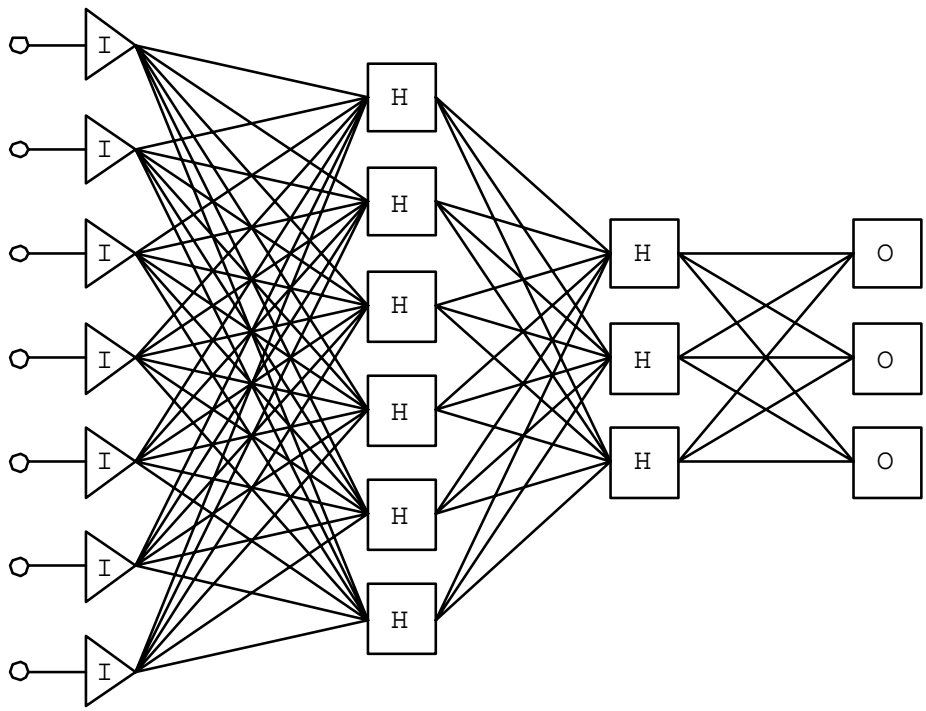
62.7% correctly assigned.

The table details the three original groups (Xbox, PS2, Game Cube); the diagonal in this table indicates the absolute and relative values for cases correctly assigned (62.7 per cent). Similarly to MLR model, the highest classification errors were found for Playstation 2 and Game Cube consumers.

The model was checked using ANN, with the neuronal typology shown in Figure 2. It consists of a first entry layer with seven neurones corresponding to the seven items previously described. Then, a two hidden layers structure was selected, the first layer with seven process elements or neurones, and the second with only three. We selected this structure because it presented low error values. Though genetic algorythms were used in order to find the optimum ANN structure, none of the typologies suggested by these algorythms showed lower error values than the structure presented here. Furthermore, sigmoid transfer function was used for the two hidden layers. The exit layer comprised three neurones, representing the three video-console brands for the case selected.

Figure 2

Neural Net Topology for Video Game Console Brands



As learning system, the network used back propagation, with 20,000 training epochs and the minimum error for iteration 19,874. Confusion matrix indicates better results than the ones obtained with MLR and MDA models. Table 5 shows 88.1 per cent correct classification percentage. However, contrary to MLR and MDA models, the highest classification error values (19.1 per cent) were observed for Microsoft Xbox and Nintendo Game Cube consumers.

Table 5

Neural Net Confusion Matrix

		Predicted			
	Video Game Console Brand	Sony Palystation	Microsoft Xbox	Nintendo Game Cube	Total
Observed Frecuency					
	Sony Plastation	39	0	4	43
	Microsoft Xbox	0	27	6	33
	Nintendo Game Cube	1	3	38	42
%	Sony Plastation	90.9	0.0	9.0	100.0
	Microsoft Xbox	0.0	80.9	19.1	100.0
	Nintendo Game Cube	2.3	6.9	90.7	100.0

88.1% correctly assigned.

4. Conclusions

The analysis of consumers´ characteristics and their relationship with purchase behaviour is essential for the planning of any marketing strategy. Nevertheless, since most data to be analysed derive from perception processes, usual statistic techniques are not always suitable.

The analysis of the Spanish video-consoles market has revealed the existence of a more efficient technology, though its applications are still scarce. Global correct classification percentage for consumer's classification was 63.6 per cent for MLR model, 62.7 per cent for MDA model, and 88.1 per cent for ANN model. However, the internal complexity of ANN brings some difficulty to the analysis of data. This fact makes the model very efficient for prediction studies but not so explanatory as traditional techniques.

Further research will be necessary in order that ANN prediction capacity can include the possibility of interpretation and direct translation to marketing.

Bibliography

Albertini F., Sontag E.D., "For neural networks, function determines form," *Neural Networks* 6, 975-990, 1992.

Alonso, J., "El comportamiento del Consumidor, Una aproximación teórica con estudios empíricos," *Instituto Nacional de Consumo*, 1984.

Angeline P. J., Saunders G. M., and Pollack, J. P., "An evolutionary algorithm that constructs recurrent neural networks," *IEEE Transactions on Neural Networks*, 5(1): 54-65, 1994.

Baldi, P. and Pineda, F., "Contrastive learning and neural oscillator," *Neural Computation*, 3:526-545, 1991.

Bauer, R. A., "Consumer Behaviour as Risk Taking. In Risk Taking and information Handling in Consumer Behaviour," ed. Donald F. Cox. Boston: Harvard Business School, *Division of Research*, 1967.

Bengio, Y., "Markovian models for sequential data," *Neural Computing Surveys*, 2:129-162, 1999.

Bettman, J. R., "The structure of consumer choice process," *Journal of Marketing Research*, Vol. 8., 465-471. November, 1971.

Caudill, M., "Neural Network Primer: Part I," *AI Expert,* California, 1989.

Hair, J.F.; Aderson, R.E.; Tatham, R.L.Y. Black, W., " Multivariate Data Analysis," *4ª edición,* Englewood Cliffs: Prentice Hall, 1995.

Lilien, G. L. y Kotler, P., "Toma de decisiones en mercadotecnia," *Un enfoque a la construcción de modelos*, Editorial Cecsa, México, 1990.

Moreau Y., Vandewalle J., "Approximation of Dynamical Systems by Compositions," *Mathematical Theory of Networks and Systems,* 96, St-Louis, MO, June 24-28, 1996.

Murray, J., "Experiences of Neural Networks in Practice," *Journal of Targeting*, Measurement and Analysis for Marketing, Vol II, No.1, 1993.

Neelameghan, R.Y. Jan, D., "Consumer Choice Process for Experience Goods: An Econometric Model and Analysis," *Journal of Marketing Research*, Vol. XXXVI (August), 373-386, 1999.

Newell, A.; Seaw, J. C., Y Simon, H. A., "Elements of a theory of human problem solving," *Psychological Review*, 65, 151-166, 1958.

Ortega, J.M. and Rheinboldt, W.C., "Iterative Solution of Non-linear Equations in Several Variables and Systems," *Academic Press*, New York: 1970.

Pearson D.W., "Output zeroing within a Hopfield network, in Artificial Neural nets and Genetic algorithms," Albrecht R.F., Reeves C.R. and Steele N.C. eds., *Springer-Verlag*, 1993.

Pearson D.W., "Hopfield Networks and symmetry groups," Neurocomputing 9, 305-314, 1995.

Rao, V. R., y Darius J. S., "Some Issues in the Construction of Models for Marketing Decisions," *en Research in Marketing*, Vol. 4, ed. J. Sheth, 251-272. Greenwich, Conn.: Jai Press, 1981.

Verbeek, E., "Prejuicios y realidades sobre redes neuronales," *Investigación y Marketing*, No. 56, 1997.

Vries, B and Principe, J. C., "A theory for neural networks with time delays, In R. P. Lippmann, J. E. Moody, and D. S. Touretzky, editors," *Advances in Neural Information Processing Systems* 3, pages 162-168. San Mateo, CA: Morgan Kaufmann, 1991.

Werbos P.J., "Generalization of back propagation with application to a recurrent gas market model," *Neural Networks*, 1, 1988.

Zbikowski R., "Lie Algebra of Recurrent Neural Networks and Identifiability," Proceedings *of the American Control Conference* ACC 93, San Francisco, CA, June 2-4, 1993.

Corporate Performance Management: An Innovative Strategic Solution for Global Competitiveness

K.G.Sankaranarayanan and Babu P. George

The present paper attempts to weave together the piecemeal writings about a significant innovation in the management of corporate performance, namely, CPM or Corporate Performance Management, an umbrella term that describes the methodologies, processes, systems, and matrices used to manage the performance of an enterprise. A typical CPM suit brings together the capabilities existed with its predecessor technologies to produce a superior outcome that is far more than the sum of what the previous technologies could do independently. The paper takes the readers through the historical development of CPM, its costs and benefits, and the nuances involved in its implementation. A few real life examples on CPM implementation are also provided at the end of the paper.

Introduction: Making Sense of CPM

An ever-increasing uncertainty and chaos in the business environment make enterprises to look towards investments that will keep them competitive by trimming costs and maximizing the benefits of available resources. Corporate Performance Management (CPM), alternatively known as Business Performance Management (BPM) or Enterprise Performance Management (EPM), is an umbrella term that describes the methodologies, processes, systems, and matrices used to monitor and manage the business performance of an enterprise, according to Gartner, the research and advisory firm that initially coined the term in 2001 (*See* Geishecker, 2002; Genovese and Hayward, 2003). It is an approach that aims to ensure efficiency and effectiveness in strategy execution by bringing in organized and integrated improvements in the management processes at all levels (Webber, 2003). It helps businesses discover efficient use of their business units and financial, human, and material resources. It provides the much-required transparency into the systems and processes of the organization and

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helps businesses to demonstrate accountability and compliance. Note that predictable and controllable corporate performance as well as the demonstration of its ethical roots is of utmost importance given the increased regulatory and investor pressures.

CPM is an integrated package whose usage spans across business planning, financial analysis, and the needs of functional areas like marketing, personnel, and operations (Williams and Williams, 2004). Thus, for enterprises to make the best use of it, they must take a holistic view, making CPM a part of every segment of their businesses. A typical CPM suite contains software to help plan initiatives, track progress, and analyze the results. The software consolidates data from various sources, analyzes the data, and significantly aids in managerial decision-making and plan execution (Moncla and Arents-Gregory, 2003). By now, CPM solutions and expertise have become greatly intricate and have been fine-tuned to the specific nuances of different industries.

One easy way to understand more about CPM is to describe what is not. CPM isn't simply business intelligence (BI). It is not a tool implemented in a single department that analyses data. Nor is it deployed reactively based on outside events. More over, it does not merely focus on history. Instead, CPM is the real-world insight delivered across a suite of applications with embedded business processes that essentially sits on top of the reporting foundation that BI creates. It is an enterprise-wide tool that is used to offer reports and analysis and also to integrate that data with planning, budgeting, forecasting, and consolidating. And, rather than a tool used just to analyze history, CPM is most valuable for its ability to help businesses look to the future and plan appropriate actions. A CPM solution, if properly deployed and used, can help users regain control over their businesses, increase their organizational credibility and remove barriers throughout the enterprise. Being more sophisticated than the currently employed scorecards and executive dashboard products, CPM enables managers to get an upper hand on their business understanding, to use this understanding in making real collaboration across the enterprise a reality and to confidently respond to the changes and trends that are taking place in the environment (Moncla and Arents-Gregory, 2003).

With all the data at its reach collected and analyzed, enterprises achieve a whole new method for risk mitigation or more accurately, risk avoidance. CPM offers actual business performance assessment so that users can better understand where and when their business is at risk as well as when to avoid potentially dicey situations. For example, the intelligence provided by a CPM suite can help managers to understand the probability of impact upon production should a supplier shut down, and allow them to factor that scenario and contingency operations into forecasting plans. No wonder, CPM is touted as the next generation of Business Intelligence (Grigoria, *et al.,* 2004).

Global competition and the economic uncertainty are all working to squeeze margins for almost any business. As a result, organizations are increasingly looking to make investments in those areas that will help them trim process costs in the future. The benefits offered by CPM are crucial for many types of businesses in today's increasingly competitive economy. A growing number of organizations are realizing that CPM is just the right tool to help them accomplish the required level of process cost competitiveness.

The CPM Evolution

The evolution of CPM can be traced somewhat parallel to that of computer and communication technologies (Baltaxe and Van Decker, 2003).

- In the 1970s, Decision Support Systems provided a way for organizations to model their futures. Using mainframe-based multidimensional technologies, finance departments and operations research groups could analyze and plan by distribution channel, customer, product line, and more, giving them the capability to spot and exploit gaps in the market.
- In the 1980s, Executive Information Systems (EIS) provided CEOs and their executive teams with technology that could be used to investigate organizational strengths and weaknesses, without having to get assistance from programmers.
- In the 1990s, the pace of businesses accelerated dramatically. Business Intelligence (BI) became the key to speeding up the processes of planning, reporting, and analysis. Alongside, Enterprise Resource Planning (ERP) systems became a tool every company just had to have.
- Almost at the same time, the increasing availability of PCs with online connectivity resulted in the proliferation of end-user systems that could analyze complex databases distributed across functional, industry, and community boundaries.

- The latter half of the 1990's was an 'awareness era.' More than the technological innovations that were occurring, which were definitely significant, this era is noted for an increasing awareness that technology by itself wasn't the answer. Although technologies have resulted in the availability of more information, that too faster, none of these technologies had been particularly helpful to senior managers who still struggled to find ways to enable better strategic execution. It is certainly not enough to have the technological infrastructure to run a business. The right combination of technological assets is more important in delivering results. What is required is something that is hierarchically superior that can realign the disparate technological solutions available to solve functional problems under a common super-system the outcome of which will be an all-encompassing solution. Such a solution achieves more than what is possible with the linear sum total of those discreet technologies that are the building blocks of the super-system.
- This line of thought led to a renewed focus on how to better implement strategy and many books and articles were published by the end of 1990's on new management methodologies (Neely, Adams, and Kennerley, 2002); the Balance Scorecard (BSC) being perhaps the best known (Kaplan and Norton, 1996). The BSC emphasized that organizations must plan and monitor all aspects of their business and not just financial outcomes. This included customer retention, internal process efficiency, internal learning, and growth. Specialized solutions like Customer Relationship Management (CRM) systems also geared in to the business landscape (Shaw, 1999).

Role of CPM in Bridging the Strategic Gap

While the aforesaid methodologies and their supporting technologies were good in themselves, they were not able to provide a comprehensive answer. It is only when the positive sides of these different methodologies are combined with management processes (e.g., budgeting, forecasting, management reporting) to plan and measure the right things, supported by technology, can organizations really start to influence the implementation of strategy, which is where CPM pitches in.

The gap between strategy and execution is something that worries many experts even now. It is shocking to learn that on an average only one tenth of the formulated strategies are successfully executed even while a large number of investors and analysts are of the opinion that execution is more important than strategy itself (Davenport, 1993). This occurs largely due to the lack of alignment among measures, processes, people, and technology. Many organizations are happy with quantifiable financial measures while more important others, including measures of intangible properties, are gravely neglected (Rucci, Kirn, and Quinn, 1998). While CPM is built to identify and measure the right things rightly, it does not exaggerate metric variables at the cost of more intangible ones. This avoids management processes from being skewed unduly towards quantifiable, financial measures.

Thus, CPM combines different methodologies with management processes, enabling organizations to actively influence at all the intermediate levels involved in strategizing. The earlier solutions, at the most loosely and often unreliably, connected the systems and processes that were used to generate budgets and targets. One of the major drawbacks of the traditional scorecard systems was a judgmental problem that occurred when the metrics targeted in a plan did not match the metrics employed to examine whether the plan was successfully executed (Dinesh and Palmer, 1998). CPM successfully overcomes this by providing a flow-path for the initial plan metrics to smoothly transfer into systems for monitoring progress and judging final results.

Every business will have certain critical success factors, whether they are about sales, finance, inventory, deliveries, product quality, service, or customer retention, that must be monitored and adjusted rapidly to meet company goals (Kaplan and Norton, 1992). The increasing pace of business activity means business leaders at all levels must evaluate performance metrics in terms of these critical success factors, much more frequently than ever before. Timely information about increased product demand or poor delivery service levels enables decision makers to respond fast with increased production or higher staffing levels. The need for a new marketing campaign tomorrow may depend on what happened in sales earlier this week. The value of an order from a supplier may change from hour to hour depending on one's own inventory and near-term projections (Brunner *et al.,* 1999). Fresh business performance data is a goldmine for companies that must turn on a dime (Creelmann, 1998).

In addition, many CPM solutions are equipped with technologies that can chart 'what if' scenarios from which users can better understand where and when their businesses are at risk, what are the opportunities that match the organizational capabilities, and when to exploit them. The feedback looping technologies behind CPM permit the revolutionary option of continuous improvements in plans based on current data, before which only discreet plan alternations were possible, say, annually. Thus, through CPM solutions, users gain a great deal of control over their businesses, increase their organizational credibility, and do away with frictional barriers existing throughout the enterprise. This new approach goes far beyond the traditional definitions of management control that were historical, reactive, and ad hoc.

CPM Dashboards and Data Integration

With the revolutionary growth of diversified technological bases, facilitating data integration and interoperability have become a huge challenge (Bruckner, List, and Schiefer, 2002). Data integration is necessitated because of the different types of data, different technology infrastructure, different locations, different administrative ownership, different data structures, and different data semantics that forces organizations to make suboptimal decisions (Linthicum, 2000). Dashboards built into a CPM suite overcome the problem of data integration barrier to a large extent by creating one data catalog from which access to any data will be made available (note that data would have been pre-processed to meet dashboard platform requirements). In brief, CPM Dashboards perform the following functions, *inter alia*:

- Integrate data from multiple, distributed, heterogeneous data sources to supply information to dashboards.
- Pull data directly from distributed data sources, protect production databases, and avoid creating costly data marts.
- Reduce integration cost, data management cost, and development time and effort for dashboard projects.
- Make fresher data available for decision making across the enterprise.
- Deploy scalable, service-oriented data integration architecture to get more from investments in data, integration, and tools.

CPM and Key Performance Indicators (KPIs)

The soul of CPM is the pruned out set of a manageable number of Key Performance Indicators (KPIs) that measure the overall health of an enterprise (Rowley, Mostowfi, and Lees, 2002). It is not only that performance happens somehow, but also the same is to be known to the management for further action. Performance measurement is a field to which companies have placed a lot of attention recently (Ahmad and Dhafr, 2002). KPI functionality of a CPM suite ensures that individuals at all hierarchical levels are marching in step to the same collaborative, coordinated, and standardized goals. Among other things, KPIs are of immense aid to the human resource management function as they help to optimize reward schemes according to individual's ability to implement action plans that meet strategic goals.

A KPI is a measure or metric that is included in a CPM suite because its measurement drives performance achievement. KPIs are quantifiable matrices (but, not every quantifiable performance indicator matrix is a KPI) that reflect the performance of an organization in achieving its goals and objectives. Individual measures in any KPI set may measure variables like throughout time, customer satisfaction, product/service quality, employee morale, etc. At a higher level, these individual measures can be made to do things that each of them could not have done independently of each other (Cleveland, 1996). The success of any performance management program is thus contingent up on selecting the correct KPIs. Not only that, the selection of wrong KPIs can result in counterproductive behaviour and suboptimal results. For selecting the right set of KPIs, most importantly, the decision authority should have an understanding of the required individual performance measures, the set of performance measures as a whole, and the relation that should exist between the performance measurement system and the environment. Answers to the following questions could structure one's thoughts about the KPI selection decision (*See* Neely, Gregory, and Platts, 1996):

- What is to be measured?
- How many metrics should I have?
- How often should I measure?
- Who should be accountable for the metric?
- How complex should the metric be?
- How do I normalize the metric?
- What should be my benchmark?
- How do I ensure the metrics reflect strategic drivers?

In fact, these answers are critical in choosing the correct KPIs suiting particular organizational contexts. Note that, since KPIs form the most significant building blocks of a CPM suite, lot many of the post CPM implementation problems can definitely be avoided if proper care is exerted at the time of selecting KPIs.

Steps in CPM Implementation

The implementation of CPM is easier said than done. Often, problems surface even at the beginning, mostly in the form of a political process (Spangenberg, 1994). It is to be justified from the point of view of return of investment and has to necessarily win a face-off against other competing projects such as CRM. The senior level management in the organization may ultimately give the green signal to start small and go incrementally. Fortunately this is possible, technically as well. At times, there will already be in place in the organization a set of CPM components, because many parts of CPM are built on existing ideas that have already become the backbones of existing systems.

The first vital step in CPM implementation is to have a pool of technology suppliers who could provide the requisite hardware, software, and constant service assistance. It is important to select technologies that could be easily updated and upgraded. The value derivable out of a particular CPM solution is greatly contingent upon the KPI items chosen; the dilemma is in choosing 15 to 20 necessary KPI items from hundreds of metrics included in the whole package. The help of a consultant may be sought to evaluate the existing systems and procedures and to compile the list of requirements. A single area of the business could be identified to start with, and to reduce the potential risk factor involved. The next important task is to recognize the type of CPM users in the organization; say, whether they use it for strategic, tactical, or operational purposes. This is so because the system requirements and their usages are expected to be different for each of these users. The strategic user may be interested to know what would happen if the company got into a new international market, a tactical user about the budgetary allocation for the next period, and an operational user about the current inventory status.

Since technology diffusion takes place in a socio-technical system and the applicability of any technological framework depends largely on its fit with the organizational culture, training for cultural adaptation is extremely important for the technology to be acceptable in the organization. Training can be imparted through formal sessions, but legitimacy for the new system is hard to permeate unless a critical mass of favourable opinion leadership is forthcoming, and suitable social engineering is to be undertaken to generate this favourable voice among respectable members of the organization. If this much is done without much failure as part of CPM implementation within a single business unit, the entire steps can be started over with the remaining areas such that, ultimately, all the business units and their processes are tied together under the ambit of CPM. Note that it is unreasonable to expect the best results from CPM when it is introduced in only one or two units.

Many enterprises have begun to learn the potential offered by CPM, both the big and the mid-market ones. There are custom packed CPM solutions at low costs available to the specific needs of different types of organizations. Some of the CPM software vendors readily visible in the market are Hyperion Solutions (www.hyperion.com), Cognos (www.cognos.com), SAP (www.sap.com), PeopleSoft (www.peoplesoft.com), Infosys (www.infosys.com), and SAS Institute (www.sas.com). Reputed organizations like Infosys have not only developed CPM packages, but also implemented the same in their own organizations. This helped them to streamline friction-free information flow in all directions and across all levels in the organization. Infosys moved from 400 to 30 metrics that are directly linked to their strategic objectives and performances along these metrics are being constantly reviewed by their senior management to manage corporate performance. According to Infosys, these initiatives resulted in 65 per cent reduction in cycle time for budgeting, 40 per cent reduction in planning cycle times, freeing up 20 per cent of senior management time that was previously spent on review meetings, and 30 per cent improvement in forecast efficiency. Notably, the company has almost always met its financial forecasts, which stands as a testimony to the effectiveness of CPM.

Using CPM in the Real World: More Examples

§ California Eastern Laboratories (www.cel.com) recently followed the steps described above to deploy CPM solution and has met with great success. CEL, the North American sales and marketing partner for products made by NEC Compound Semiconductor Devices, wanted to make sure it was ready for future growth. CEL implemented the software applications it chose in phases, starting with human resources and

benefits management and moving onto financial, order management, advanced supply chain planning, purchasing and business intelligence tools. The whole process took about eight months. Instead of gathering data from separate warehouse management, accounting, supply chain planning and human resources systems, the company was able to consolidate its applications into a single integrated package. CEL could turn to a single source for information. Now, CEL's distribution system is closely linked to its planning system. Its 13 sales offices, multiple distribution centers and channels are highly interconnected. By connecting planning, execution, and business intelligence, it has got global visibility into the demand and supply across its supply chain.

§ Winn-Dixie (www.winn-dixie.com), which operates one of the largest supermarket retail chains throughout most of the USA after implementing CPM, could save $4.4 million apart from the other benefits like better planning and greater accountability.

§ Lockheed Martin (www.lockheedmartin.com), the aerospace giant, which implemented a sweeping CPM project by automating the consolidation of data from hundreds of systems and legal entities within the company could reduce its finance staff by more than one thousand with an average savings of $40 million per year from a project that probably did not cost more than $10 million from start to finish.

In an analysis of 437 publicly traded firms, 205 of which had structured performance measurement systems, Andre de Waal (www.andredewaal.nl) found that over a three year period the financial performance of those firms with a performance measurement system like CPM had substantially improved and substantially became better than those firms without a similar system. This improved performance was visibly reflected in their stock prices.

Concluding Remarks

Better matching between the desired organizational goals and actual performance, in addition to sustained global competitiveness, are the most alluring promises of the Corporate Performance Management suite. CPM adds value to the business by focusing on how an organization develops, implements, and monitors strategic plan. This strategic focus is maintained over every managerial process, right down to the contribution individual budget holders make.

CPM provides the much-required transparency into the systems and processes of the organization. It promises quality output at a lesser cost. It helps businesses to demonstrate accountability and compliance and provides opportunities for active managerial intervention at different stages of the conduct of a business. Increased return on investment and high managerial efficiency and associated effectiveness should attract potential buyers to typical CPM solution suites. CPM, though relying to a great deal upon numbers, goes far beyond quantitative management, or 'management by numbers.' It brings back to the fore of management practice the once forgotten treasure of insight, superimposes it upon the numbers and delivers integrated solutions to the complex problems of the present day businesses.

After taking a general survey of the components constituting CPM, as well as the significance and paybacks of integrating it into the key processes of a business, the next question is where we are heading to. Many business organizations have adopted at least some modules of it like ERP, data mining, warehousing, and business intelligence applications, but one module without integrating with the others. Worse, the applications of these modules are rarely if ever informed by an overarching business strategy. It is known to all that organizational decision-making becomes suboptimal due to disintegrated business processes and incorporation of CPM technologies for enabling integration is the sure path to a great return on investment in technology.

To the question of whether CPM is the next big thing to come, Gartner (www.gartner.com) is strongly of the view that enterprises that incorporate CPM in philosophy and praxis will have a leading edge over their industry peers. Even though the arguments presented in this article may make one to believe that there is a high probability for this to be true, it is more advisable that organizations maintain a cautiously informed optimism, better understand about what it can mean to their businesses, and build up step by step through preparatory strategies than naively jump into the forefront of the bandwagon. Of course, CPM is not a static set of particular technologies that delivers the best good across time and space, but the technology mix of CPM varies from time to time. Getting locked into particular

technologies that are non-scaleable and non-interoperable and that require significant investments is a scenario that is to be definitely avoided.

Keywords: Corporate Performance Management and its distinguishing features, Historical evolution of CPM, Dashboards, Key Performance Indicators, CPM implementation, and Case-studies.

References

Ahmad, M.M. and Dhafr, N., "Establishing and improving manufacturing performance measures," *Robotics and Computer Integrated Manufacturing, 18,* 171-176, 2002.

Baltaxe, D. and Van Decker, J., "The BPM transformation: Where it is today, where it's going tomorrow," *Business Performance Management*, November, 18-27, 2003.

Bruckner, R. M., List, B. and Schiefer, J., "Striving towards near real-time data integration for data warehouses," In Kambayashi, Y., Winiwarter, W., Arikawa, M. (Eds.), *Proceedings of the DaWaK 2002*, LNCS 2454, 317-326, 2002.

Brunner, J., Becker, D., Buhler, M., Hildebrandt, J., and Zaich, R. *Value Based Performance Management*, Wiesbaden: Gabler, 1999.

Cleveland, B., "What are the Key Performance Measurements (KPIs) in a Call Center?" *Maryland: ICMI* Inc, 1996.

Creelmann, J., "*Building and Implementing a Balanced Scorecard,*" MA: Lexington Books, 1998.

Davenport, T.H., "Process Innovation: Reengineering Work through Information Technology," Boston: Harvard Business School Press, 1993.

Dinesh, D. and Palmer, E., "Management by objectives and the balanced scorecard: Will Rome fall again?" *Management Decision, 36* (6), 32-46, 1998.

Geishecker, L., "Manage Corporate performance to Outperform Competitors," Gartner Group, Note No. COM-18-3797, 2002.

Genovese, Y. and Hayward, S., "*Business Process Fusion Transforms Applications,"* Gartner Article Top View, Note No. AV-21-2090, 2003.

Grigoria, D., Casatib, F., Castellanosb, M., Dayalb, U., Sayalb, M., and Shan, M.C., "Business Process Intelligence," *Computers in Industry, 53*, 321-343, 2004.

Kaplan, R.S. and Norton, D.P., "The Balanced Scorecard: Translating Strategy into Action," Harvard Business School Press, MA: Cambridge, 1996.

Kaplan, R.S. and Norton, D.P., "The balanced scorecard; Measures that drive performance," *Harvard Business Review*, January/February, 71-79, 1992.

Linthicum, D. S., "Enterprise Application Integration," Massachusetts: Reading, 2000.

Moncla, B. and Arents-Gregory, M., "Corporate performance management: Turning strategy into action," *DM Review*, December issue (accessed from http://www.dmreview.com/editorial/dmreview, on 15-09-2004), 2003.

Neely, A.D., Adams, C., and Kennerley, M., "The Performance Prism, the Scorecard for Measuring and Managing Business Success," London: Prentice Hall, 2002.

Nelly, A., Gregory, M., and Platts, K., "Performance measurement system design," *International Journal of Operations and production Management, 15* (4), 80-116, 1996.

Rucci, A.J., Kirn, S.P., and Quinn, R.T., "The employee-customer chain at Sears," *Harvard Business Review*, January/February, 82-97, 1998.

Shaw, R., "Measuring, managing and improving the performance of CRM," *Interactive Marketing, 1*(1), 44-58, 1999.

Spangenberg, H., "Understanding and implementing performance management," Plumstead: Juta, 1994.

Webber, A., "CEO bashing has gone too far," *USA Today*, June 3, 15-16, 2003.

Williams, S. and Williams, N., "The business value of business intelligence," *Business Intelligence Journal, 8,* 4-17, 2004.

Professionalizing Micro Finance for Effective Regulation

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The major hurdles to the development of the micro finance sector, particularly to the growth of Micro Finance Institutions (MFIs) appear to be the lack of an enabling regulation, capacity of MFIs to expand, and absence of standardisation. Hence the need of the hour is to build trust about the sector by addressing the concerns of the investors/bankers particularly related to the lack of standardisation and absence of a shared language. Creation of trust through standardization can be quickly achieved by professionalizing the sector by creating a new breed of certified professionals. These Certified Micro finance Professionals (CMPs), supposed to behave in a certain predictable manner by virtue of their training, can bring in compliance and standardization. The strategy is to bring in regulation through professionalism, create trust in the minds of all stakeholders about investing in MFI through a shared and common language, and create incentives for MFIs to take capacity building seriously.

To sustain the fruits of the economic progress achieved in the recent years[1], India needs to focus its efforts towards addressing its poverty, given that it is the home for 1/3rd of the world's poor. Micro finance has been recognised to be one of the promising strategic options to reduce poverty by the international agencies working towards the UN millennium development goal of halving the world's poverty by 2015[2]. It is really heartening that micro finance seems to be the current buzz word in India and is finally receiving the attention it deserves, be it in the Union Budget or among investors like Vinod Khosla[3] who have come forward to invest in Indian micro finance. It is vital for India that this movement/revolution picks up pace and scales its peak effectively.

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The role of Micro Finance Institutions (MFIs) is increasingly being recognized as a vital component in the overall strategy for micro finance in India. Given the yawning demand-supply gap[4] that exists in the sector, there is a vital need for freeing resource flows into the sector so that the potential is attained. Private sector investment seems to be an obvious choice for meeting this gap given the fact that micro finance is increasingly being considered as a viable proposition[5]. But the response of the private sector (both in terms of equity and debt) has not been as

encouraging as the potential envisages it to be.

An analysis of the major hurdles to the growth and scaling up of MFIs reveals that their origin could be traced back to (i) the lack of an enabling regulatory environment (including absence of a suitable legal form, ambiguity regarding the product portfolio of MFI like acceptance of savings, pension and micro-insurance, entry barriers in accessing foreign and domestic equity market, ECB regulations, and having to comply to the government diktats imposed on them from time to time), (ii) low capacity in terms of skill set, of a large number of MFIs to scale up in a sustainable manner (Out of 800 to 1000 MFIs, less than 10 are large[6]) and (iii) the low level of standardization (of processes and systems) in the micro finance sector given the variability in models and approach.

These hurdles get translated into paucity of funds for the MFIs for onward lending to members, expansion and scaling up. The sources of such funds for the MFI are mainly Equity, Debt and Grants. Piece-meal regulatory reforms like opening up of ECB or diluting NBFC norms for MFIs alone may not result in large flow of funds to the MFIs/sector if the other constraints are not addressed concurrently. Unless the concerns of the equity investors, lenders and donors in the micro finance sector, particularly with respect to the standardization of the processes as well as financial and non-financial reporting (like outreach, poverty assessment, impact etc) are addressed through a common language, which makes sense to all the stake holders, the hesitation to invest will continue.

In future, if and when the legal form for an MFI is prescribed by RBI/GOI, whether within the NBFC regulations or under separate regulations, the standardization with respect to the financial reporting may be achieved to a certain extent. However, developing the trust of the investors in the sector will be a vital mandate and challenge of any regulator of the sector, and it should be made certain that the steps to regulate also facilitate development. (The opponents of regulation of any kind argue that it will thwart growth in such a burgeoning/growing sector as this).

Regulation: The debate

There are clearly three lines of arguments with respect to the regulation of the micro finance sector. The argument for self-regulation, which is part of the NABARD Task Force recommendation[7], does not address the crucial question of incentivising the MFIs to conform. This is true for the vast majority of MFIs in the country, which are small, typically with less than 10,000 memberships and currently enjoying almost unlimited operational freedom owing to their low visibility due to their modest size. Apparently, the argument for a separate regulatory body, in the line of SEBI, TRAI, IRDA and PFRDA, which will have a mandate of not just regulation but also development of the sector so that macro level issues like regional disparity in growth of micro finance are also addressed, appears sound but has not been well received. The argument for "no regulation" is also strong but assumes that there are currently no regulations for an MFI. Literature[8] however shows that there are multiple regulations/ regulators[9] monitoring the sector given the variability that exists among the micro finance providers. The typical response of most MFIs would be to restrict their growth beyond a particular size due to concerns regarding the visibility, which might attract multiple regulators, all acting with its own separate agenda.

In this context, it will not be incorrect to assume a general consensus on the need for some regulation so as to facilitate the growth of the sector and the argument for an SRO or regulation by RBI appears to be the plausible option in the near future.

The flip side is, given the fact that that there are likely to be about 800 to 1000 MFI-NBFCs[10] (i.e., if all the MFIs in India apply for an NBFC licence; the NABARD Task Force quotes the number of NGO-MFIs that are required to reach one million SHGs to be in the range of 4000[11]), how effective can the RBI/regulator be in enforcing standards is a debatable issue. Will the regulator use its own staff to ensure compliance? What sort of manpower will be required for the same? Alternatively, will it use the existing professional bodies like ICA/ICWA etc to audit compliance? In that case, how prepared such bodies are to audit given that micro finance is now a wide and complex subject in its own which brings together apparently disparate and even contradictory concepts of development and business.

Shared Language, Trust and Standardisation

It is really encouraging that the number of traditional banks foraying into the field of micro finance and particularly financing MFIs is increasing. This can be attributed partly to the recent encouraging steps taken by the government and partly to the increasing belief that micro finance is a viable business proposition as considered by lead players like the ICICI Bank. This trend needs to continue for the sector to develop and for that, the banks should be in a position to assess the risk associated with MFI lending in an appropriate manner. The

problem apparently is that for many such banks the sector itself is a novel one, talking a different language (The financial ratios followed in case of an MFI is different from those for typical financial institutions. The accounting practices could also be different especially for NGO-MFIs with grant components[12].) and conventional financial ratios may not make sense for assessing the credit worthiness of an MFI.

Let us elaborate. Most of the lenders, particularly the traditional bankers who are recent entrants, still depend majorly on financial statements like the Balance Sheet and Profit and Loss account for assessing an MFI, but this may not reveal the right picture about the MFI. An of-quoted example is the applicability of Capital Adequacy Ratio (CAR) for a Trust which has all its equity donated[13]. The ratios also can be tricky. For instance, there are different ways of calculating repayment rate, such as Cumulative, On-time, Current etc, each having distinct uses. An MFI may have a very low repayment rate but still can still post a rosy ratio[14]. Even the same ratio may be calculated differently by different MFIs. (Social investors like Mr. Vinod Khosla have raised/ shared this concern in his interaction/ evaluation of MFIs for equity investment and foresee a large in-flow of funds if the issues of standardisation and shared language are addressed). Unless the banker is really aware of these intricacies, she may not get a fair idea of what is going on and hence might not obtain a good assessment of the risk. Then there are rescheduling of loans, rerouting etc, which are difficult to detect unless there is standard software, which still remains a dream for the micro finance sector. Needless to say, there are more sophisticated ways in which the balance sheet and P&L account can be made to appear more promising than it really is. Thus a banker going by the conventional Financial Statements, even if endorsed by a Chartered Accountant cannot assume to be in a safe position.

The new age private sector banks are trying to address this through acquired competence by hiring personnel with field experience. However, they are also not in a position to assess an MFI in a comprehensive manner as usually the time available for a due diligence process with a bank official is usually less than a week which is insufficient for an in-depth verification. Thus the alternative currently is to look for qualitative aspects like excellence/ robustness of the board, management team, past record of repayment etc and to depend on rating agencies like M-Cril.

Rating is definitely a useful for the banker to assess her risk. However, a rating exercise is usually done on an annual basis, and takes about a week's time. This gives a snapshot of the affairs based largely on the existing information system and the argument here is that in a dynamic and non-standardised situation, more comprehensive and possibly concurrent assessments to ensure quality and create confidence among the stakeholders are required. While rating is useful, it is not adequate.

Transparent reporting in a language which is common, shared and understood by all stakeholders, through standardisation is important not only for accessing commercial funds but also for the donors/grant makers who support MFIs because of the substantial development impact of micro finance and are generally interested more in non-financial reporting variables. Other major players like Grameen Foundation, Unitus etc, who are working for developing the sector by channelling resources and facilitating acceleration of the growth of the sector are also facing similar situations and hence facing the risk of losing credibility before their donors.

Evidently, there is a pressing need for the different stakeholders of the sector to speak a common and shared language so that the same information conveys the same meaning to all. This would be decisive in attracting funds, both equity and debt to the sector. A shared language gains further significance given the diversity that exists among MFIs with regard to their legal forms[15] and capacity/ maturity[16]. Consequently, it is also important for the regulator, to bring in a common language to smoothen information flow within the sector and thus create trust and reduce its workload. All this has to be done without impeding the growth of the sector. Learning from earlier experience in the Indian financial sector and given that the sector is in its growing phase, it is advisable to be cautious as one poor investment by a major banker may be enough to send wrong signals and the sector may go the IRDP way[17].

Building Capacity: Who Is Interested?

Capacity of MFIs to scale up and expand is another area to be strengthened to facilitate flow of funds to the MFIs and sector. Currently there are a lot of efforts and resources put in by various facilitators like NABARD (BIRD), SIDBI, FWWB (ISMW), Sa-Dhan, ICICI SIG, UNITUS and the other facilitators are also taking initiatives in this direction by offering training programmes to its partners to enhance their skills for scaling up. However experience in this area, particularly with respect to training programmes for MFIs bring out the following:

a. Generally an MFI does not have much incentive to send the employees for training. Training is rarely a priority and often employees are sent mainly because such trainings are fully sponsored. Often such capacity building initiatives become donor/banker driven rather than based on a desire on the part of the MFI to develop its HR capabilities. There are many reasons for this. Very often the key personnel could not be spared for a week or so due to normal work pressure. There is also the question of whether an MFI should try to develop talent in-house or hire competency. Often the latter gets prominence, as it is the easier route.

b. When trainings are donor driven, the follow up and implementation takes a beating making the training programme a free holiday trip.

c. Paucity of established and reputed trainers is also perceived as a problem in making the programmes attractive.

d. The perceived gap between the concepts and practices of micro finance is another aspect, which makes the trainings less attractive for the MFIs. There is a feeling that the academics, who are often the trainers, do not or cannot appreciate the so called "ground level realities."

e. Many MFIs are still operating in a small scale and apparently are not interested in expanding significantly due to the complexities it will face once the scale increases. Small MFIs do not feel much need for capacity building.

Professionalise to Standardise! Certified Micro Finance Professionals:

The Concept

A strategic option to address these issues, at least to a significant extent, is to professionalize the sector. Obviously there are professionals working in the sector now. They are basically management graduates with or with out specialization in rural/ development management and finance professionals like Chartered/Cost Accountant (CA/ ICWA). While many of them are good in their domains, it is "interesting" to note that there are very few options when it comes to those who have received specialised (and holistic) training in micro finance. (Focused training on micro finance could include a wide range of topics from poverty assessment, models, processes and operations, products and financial management to impact assessment).

This gap can be addressed by creating a class of professionals who may be known as Certified Micro finance Professionals (CMPs). This class will consist of professionals trained in all aspects of micro finance and who will constantly update themselves about the changes in the sector. By virtue of their professional training and code of ethics, they will be expected to behave in a consistent and predictable manner and thereby bring in standardization. The CMPs will be similar to the CAs/ ICWAs/Company Secretaries (CSs) in terms of their commitment to the profession and professional behaviour[18].

The Scope of a CMP

A CMP will have to make sure that all the documents and communication, which emanates out of an MFI is in a shared common language and is true and accurate. She will be making sure that the information, which is being shared in the public domain, is accurate and is represented in an unambiguous manner so that all the stakeholders will understand it in the same way. Thus she may also be involved in looking at the processes, fine-tuning the systems, plugging loopholes etc, as supplementary functions.

Though this can be the broad scope of a typical CMP as envisaged in this write up, many of the above are debatable. For instance, the CMP need not necessarily be involved in process standardisation and it may be best if left to the MFI. However, her major responsibility is to certify that the output of the processes as reflected in various documents, reports and information are genuine, true and accurate. Process changes and standardisation can be an option for an MFI, for which it may seek the help of the CMP voluntarily.

The scope and responsibilities lead to the required skill set and consequently the training that the CMP needs to function effectively. She will require in depth theoretical and practical knowledge in all aspect of micro finance from poverty assessment, models, systems and processes in micro finance, management, development and banking. Thus a full course for a CMP may take a couple of years to complete, while other professionals like MBAs, CAs etc can complete the course by availing exemptions of subjects covered by their other professional qualifications.

Who wants CMPs?
Marketing/Selling the concept: Advantages for Investors/Bankers

Along with creating a class of professionals, a brand has to be built for the CMPs. The bankers and the public should be sold

the idea that the seal/signature of a CMP is a mark of standardization and quality of the accounts/reports/documents/ processes of an MFI. If the bankers and investors adhere to this and insist on the certificate of CMP for release of funds, standardization will set in.

Aligning MFI incentives for compliance

Currently, the MFIs do not have much incentive to follow the standards, as conforming is voluntary besides affecting their freedom. There are appreciable efforts by international agencies to motivate the MFIs to adopt standard and transparent processes by providing them recognition, for instance the Financial Transparency Award of CGAP and the Process Excellence Awards given by ABN and Planet Finance. Sa-Dhan[19] through its work on formulation and dissemination of financial and governance performance standards for MFIs also tries to achieve this. These are at best first steps towards bringing MFIs to a common standardised platform. Given the growth rate required for the sector to achieve its rather ambitious target, other steps are also required to encourage MFIs to comply. The best way is to link compliance to the lifeblood of MFIs, funds. A policy advocacy drive has to be initiated to encourage banks/FIs to lend/invest in CMP certified MFIs for their own protection. This will create a pull for the MFIs to go for the certification of their report by a CMP. This "encouragement" can be scaled in such a way that within a few years it becomes mandatory for any MFI to have a CMP certification to access loan funds from mainstream banks. This will require the RBI to be convinced that a certain amount of discipline can be brought in the sector in a fast and economical manner through CMP certification so that it directs the banks to lend only to MFIs with CMP certification for priority sector classification.

The concerns regarding how such a ruling will affect the expansion and growth of the sector, is bound to be raised. The conjecture here is that by implementing this in a phased manner, making it obligatory only over a period of time and by giving exceptions in the way a CMP certification can be obtained for the existing MFIs based on their stage of development, these concerns could be addressed effectively.

The MFIs can have many options. It can have a CMP in-house or as a consultant. (This could be similar to the MicroSave certification[20], but instead of a voluntary certification, in order to ensure compliance, the signature of the CMP on the MFI documents has to be made mandatory under regulation.) MFIs can encourage their employees to take up certification. MFIs can alternatively hire a CMP. These are similar to the current practice with CAs for final audit. To assist the existing MFIs, separate certification process for the CFO/CEO can be prescribed so that their compliance is easy.

Scale and Certification

Scale and Certification: The certification can be mandatory depending on the scale of operations as in the case of a Company Secretary certification. For instance, if the membership/loan outstanding exceeds a certain limit there can be an in-house CMP and a part time CMP should be allowed for smaller MFIs.

Creating CMPs

Creating CMPs: It is important to have adequate CMPs to provide certification. This would mean a professional body to certify, a training facility and demand for the course i.e. people interested in obtaining certification. Here a couple of apparently viable options could be

f. To create an apex institution/statutory body similar to the Institute of Chartered Accountants of India (ICAI) /Institute of Cost and Works Accountants of India (ICWAI) /Institute of Company Secretaries of India (ICSI), which will directly conduct courses through its own chapters and gives certification. Here the assumption is that there will be sufficient demand for the course. Such demand can be created by encouraging the CFOs/CEOs of the MFIs to undergo courses (on-line or distance mode/part time) and get certified. However creating a large demand might take time.

g. The apex institution can alternatively tie up with the existing professional bodies/institutes to offer an add-on certification. For instance, the Institute of Rural Management Anand (IRMA), a premier rural management institution offers courses on micro finance. The chartered institute can offer those students who have taken micro finance course the option of obtaining the CMP title by clearing a few additional papers. Similar tie-ups with ICA and ICWA and IACS is also possible. Any Chartered Accountant can get an additional CMP certification by clearing a few papers offered by the Chartered Institute of Micro Finance of India (CIMFI).

h. The incentives must be aligned for the new breed of professionals to behave in a professional manner. The apex institution can assist the CMPs to procure business, update themselves etc. The disincentive will be that they will lose their certification for non-compliance and will be black listed (Just as in the case of other professional bodies).

Who can do this?

It will be difficult for one entity, to do all the above. A collective action of Academic Institutions, Financial Institutions, professional bodies and MFIs will be required to make this a reality. The CIMFI will be more effective if it is promoted by organizations like Sa-Dhan, MCRIL; academic/research/training bodies like IRMA, IIFM, IIM, CMFR, ISMW; FIs like ICICI, SBI; along with international resource agencies like MicroSave and CGAP. All of the above organisations are, in one way or other, trying to address the major three hurdles mentioned before. The capacity building, research, policy advocacy and funding capabilities of these organisations should be brought together in a complimentary fashion under a common umbrella with a clearly laid out set of objectives and outputs.

Conclusion

In recapitulation of the above discussion, it is possible to create a large number of CMPs in a short period by

i. Forming and getting an Institute of Chartered MFP recognized and legitimised by Parliament by an ACT,

j. Offering courses by all modes, full time, part time, distance education as well as on-line to maximize access,

k. Lobbying with GOI/RBI to make the CMP certification mandatory for borrowing from banks/FIs, which will make regulation easier as standardization will bring in better compliance,

l. Creating brand and selling the concept to banks and FIs as a risk management strategy,

m. Making life easier for MFIs by giving opportunity to existing CFOs and CEOs to get certification at softer terms, making the presence of a full time CMP mandatory only in the case of large scale operations and for smaller MFIs allowing for part-time CMPs. This will create demand for capacity building,

n. Tying up with existing professional bodies and management schools to offer add-on certification and helping the professionals to procure business. Align incentives for the CMPs to behave professionally,

o. Gradually opening chapters of CIMFI across the country.

Some of the assumptions of the proposal are questionable:

p. The professional bodies like Institute of Chartered Accountants of India, Institute of Cost and Works Accountants of India, other management institutes etc will agree to collaborate.

q. It is possible to get charter from parliament, get RBI to suggest the banks to lend only to CMP certified MFIs. That is broadly legitimacy can be created.

r. The organisations mentioned above are interested or will come together to float a new institution and can agree on the standards, willing to accept the CIMFI as a controlling body.

s. There will be enough demand for CMPs so that students will be interested in spending time and efforts for undergoing the course. This is related to the question of salaries and perks a CMP can expect.

t. There are enough trainers available to support the Institute.

CIMFI: Chartered Institute of Micro Finance of India

CMP: Chartered Micro finance Professional

End Notes

[1]Riding on a rebound in the agriculture and allied sector, and strongly aided by improved performance in industry and services, the Indian economy registered a growth rate of 8.5 per cent in 2003-04, the highest ever except in 1975-76 and 1988-89. http://indiabudget.nic.in/es2004-05/chapt2005/chap11.htm

According to the keynote address by the Finance Minister P Chidambaram, delivered at the opening session of the World Economic Forum's 20th India Economic Summit, on December 5, 2004, the Indian economy is poised for sustained economic growth of 7-8 per cent for the next ten years. The FM told participants. "For the first time, there is universal acceptance that India is riding a

wave of sustained economic growth." http://www.weforum.org/site/homepublic.nsf/Content/India's+finance+minister+predicts+growth+for+a+decade+as+investment+panel+formed

[2] Littlefield, Elizabeth, Jonathan Morduch, and Syed Hashemi, January 2003, "Is Microfinance an effective strategy to reach the millennium development goals?" CGAP Focus Note No.24 http://www.cgap.org/docs/FocusNote_24.html

[3] Vinod Khosla is one of the most successful venture capitalists of all time and has recently evinced a keen interest in supporting micro finance, especially in India. The sector is currently attracting the notice of several venture capital funds, and social investors some of which are Lok Capital, Unitus, and Acumen Fund. The exciting feature about these investors is that they all view micro finance as not only a socially responsible but also a profitable venture and expects to earn good/ near-market returns; even those which function on a not-for-profit basis monitors the results on market terms which would go miles towards boosting the growth of the sector.

[4] One estimate made by EDA Rural Systems, Gurgaon, assumes that the total requirement of credit for the rural poor families would be of the order of at least Rs. 15,000 crore on the basis of a minimum need of Rs. 2,000 per family. Another estimate made by Sa-Dhan, puts the need at Rs. 50,000 crore based on an annual credit usage assumed at Rs. 6,000 per rural households and Rs.9,000 for urban poor households. If we also include the demand estimates for rural housing (construction and repair/upgrade) by the National Housing Bank, the requirement of funds would work out to an additional Rs. 1,000 crore per year. The demand for other financial services like savings and insurance has not been included here. http://www.nabard.org/roles/microfinance/index.htm

Against this annualized estimated demand between Rs.15,000 - 50,000 crores, the cumulative disbursements through the organized financial sector over more than a decade (February 1992 to March 2004) have reached only Rs.3900 crore. http://www.nabard.org/roles/microfinance/index.htm

[5] Nachiket Mor, Executive Director, who is in charge of the micro finance activities of the ICICI Bank mentions in an interview with the Business Line, "There is no altruism, it is all business and driven by the need to find new markets," published as "ICICI Bank micro credit disbursements treble" on March 17, 2005. http://www.thehindubusinessline.com/2005/03/17/stories/2005031701430600.htm

[6] The top 10 MFIs account for over 40 per cent of the portfolio in an M-CRIL review done on 69 MFIs in India Sanjay Sinha, (June 2003) "Financial services for Low Income Families: An appraisal", Microfinance Round Table report, IIMB Management Review.

[7] Taken from the Report submitted by the Task Force on Supportive Policy and Regulatory Framework for Micro Finance constituted by NABARD in 1999. Recommendations made could be classified into the four broad areas of mainstreaming of MFIs and other micro finance structures, regulation and supervision of MFIs, organisational aspects relating to MFIs and capacity building of MFIs, banks and Self-help Groups (SHGs).

[8] "Macro environment and legal and regulatory framework: India" (March 2002), Women's World Banking.

[9] The different acts and regulations impacting the micro finance sector could be a virtue of the organisational form of the MFI including the Banking Act, RBI regulations which come under the Banking Law; NBFC regulations, Trust Act, Societies Act, Companies Act and Co-operative Law; it could also be common to all such as the Income Tax Laws, Labour Laws; State government laws like Money Lenders Act are also applicable since MFIs are not explicitly excluded and not recognised as an entity. All of this leads to much ambiguity and consequent rent seeking.

[10] Sanjay Sinha, (June 2003) "Financial services for Low Income Families: An appraisal", Microfinance Round Table report, IIMB Management Review'http://www.nabard.org/roles/microfinance/index.htm

[11] "Task Force on Supportive Policy and Regulatory Framework for Micro Finance Report" (1999) NABARD. http://www.nabard.org

[12] The common financial ratios in case of an MFI are Portfolio at Risk (PAR), Repayment rate, Financial Self-Sufficiency etc while for a bank it could be Capital Adequacy, Non-Performing Assets (NPA), Debt-Equity, Debt Service Coverage, Return on Equity, Return on Assets etc. The accounting practices in case of an NGO- MFI which has accepted grants might be new to a banker who is unfamiliar with non-profit concerns. How many bank officials are aware of such practices is anybody's guess. Accounting of Grants received through FCRA account could be another alien area for a local banker who appraises an MFI.

[13] Capital Adequacy Ratio(CAR) is the ratio between the capital and risk weighted assets. Presently, many banks and rating agencies are insisting on a CAR of 8-10 per cent for micro finance portfolio typically consisting of unsecured loans, which could make sense in case of a limited liability structure. A Trust is an unlimited liability structure meaning that the board members are jointly and severally liable for all the debts. Therefore a high capital ratio which tries to ensure that the promoters have sufficient stake in the entity and takes the first losses so that they do not take inappropriate risks does not hold much relevance in case of a Trust. Alternately, in case of a Trust with the entire capital donated, the board may not have any stake to protect the same as it is free of cost.

According to the Planet Finance Country Study: India (May 2002) "Because NGOs are registered as societies or trusts, they do not have any equity capital and can never be "capital adequate" in terms of leveraging debt in a large way." www.planetfinance.org

[14] The true picture of the repayment levels would be revealed only if one takes a intense look at the numbers that have gone into the numerator and denominator. The MFI could be including prepayments, late payments of amounts overdue from previous periods along with the current due payments in the numerator while the denominator could include only the current dues or past dues of prior periods. The portfolio quality could be surmised only if all these aspects are looked into. Also it is suspect that how many MFIs can and do separate the principal and interest payments in ratio calculations which could again distort the ratios. "Measuring Microcredit Delinquency: Ratios can be Harmful to your Health" (June 1999) CGAP Occasional Paper No.3. http://www.cgap.org

Other points of contention include whether to consider a loan as overdue only when the interest is overdue or whether the MFI should start accounting for it when the principal falls overdue.

"The lack of data to monitor asset quality was glaring." "Asset quality can be improved by focusing on the financial management skills of the MFIs." Planet Finance Country Study: India (May 2002) www.planetfinance.org

[15] Legal forms of MFIs in India range from Not-for-profit MFIs (Societies, Public Trusts and Section 25 companies) to Mutual benefit MFIs (State credit cooperatives, National Credit cooperatives and Mutually Aided Cooperative societies) and For-profit MFIs (For-Profit Companies and NBFCs).

[16] Performance-wise also there is a wide variability among the MFIs of the country as revealed in the micro finance review done by M-CRIL on a sample size of 90 MFIs in India. Of the total sample, 60 per cent of the MFIs had portfolio size less than Rs. 6.3 million. Among the 90 MFIs, 33 per cent had a membership of <=5000 while almost 28 per cent has >25,000 members. Near 49 per cent had a repayment rate of >95 per cent while 23 per cent had collection rates <85 per cent. The PAR was >20 per cent in 33 per cent of the cases while almost an equal number had PAR <=5 per cent. A quarter of the sample enjoyed an Operational Self-Sufficiency (OSS) >100 per cent whereas 50 per cent of the sample had <=50 per cent OSS. More than 11 per cent of the sample had a Financial Self-Sufficiency (FSS) of >100 per cent even as 54 per cent had <=50 per cent FSS.. "The M-CRIL Microfinance Review 2003 (revised February 2004)", www.m-cril.com

Not more than 10 MFIs are reported to have an outreach of 100,000 micro finance clients. An overwhelming majority of MFIs are operating on a smaller scale with clients ranging from 500 to 1500 per MFI. http://www.nabard.org/roles/microfinance/index.htm

[17] The Integrated Rural Development Programme, though initiated with huge fanfare, failed mainly due to the loan pardons done for political considerations and wrong targeting,

leading to a bad repayment culture. If bankers err in assessing their MFI partners because of which payment defaults happen, there exists the danger that this may spread through the entire micro finance portfolio in the country. This is of grave concern as the backbone of the sector is peer pressure and supervision, and practically it is very difficult to enforce repayment.

[18] Institute of Chartered Accountants of India is a statutory body established under the Chartered Accountants Act, 1949 for the regulation of the profession of chartered accountancy in India. The Institute has a pro-active Disciplinary Cell to ensure compliance of professional ethics and Code of Conduct in terms of the Chartered Accountants Act as well as various pronouncements issued by the Central Council of the Institute. The Institute not only entertains complaints from Stock Holder/User Group but also takes suo-moto action in cases which come to the knowledge of the Institute through external information. The provisions contained in the code of conduct of the institute are most stringent ones as comparing to any other in the world and the actions taken by the institute against the defaulting members are also very stringent. There are very few cases, where the Indian courts have taken more stringent action against the members than what is proposed by the institute. http://www.icai.org/common/index.html

The Institute of Company Secretaries of India is a premier professional body constituted under the Company Secretaries Act, 1980 to develop and regulate the profession of Company Secretaries in India. The ICSI, besides conducting Company Secretaryship examinations and enrolling qualified students as members after practical training, exercises professional supervision over the members in matters pertaining to professional ethics and Code of Conduct. It also organises on a regular basis professional development and continuing education programmes and brings out research publications, guidance notes, secretarial standards as well as professional monthly journal Chartered Secretary for corporate executives and Student Company Secretary and CS Foundation Course Bulletin for students. The ICSI regularly interacts with government, regulatory bodies and chambers of commerce and industry on policy and professional matters.

As per Section 383 A of the Companies Act 1956, companies with a paid up share capital of Rs 50 lakh, or more must have a whole-time company secretary. In case of a company with a paid up capital of less than Rs 50 lakh, a CS with an Intermediate pass is also eligible for appointment.

Beecides issuing statutory certifications and appearing before various quasi-judicial authorities as an authorised representative, he issues due diligence and comfort certificates, acts as a secretarial auditor and an advisor and consultant on finance and management. http://www.competitionmaster.com/pages/career/company_secretary.html

Function of Company Secretary

A Company Secretary has been recognised by various enactments as one of the principal officers of the Company. The knowledge and training acquired by him makes him versatile to carry out various functions in Finance, Accounts, Legal Administration and Personnel areas in addition to his own secretarial duties and responsibilities. In fact, his role starts from the very moment when the idea of formation of a Company is conceived. However, his responsibilities may vary from company to company. http://www.icsi.edu/icsiweb/home/about.asp

[19] Sa-Dhan is a specialized network of Community Development Finance Institutions in India, created for taking forward the collective requirements of these organizations, in terms of dialoguing with policy makers, capacity building, and identification and development of minimum standards of performance in a participatory manner.

[20]MicroSave is a unique project that promotes development of market-led approach to delivering financial services among MFIs through primary field level research, action research, toolkit and curriculum development, and information dissemination. To become a Certified Service Provider (CSP) of MicroSave toolkits, it is required to go through classroom training, follow-up field work and reinforced by on-job application of the tool. The toolkits are practice-based, practitioner – focused, and field-tested and being a MicroSave CSP involves a very rigorous process and is considered as an acclaimed recognition.

Assessing the Service Quality of Banking Technologies in Mauritius

Rooma Roshnee Ramsaran Fowdar, Sooraj Fowdar and Ashwin Beegadhur

In this era of intense competitive pressures, the banking sector has often been the subject of service quality assessment. However, service quality assessment of banking technologies in emerging economies is rare. Hence, the main aim of this study is to measure and analyse the service quality of banking technologies in Mauritius. The SERVQUAL instrument with five dimensions, namely tangibility, reliability, assurance, empathy and responsiveness, was used. The study reveals customers' expectations of service from banks across most of the dimensions, in particular, aspects relating to responsiveness and reliability dimensions.

Companies in many industries have turned to technology to get the best out of their sales force and improve relationships with customers and the banking sector is not an exception. The banking sector has evolved a lot, both in terms of services it provides and technology. In fact, technology offers an alternative and better delivery channel through which banking products and services can be provided. Though the banking sector consists of domestic and offshore banks, the study lays emphasis only on the domestic ones. The banking sector in Mauritius is mainly made up of the Bank of Mauritius, ten domestic commercial banks and ten offshore banks.

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This research will study about the effectiveness of self-service technologies (SSTs) in improving service quality in the banking sector. The study also provides useful insight to tackle such pertinent questions as: do customers make proper use of SSTs and whether the SSTs meet quality standards expected by customers? In this respect, the broad objectives of this project are to assess the service quality of banking technologies, and understand customers' expectations and perceptions of the service quality attributes of these banking technologies.

Literature Review

Joseph and Stone (2003) argue that

the offer of customer-friendly technology, such as menu-driven automated teller machines (ATMs), telephone and internet banking services, as a means of delivering traditional banking services has become commonplace in recent years as a way of maintaining customer loyalty and increasing market share.

Banking technologies consist of tangible resources such as hardware and communication systems, advanced computer-based transaction and processing systems, database marketing programmes and multi electronic delivery tools like ATMs, phone banking, amongst others. It also includes intangible resources such as human skills and their technical know-how that can be useful in delivering highly effective service to customers.

The explosion of technology is changing the banking industry from paper and branch banks to 'digitised and networked banking services.' Banks with the ability to invest and integrate information technology will become dominating in the highly competitive global market. Nonetheless, technology can create particular problems and consequently can have a negative impact on customers. Joseph et al. (1999) conclude that technology failures, service design problems and customer-driven failures are sources of dissatisfaction for customers using SSTs. Their findings point to problems related to accuracy of transactions, accessibility of service, customer support and security.

SSTs have now become a critical component of customer service, where almost half of all transactions are carried out in the absence of a teller (Lawrence and Karr, 1996). In Mauritius, some of these tools are widely used while others are still at an early stage of development but in the years to come, they will be fully developed and would be popular as well. These SSTs include Automated Teller Machines (ATMs), phone banking, credit cards, debit cards and internet banking.

A common definition of service quality is that the service should correspond to the customers' expectations and satisfy their needs and requirements (Edvardsson, 1998). This implies that banks, in seeking to provide a high quality service, should identify these needs and expectations and establish the way in which customers prioritise them.

Most authors agree that service quality consists of an outcome and a process element, where outcome is the achievement of some end by the customer (for example, cash from an ATM) and process is the interaction between the customer and the service unit. Further classification of service quality has been addressed by a number of authors. Grönroos (1988) identifies the five key determinants of service quality as professionalism and skills, reputation and credibility, behaviour and attitudes, accessibility and flexibility; and reliability and trustworthiness.

The most widely reported framework is that proposed by Parasuraman et al (1988) as the basis of SERVQUAL, consisting of the five dimensions of service quality namely tangibility, reliability, responsiveness, assurance and empathy. Reliability can become the prime focus of organisational activity. "Getting it right first time all the time" may become the target for account accuracy, keeping promises, meeting deadlines and providing timely and accurate information to customers. The responsiveness dimension actually incorporates a number of activities, including the readiness of staff to tell customers exactly when things will be done, the provision of prompt service, giving customers their undivided attention as well as being demonstrably responsive to customers' request. Empathy was identified as a quality displayed by staff when they demonstrably had "customers' best interests at heart" by offering convenient opening hours, understanding of individual customer needs and problems as well as providing individual attention. Assurance requires staff to have the knowledge to answer customers' questions and the ability to provide competent, confidential, courteous and friendly service. Finally, the tangibility dimension includes investment in equipment, the appearance of the branches in terms of appeal, cleanliness and tidiness.

SERVQUAL can provide an indication of the relative importance of the service quality dimensions, which influence customers' overall quality perceptions and so bring priority areas to management's attention. It is suggested by Parasuraman et al (1993) that SERVQUAL is the best model to be adopted in the context of banking and may be used to track service quality trends over time, compare branches within a bank, compare an organisation with its competitors and categorise customer into perceived quality segments based on their individual SERVQUAL scores.

Service quality can be determined by the level of discrepancy between consumer expectations or desires and their perceptions of what they receive, as described by the SERVQUAL scale. The two determinants of service quality are thus customers' expectations and perceptions. According to Gale (1994), understanding what consumers expect from a service organisation is necessary for service managers because expectations provide a standard of comparison against which

consumers judge an organization's performance. In the service quality literature, expectations are viewed as desires or wants of consumers or what they feel a service should offer rather than would offer.

Schiffman and Kanuk (2000) explain that perceptions can be translated as the end result of one or a number of observations. It is the process by which an individual selects, organises and interprets stimuli into a meaningful and coherent picture of the world. One starting point is that every single customer perceives service quality in a personal way. Customers base their quality judgement on a number of experiences. Managing service quality is concerned with managing the gaps between expectations and perceptions on the part of management, employers and customers. The most important gap is that between customer's expectation of service and their perception of the service actually delivered and this is the gap that SERVQUAL is designed to investigate.

Many firms are nowadays focusing their efforts on maintaining a loyal customer base. This is particularly true in the financial services sector where increasing competition, technology, social and cultural factors have been the chief drivers of service quality initiatives in the last decade. Technology has facilitated the automation of services (processing of accounts and transactions, error and cost reduction and increased efficiency). Improvements in IT and database competencies allowed the establishment and development of telephone banking, credit cards and debit cards. Sophisticated automatic teller machines (which allowed cash withdrawals, balance enquiries and statements) also became widespread. In the process of these changes, financial service providers moved from the process driven control and check to a sales and customer orientation (Dalton, 1998). Service quality improvements were necessary not only to reduce costs and increase competitiveness but also to improve revenue, by selling a greatly enlarged portfolio of products to an increasingly wealthy, aware and demanding consumer (Newman, 2001). Moreover Domegan (1996) states that the issue of attracting and retaining customers is of concern to managers. Recent evidence shows that improving the quality of customer service is a key to achieving a competitive advantage.

The provision of IT-based service options, in itself, does not guarantee customer satisfaction. Johnson (1998) argues that banking technologies can affect customers' perceptions of service quality either positively or negatively. To successfully improve customer satisfaction, IT-based services must be used in a value-added manner determined by customers. Berkley and Gupta (1994) develop a model to describe how banking technologies can be used to specific service quality dimensions including reliability, responsiveness, competence access, communications, security, understanding and knowing the customers, and quality control.

Methodology

Secondary data were initially gathered from bank personnel to clarify the concepts of SSTs that banks offer. In addition, a few experience surveys were conducted with banking personnel to shed light on this subject. The population studied consisted of the Mauritian adult (18 years and above). A quota sample of 150 adults was interviewed, with quotas set in terms of age and geographic district. In order to set these quotas, recent data from the Central Statistical Office (CSO) have been used.

Based on the literature search of renowned researchers in the domain of service quality in banking, a questionnaire was formulated to investigate customers' knowledge about banking technologies and to measure expectations of performance prior to the service encounter as well as perceptions of performance in the course of or after service encounter. The differences between perceptions and expectations were calculated. These gaps give an indication of the service quality of banking technologies. A pilot test of the questionnaire was conducted among ten bank customers. Some corrections were made to the initial questionnaire. The questionnaire survey approach was then administered using the personal/face-to-face interviews since this was considered as the most effective one in terms of response rate and clarification of questions. The fieldwork was conducted by an exit interview that is, waiting for people in front of banks.

Analysis and Discussion

This section consists of an assessment of the awareness of SSTs and the reasons they are used, the evaluation of service quality for banking technologies and the analysis of the SERVQUAL dimensions across the banking technologies considered. Finally, several hypotheses are tested.

The majority of respondents visit their bank branch to either withdraw cash (30.9 per cent) or to make a deposit (28.9 per cent). This gives an indication that some people prefer to conduct their transactions at bank tellers instead of using ATMs. Moreover, the level of awareness on the availability of the

various banking technologies is high, with 100 per cent for ATMs, 98 per cent for credit card, 96 per cent for debit card, 75 per cent for internet banking and 69 per cent for phone banking. A cross tabulation between awareness of the different technologies and their use reveals that more than 99 per cent of respondents who are aware of the existence of an ATM make use of it. However, for the remaining technologies this percentage is below 44 per cent and for Phone Banking it is even below six per cent.

Table 1: Reasons why technologies are used* technologies used cross-tabulation

Reasons	Technologies Used				
	ATM	Phone Banking	Credit Card	Debit Card	Internet Banking
Poor Service Quality of Branch	2.9	2.6	3.13	3	3
Convenient	1.6	1.75	1.43	1.58	1.73
Saves time	1.51	1.71	1.57	1.41	1.4
Because everybody is using it	3.25	--	.5	3.13	1.6

Table 1 reveals that the two main reasons why respondents make use of the banking technologies are because they are time-saving and convenient. The scale used is from 1 to 5 (not satisfied to highly satisfied). Most of the respondents found that saving time is the most important reason for using these banking technologies, except for credit card, where the most important reason is convenience (mean = 1.43). Moreover, the study reveals that ATMs are used at least once a week, while the frequency of use of internet banking, debit cards and credit cards are more than once a month and for phone banking it is once every 3 weeks. Hence, it can be said that the banking technology mostly used in Mauritius is ATM.

An analysis of the reasons why respondents, in spite of being aware of the different banking technologies, do not make use of them reveals that for ATMs, the only reason that a respondent put forward was that he/she was satisfied with services offered at his/her branch. Concerning phone banking, credit cards, debit cards and internet banking, the main reason that respondents proposed for not using these technologies was that they did not find the need to. Apart from that in the case of internet banking many suggested that it was not a safe technology for banking purposes, hence they did not use it.

In addition, ATMs and Phone Banking are mostly used by the age groups 25-34 and 35-44, while credit cards, debit cards and Internet Banking are mostly used by the age group 45-54. The reason behind this might be because the age group 45-54 constitutes mainly of top executives who need to keep pace with global competition. Concerning the age group 55+ they do not make use of Phone Banking and Internet Banking and only a small percentage makes use of the other three technologies.

Among the occupational groups, the AB occupational group, which constitutes mainly of professionals and businessmen, are the ones that mostly make use of the different technologies. On the other hand, the C2 occupational group, which constitutes mainly of manual workers, is the one making the least use of the above technologies. The C2 occupational group is not using credit cards, debit cards and Internet Banking, perhaps because they do not know how to make use of such technologies.

We also analysed customers' expectations and perceptions in relation to elements of service quality grouped under the five key dimensions of service quality as proposed by Parasuraman et al (1988): tangibility, reliability, assurance, empathy and responsiveness. Expectations and perceptions were measured on a scale ranging from 1- very poor to 5- excellent. The mean ratings were calculated for expectations (E) and perceptions (P) as well as their standard deviation with respect to each dimension of service quality. The gaps (G) were computed as the difference between perceptions and expectations. Table 2 indicates that service attributes like "convenience," "speed" and

"time-saving" were rated as having the highest expectation scores, while others like "high security" and "physical safety" at ATM terminals were rated among those with the lowest expectation scores. This implies that customers expected service encounters in the former cases to be exceptionally high.

Moreover, actual service encounters revealed that for most of the attributes, actual perceptions fell short of the expectation levels. Just to mention a few, attributes pertaining to "staff giving adequate explanation of service," "allows easier/efficient control of your account," "tone of voice of operator friendly," and "reliability" registered the most significant discrepancy between expectations and perceptions. However, alongside, "speedy," "easy to understand" and "easy to use" attributes noted the smallest departure from expectations, though still negative. These figures should be interpreted with caution. It is equally important to take into account the standard deviation (SD) scores, which provide useful information about the pattern of responding. Attributes with higher SD scores are those where divergence of opinion exists to a large extent.

Table 2: SERVQUAL dimensions for banking technologies in general

SERVQUAL Dimensions	Expectation (E)		Perception (P)		Gap
	Mean	S.D.	Mean	S.D.	P-E
Tangibility					
- Physical safety at ATM Terminal	3.49	0.92	2.68	1.09	- 0.81
Total	**3.49**		**2.68**		**-0.81**
Reliability					
- Easy to use	4.15	0.91	3.78	0.84	0.37
- Accessibility	4.23	0.98	3.53	0.87	- 0.50
- Reliability	3.99	0.77	3.21	0.86	- 1.02
- Accuracy	3.99	1.07	3.45	0.75	- 0.54
Total	**4.09**		**3.49**		**-0.60**
Assurance					
- High Security	3.31	1.36	2.75	0.93	- 0.56
Total	**3.31**		**2.75**		**-0.56**
Empathy					
- Easy to understand	4.11	1.02	4.04	0.73	- 0.07
- Tone of voice of operator friendly	3.92	0.95	2.92	0.87	- 1.00
- Staff giving adequate explanation of service	3.82	0.93	2.54	0.83	- 1.28
- Allows easier/efficient control of your account	4.18	0.95	3.18	0.99	-1.00
Total	**4.01**		**3.17**		**-0.84**
Responsiveness					
- Convenience	4.64	0.57	4.13	0.83	- 0.51
- Speed	4.58	0.67	4.19	0.71	- 0.39
- Time-saving	4.26	0.86	4.21	0.71	- 0.05
Total	**4.49**		**4.18**		**-0.31**

From Table 2 attributes like "physical safety at ATM terminal," "allowing efficient control of accounts" and "high security" have high standard deviation scores for perceptions, implying that bank customers' opinions differ to a large extent. One explanation could be that customers across different age and occupational groups could be having different experiences of these issues.

On the whole, responsiveness has noted the highest expectation score, followed by reliability, empathy, tangibility and lastly assurance. As far as gaps are concerned, empathy accounts for the largest negative gap, followed by tangibility, reliability, assurance and responsiveness. This is in contrast with the finding of Zeithaml et al. (1990) where reliability is the most important dimension and tangibility the least important in their study of 1936 customers of two banks, two insurance companies and a long-distance telephone company.

Appendix 1 (Table 3) illustrates expectations and perceptions scores attributed to the SERVQUAL dimensions applicable for each of the banking technologies investigated namely ATMs, phone banking, credit cards, debit cards and internet banking. Expectation or the desired service level mean scores for ATMs range from 3.34 to 4.65 (from average to excellent). "Speed" is the attribute with the highest expectation mean score. The strong negative gap, however, indicates that it is not so in reality. We generally tend to believe that ATMs are speedy because we do not wait in long queues inside the bank. Interestingly customers do not have to wait outside at ATM terminals, especially at peak hours. At times, it is even better to withdraw cash inside the bank, which is relatively speedier than at the ATM terminal. This does not mean that the technology is not speedy. Indeed, it is speedy, but circumstances, such as long queues, need for replenishment and ATMs being out of order might account for the negative gap associated with the service attribute of speed. However, the high SD score shows that opinions vary considerably across customers from different banking institutions.

Appendix 1 also indicates that for ATMs attributes associated with the responsiveness dimension have obtained high scores for expectations, followed by reliability. Interesting features of this table are the two positive gaps identified for "time saving" and "ease of use" under the responsiveness and reliability dimensions respectively. They indicate instances where actual service encounters have exceeded expectations, which account for one of the various factors leading to customer satisfaction. For the remaining attributes negative gaps have been observed reflecting poor service encounters well below the expected service level. Overall, the results of ATMs are quite different from those of Table 2. Positive gaps had not been noted in the first instance. Thus, while Table 2 might suggest that service quality is negative/poor across all the attributes, an analysis of the individual technologies might indicate otherwise.

Attributes relating to phone banking have been categorised as forming part of reliability, assurance, empathy and responsiveness, whereby responsiveness is characterised by the highest expectations scores. As far as gaps are concerned, all four dimensions for this technology are showing negative gaps, implying that actual service encounters have not been above the expected service, thus giving an indication of poor service quality. The highest negative gaps are those of empathy (-1.00) and assurance (-0.73). Results show that very high expectations had been initially set for this technology, which is quite new in the Mauritian context. It could also imply that due to information gaps, customers have not been well acquainted with the technology prior to use. Referring to the tone of voice of the operator being friendly, which has been assigned a negative gap score; the deficiency might not rest solely on the telephone operator. These people might be doing this type of work on a daily basis, which might lead to boredom and thus lack of interest in their jobs. It is then a matter of reviewing the human resource policies and not really improving the service quality.

Responsiveness has been rated the most highly expected service dimension for credit cards, with a mean expectation score of 4.64, followed by reliability (4.19). Besides, all dimensions scored negative gaps, ranging from –0.41 to –1.14. The most serious case is that of staff giving adequate explanation of use (–1.28), whereas convenience denotes the smallest negative gap (-0.30). Viewed from another perspective, if customers do not make an effort to inquire about an explanation on the use of this technology, bank staff will not be able to provide any guidance.

The expected service level for the responsiveness service dimension for debit cards is highest (4.64) as compared to the other SERVQUAL dimensions. The trend is different for the gaps where empathy (efficient control of customers' bank account) has been identified as having the largest discrepancy between expectation and perception. Similarly the reliability of debit cards has been subject to a negative gap of –0.9. It has also been noted that the assurance dimension shows a positive gap of 0.01, implying that bank customers are quite satisfied with the

APPENDIX 1

Table 3 : SERVQUAL dimension for specific banking technologies

SERVQUAL Dimensions of Banking Technologies	ATMs					Phone Banking					Credit Card					Debit Card					Internet Banking				
	E		P		G*	E		P		G*	E		P		G*	E		P		G*	E		P		G*
	Mean	SD	Mean	SD	P-E	Mean	SD	Mean	SD	P-E	Mean	SD	Mean	SD	P-E	Mean	SD	Mean	SD	P-E	Mean	SD	Mean	SD	P-E
Tangibility																									
- Physical safety at ATM Terminal	3.49	0.92	2.68	1.09	0.81																				
Total	**3.49**		**2.68**		**0.81**																				
Reliability																									
- Easy to use	4.24	0.96	4.35	0.53	0.11	4.10	0.87	3.83	0.83	0.27	4.16	0.93	3.76	0.76	0.40	4.26	0.75	3.86	0.83	0.40	3.99	1.03	3.10	1.23	0.89
- Accessibility	4.16	0.96	4.03	0.76	0.13	4.00	1.00	3.76	0.78	0.24	4.13	0.89	3.43	0.93	0.70	4.11	1.01	3.57	0.93	0.54	3.77	1.02	2.86	0.93	0.91
- Reliability	4.40	0.75	3.70	0.83	0.70	3.91	0.93	2.79	0.80	1.12	4.29	0.77	3.31	0.88	0.98	4.33	0.72	3.43	0.81	0.90	4.24	0.66	2.81	0.97	1.43
- Accuracy	4.19	1.05	4.05	0.64	0.14	3.64	1.19	2.92	0.79	0.72											4.14	0.98	3.37	0.82	0.77
Total	**4.25**		**4.03**		**0.22**	**3.91**		**3.32**		**0.59**	**4.19**		**3.50**		**0.69**	**4.23**		**3.62**		**0.61**	**4.04**		**3.04**		**1.00**
Assurance																									
- High Security	3.34	1.39	3.05	0.98	0.29	3.13	1.44	2.40	0.78	0.73	3.52	1.34	2.86	0.88	0.66	3.24	1.41	3.25	0.89	0.01	3.30	1.25	2.19	1.10	1.11
Total	**3.34**		**3.05**		**0.29**	**3.13**		**2.40**		**0.73**	**3.52**		**2.86**		**0.66**	**3.24**		**3.25**		**0.01**	**3.30**		**2.19**		**1.11**
Empathy																									
- Easy to understand	4.11	1.02	4.04	0.73	0.07																				
- Tone of voice of operator is friendly						3.92	0.95	2.92	0.87	1.00															
- Staff giving adequate explanation of service											3.82	0.73	2.54	0.83	1.28										
- Allows easier/ efficient control of your account											4.19	0.96	3.19	0.93	1.00	4.16	0.94	3.17	1.05	0.99					
Total	**4.11**		**4.04**		**0.07**	**3.92**		**2.92**		**1.00**	**4.01**		**2.87**		**1.14**	**4.16**		**3.17**		**0.99**					
Responsiveness																									
- Convenience	4.61	0.58	3.83	0.98	0.78	4.72	0.60	3.96	0.83	0.76	4.60	0.54	4.30	0.79	0.30	4.71	0.51	4.65	0.98	0.06	4.57	0.58	4.51	0.54	0.06
- Speed	4.65	0.60	3.91	0.79	0.74	4.54	0.78	4.21	0.62	0.33											4.47	0.73	4.49	0.61	0.02
- Time-saving	4.11	1.01	4.18	0.76	0.07	4.47	0.66	3.97	0.82	0.50											4.19	0.90	4.49	0.56	0.30
- Efficient and fast means of payment											4.69	0.62	4.16	0.72	0.53	4.56	0.64	4.16	0.81	0.40					
Total	**4.46**		**3.97**		**0.49**	**4.58**		**4.05**		**0.53**	**4.64**		**4.23**		**0.41**	**4.64**		**4.41**		**0.23**	**4.41**		**4.50**		**0.09**

*Underlined figures represent negative figures.

service quality of debit cards as being a secure form of payment. Overall satisfaction depends on various other issues including a good quality of service.

The mean expectation scores for internet banking varies from 3.30 to 4.57 (from average to excellent) while the mean score for perceptions are lower, ranging from 2.19 to 4.51. Two of the dimensions, namely reliability and assurance display overall negative gaps. The reliability gap relates to the accessibility of customers to internet and the difficulty that the latter might be facing in using Internet. This cannot be wholly attributed to a shortcoming on behalf of the bank, especially if people might not have access to the Internet.

We also attempted to assess the SERVQUAL dimensions across the five technologies under consideration. It is important to note that only reliability, assurance, empathy and responsiveness scores have been compared across these five technologies since tangibility applies only to ATMs. With reference to the total mean expectations scores, it can be said that for all technologies, these are above four, implying that customers expect a performance level varying from good to excellent. Conversely, perceptions are at an average, thereby generating negative gaps. These are important indicators for bank authorities. The implication is that something has gone wrong in the service delivery process and bank authorities need to investigate the reasons for such a discrepancy, since service quality, among other things accounts for overall customer satisfaction.

As regards the reliability dimensions, customers had the highest expectation with regards to ATMs and the lowest for internet banking, most probably because the former has a better usage rate, resulting in expectations being highest. Overall, reliability denotes negative service quality gaps for all the banking technologies.

The study also showed a positive assurance score for debit cards only. This gives an indication that customers view debit cards safer as compared to cash, cheques or credit cards. Internet banking has the largest assurance gap of –1.11. This negative gap could be explained by the fact that bank customers might be reluctant to use such a technology because of security concern, especially since hackers may break into computer systems and access customer accounts. Security issues need to be taken seriously into consideration if customers want to improve the service quality. Assurance scores are negative for other technologies as well. The most pertinent reason is again related to security issues.

Only four technologies have been considered for the empathy dimension, namely ATMs, phone banking, credit card and debit card. Users of debit cards and ATMS have higher expectations of these technologies, with mean scores of 4.16 and 4.11 respectively. However, there are large gaps that exist for technologies like debit cards, credit cards and phone banking. Negative gaps tend to give an indication of poor service quality. In the case of phone banking, the reason for such a gap might be because the tone of voice of the operator is not friendly; while for debit and credit cards the reason might be inadequate explanation of these services on the part of bank staff.

As regards the responsiveness dimension only internet banking has obtained a positive gap of 0.09. This has been attributed mainly to the speed of transactions, which is time saving. The other four technologies have demonstrated negative gaps, with highest one being –0.53 for phone banking, owing to criticisms on the speed, convenience, reliability and security issues.

Hypothesis Testing

This part deals with testing seven hypotheses. The hypotheses deal with how customers from different age groups as well as occupational groups assess the service quality of banking technologies. It has been assumed that there are significant differences in the service quality assessment of banking technologies across age and occupational groups. It has to be noted that in developing these hypotheses, only the demographic variables have been used, that is, age group and occupational group.

ANOVA was performed to identify significant differences in the mean perception of the 42 different service quality attributes of banking technologies across the different age groups. The null hypothesis (H_{01}) is rejected since the p-value = 0.032. This implies that there are indeed significant differences in the mean perception of service quality attributes of banking technologies across age groups.

Moreover, with reference to the different occupational groups (H_2), we find significant differences in the mean perception of service quality attributes of banking technologies across different occupational groups. To compare the means of the

Table 4 : Hypothesis tested

1	H_{01}:	There are no significant differences in the perception of the service quality attributes of banking technologies across age groups.
	H_{11}:	There are significant differences in the perception of the service quality attributes of banking technologies across age groups.
2	H_{02}:	No significant differences exist in the perception of the service quality attributes of banking technologies across occupational groups.
	H_{12}:	Significant differences exist in the perception of the service quality attributes of banking technologies across occupational groups.
3	H_{03}:	There are no significant differences between expectation and perception of each ATM service attributes among customers.
	H_{13}:	There are significant differences between expectation and perception of each ATM service attributes among customers.
4	H_{04}:	No significant differences exist between expectation and perception of each Phone banking service attributes among customers.
	H_{14}:	Significant differences exist between expectation and perception of each Phone banking service attributes among customers.
5	H_{05}:	No significant differences exist between expectation and perception of each Credit Card service attributes among customers.
	H_{15}:	Significant differences exist between expectation and perception of each Credit Card service attributes among customers.
6	H_{06}:	There are no significant differences between expectation and perception of each debit card service attributes among customers.
	H_{16}:	There are significant differences between expectation and perception of each debit card service attributes among customers.
7	H_{07}:	There are no significant differences between expectation and perception of each Internet banking service attributes among customers.
	H_{17}:	There are significant differences between expectation and perception of each Internet banking service attributes among customers.

Table 5 : Paired sample test of each ATM service attribute

ATM service attributes	t-value	p-value
Physical safety at ATM Terminal	5.847	.000
Speedy	-.248	.804
Time-saving	-.272	.786
Easy to use	-1.201	.232
Accessible	1.206	.230
High Security	2.093	.038
Reliable	8.676	.000
Easy to understand	.739	.461
Accurate	1.417	.158

expected and perceived service variables constituting ATMs, a *paired sample test* was conducted to identify significant differences between expectations and perceptions (H_3). Table 5 below is a summary of the results obtained.

At a 95 per cent level of significance, the results show that three pairs of variables have significant differences ($p < 0.05$) between the two means. However, for the remaining six attributes, there were no significant differences ($p > 0.05$) between what was expected and what was actually experienced.

In order to know whether there were significant differences in the expectations and perceptions of phone banking (H_4), a *paired sample test* at 95 per cent level of significance was carried.

Table 6: Paired sample test of each phone banking service attribute

Phone Banking service attributes	t-value	p-value
Convenient	7.201	.000
Speedy	7.419	.000
Time-saving	1.005	.317
Easy to use	2.014	.047
Accessible	1.860	.066
High Security	4.306	.000
Reliable	9.709	000
Accurate	5.048	.000
Tone of voice of operator friendly	8.004	.000

Table 6 shows that there is no significant difference have been found for only two attributes (time-saving and easy to use), while for the rest, significant differences were found between expectations and perception ($p < 0.05$).

As far as credit cards are concerned (H_5), for all service attributes, significant differences were found ($p > 0.05$) between expectations and perceptions as revealed by the paired sample test carried out. Moreover, concerning hypothesis 6, no significant difference was observed only for high security ($p < 0.05$). For all the other attributes, significant differences were noted ($p > 0.05$).

The last hypothesis deals with whether there are significant differences between the expectation and perception of Internet banking service attributes among customers. To compare the means of expectations and perceptions, a paired sample test at a 95 per cent level of significance was conducted like in the previous four hypotheses. Only timesaving denotes no significant difference between expectation and perception ($p < 0.05$), whereas for the remaining service attributes, significant differences have been observed ($p < 0.05$).

Conclusion

The bases of this study were the concern for banking customers making proper use of self-service technologies (SSTs) and whether the SSTs meet quality standards expected by customers. Advances in information technology and telecommunications have certainly introduced new delivery channels for Mauritian commercial banks' products and services. These new delivery channels include automated teller machines (ATMs), phone banking, internet banking, debit cards and credit cards. The study shows that banking customers have adopted these technologies and services quite well. For instance, similar to developed countries like UK, it has been found that even in a developing country like Mauritius, ATMs, debit cards and credit cards have attained the well-developed status. Internet banking has started its diffusion process as well, but it has not been a big success as when ATMs and credit cards were introduced, while phone banking is still in its embryonic stage.

Moreover, customers were found to have very high expectations of service from banks across most of the dimensions that were investigated, in particular aspects relating to responsiveness and reliability dimensions. However, the level of perceptions of actual service was below expectations levels. This has resulted in a number of gaps between expectations and perceptions, and therefore there are number areas where enhancement is needed in order to improve service quality. For instance, banks may attempt to increase the usage of banking technologies through market segmentation and promotion. In addition, banks need to raise the security level for internet banking and credit card payments.

References

Berkley, B and Gupta, A., "Improving Service Quality with Information Technology," *International Journal of Information Management*, Vol. 14, 109-121, 1994.

Dalton, W., "Speech at Middlesex University Business School," London, 1998.

Domegan, C.T., "The adoption of information technology in customer service," *European Journal of Marketing*, Vol. 30, No. 6, 52-69, 1996.

Edvardsson, B., "Service quality Improvement," *Managing Service Quality*, Vol. 8, No. 2, 142-149, 1988.

Gale, B.T., "Managing Customer Value: Creating Quality and Service that Customers can see," *The Free Press*, New York, NY, 1994.

Grönroos, C., "Service Quality: The Six Criteria of Good Perceived Service Quality," *Review of Business*, 9-13, 1988.

Johnson, A., "How do you really feel about your bank?," *Canadian Business*, Vol. 71, No. 7, 1988.

Joseph, M, McClure, C and Joseph, B., "Service quality in the banking sector: the impact of technology on service delivery," *International Journal of Bank Marketing*, Vol. 17, No.4, 1999.

Joseph, M and Stone, G., "An empirical evaluation of US bank customer perceptions of the impact of technology on service delivery in the banking sector," *International Journal of Retail and Distribution Management*, Vol.31, No.4, 2003.

Lawrence, L.S and Karr, J., 'Technology spending and alliances: new highs in financial services firms," *Journal of Retail Banking Services*, Vol. 17, No. 3, 45-52, 1996.

Newman, K., "Interrogating SERVQUAL: a critical assessment of service quality measurement in a high street retail bank," *The International Journal of Bank Marketing*, Vol. 19, No. 3, 126-139, 2001.

Parasuraman, A, Zeithaml, V.A and Berry, L.L., "SERVQUAL: A Multiple- item Scale for Measuring Consumer Perceptions of Service Quality," *Journal of Retailing*, Vol. 64, 12-40, 1988.

Parasuraman, A, Zeithaml, V.A and Berry, L.L., "More on improving service quality measurement," *Journal of Retailing*, Vol. 69, No. 1, 22-33, 1993.

Reisman, A and Zhao, L., "A Taxonomy of Technology Transfer Transaction Types," *Journal of Technology Transfer*, Spring, 38-42, 1991.

Zeithaml, V.A, Parasuraman, A. and Berry, L.L., "Delivery Quality Service: Balancing Customer Perceptions and," *The Free Press, USA, 1990*.

Efficiency of Public Sector Enterprises-A Case Study of C.C.L., Ranchi-An Empirical Study

Susan Chirayath

This paper highlights the efficiency of public sector enterprises with special reference to C.C.L., RANCHI, efficiency being defined in terms of (a) capital employed, (b) sales, (c) profit-gross and net – and (d) profitability ratio. Figures are obtained from the statements regarding the financial position, income and expenditure statement, statements regarding important financial information and relative ratios. The total capital, employed is total net assets, which includes fixed as well as working capital. In the fixed assets, the work in progress is also included. In the working capital, inventories, debtors, fund, cash and bank balances and other current assets are included. The study period is 1990-1991 to 1999-2000, long enough to know the behaviour of the variables.

Efficiency in public enterprises is an important aspect of the study of industrial as well as managerial economics. It is the efficiency, which determines the growth of a firm or an industry. The efficiently operated enterprises help to accelerate the rate of growth of an economy. But efficiency evaluation is a complex and multifaceted problem particularly in a public sector enterprise. Unlike in a private enterprise where the volume of profit earned is generally considered a reliable index of efficiency, the performance evaluation of a public enterprise is a difficult proposition. The public enterprise is generally governed by the motto of serving the national interest; it has to meet several subjective criteria of excellence. But the question is how to judge the efficiency and the subjective performance of a public sector enterprise.

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In an economy like India where public sector enterprises have an important role to play, the evaluation of the working of public enterprises is very essential. It is argued that the economy of the country is not properly growing due to the reason that public sector is not running efficiently. The low efficiency of public sector enterprises is the reason of the low rate of development of industrial sector of the economy. This is the reason why in the new economic policy, the public enterprise's role in the economy has been curtailed and disinvestments policy has been adopted in the case of inefficiently run public enterprise units of the country.

The economists have used a number of indices to judge the efficiency of public enterprises viz., net income, production, boost in sale, and factors of productivity and growth of the firm. But profit and profitability i.e. profitability on capital and profitability on sale are the most accepted criteria to judge efficiency of public as well as private enterprise industrial units.

The mining industry in India is next to agriculture, in terms of resource generation and employment opportunity. Coal mining occupies a major position contributing nearly 60 per cent of the commercial energy requirements in India, followed by iron-ore, limestone and bauxite. Coal India presently contributes 90 per cent of the total coal production in India. It is the largest public sector in terms of employment to the tune of 6,36,000 people producing 250 million tonnes of coal per year. But the story of Coal India is not merely the story of the unrelenting struggle against all odds to produce and supply coal throughout the country. It is also the story of the heartbeats of 6.4 lakhs of employees and their families working and staying at times, in remote areas of our country.

The Central Coal fields Ltd. (C.C.L.) is one of the subsidiaries of Coal India Ltd. (C.I.L.), registered under the Company's Act in the year 1975. The mixing and extraction of coal is entrusted to CIL, which is a public sector organization. The company is divided into eight subsidiaries and C.C.L. is one of them. It is the major source of medium cooking coal in India. The productivity of under ground mines and many of the surface mines is low, but because of the high price of cooking coal, the company has been making marginal profits and losses. With the recent deregulation of cooking coal price, the profitability of the company is expected to improve.

After adopting the new economic policy, there is much debate on the disinvestments in the public sector undertakings. The reason given is the poor performance of these organizations. But, a public sector has not only the objective of profit making, it has also the objectives like use of natural and human resources available in the country, provision of commodities to the consumer at a low price, development of infrastructure and a number other things.

The researcher intends to examine to which extent this public sector unit is able to achieve these objectives and what is the trend of the financial as well as production performance of this unit.

The study also seeks to examine the trend of capital investment, production, sale, profit (gross and net) of the C.C.L. The study has not only theoretical importance, but, it has policy implications, it will help the policy makers of C.C.L. to change the strategy to improve the performance of the unit.

Objectives of the study

The objectives of the study were the following:

1. To assess the efficiency of public sector enterprises, with reference to C.C.L., the efficiency being defined in terms of
   a. Capital employed,
   b. Sales,
   c. Profit-gross and net and
   d. Profitability ratio.

Review of Literature

The efficiency evaluation is a complex as well as an important problem, particularly in public enterprises. Though it has attracted the attention of number of economists all over the world, there is still controversy on the index of the efficiency of public enterprises. Attempts have been made by some economists to examine the relationships between the indices of efficiency and certain economic factors. Net income is considered as one of the criteria for measuring the efficiency of public enterprises, according to Ivan Turk (1974) 1. According to Lal (1974) 2. and Ganguly (1984) 3. the increasing volume of production shows higher efficiency. Capital output ratio is one of the indices of efficiency as considered by economists like Collins and Preston (1974) 4. Average productivity of labour is used frequently because of the relative ease to present productivity level, according to Clay and Walley (1965). 5. According to Galbraith (1962), 6. profits is the general criterion, which indicates the overall efficiency combining all the different operations together. The lower the cost per unit of output, the higher would be the efficiency of public enterprise, according to Gupta (1968) 7.According to Kumaran (1986), debt-equity ratio too has an important role in determining the efficiency of a public enterprise.

Thus, there is no dearth of literature on the indices of efficiency evaluation of public enterprises. But not much has been done to examine empirically the behaviour and trend of the important indices of efficiency of a public enterprise. No systematic empirical work has been done to examine the factors, which determine the efficiency of a public sector enterprise like the Central Coal Fields.

Hypotheses Tested in the Study

1. *There is no change in the total capital employed in the C.C.L., during 1990-1991 to 1999-2000.*
2. *The volume of sale has not changed during this period;*
3. *There is no change in the profit-gross and net- of the C.C.L., during this period,*
4. *The profitability ratio i.e., profit on capital, profit on sale, profit on working capital have remained unchanged during the study period.*

Methodology

A. Data Source

Data source is secondary; ie., the relevant information are collected from the annual reports and accounts published by the C.C.L.

Figures are obtained from the statements regarding financial position, income and expenditure statement, statements regarding important financial information and relative ratios.

In this study, total capital employed is total net assets, which included fixed as well as working capital. In the fixed assets, the work in progress is also included. In the working capital, we include inventories, debtors, fund, cash and bank balances and other current assets.

B. Data Analysis

In the study, there is computation of certain statistics like arithmetic mean, standard deviation and, co-efficient of variation of the variables. The linear trends of the variables like capital, sale, profit and profitability have been fitted by ordinary least square method and significance of the co-efficient are tested by 't' test. The index numbers of the variables have been estimated to know the changes in the variables during the study period.

Efficiency of PSEs: A theoretical study

Measurement means quantification. There is no unique method of measurement for industrial efficiency or its components. It is difficult to formulate a simplified, objective test for this purpose. The difficulty to evaluate efficiency of a firm to any definite degree is due to the multiple use of the term 'efficiency' with reference to expenditure and income, efforts and satisfaction, with achievement-and products etc. The difficulty is compounded by the fact that not all these indicators are always consistent with each other, and therefore any attempt to combine them into one composite efficiency index will reflect more a judgmental bias if not an exercise in futility. A firm may set its own standards of output for each input and norms of behaviour for various other achievements; but whether the level of standard or norm is right is not easy to ascertain.

Moreover, it becomes necessary to compare one situation with a similar situation in other places or in the same place over a period of time. The measurement of efficiency also involves a large number of interdependent variable like production, costs, prices, the nature of industry (slow or low yielding), the size of the industry (big and much complicated having many managerial problems), the nature of public accountability (public enterprises are procedure oriented rather than result oriented) and the social obligation of the enterprise (it has to fulfill social obligations of the government). One can measure the technical efficiency through some physical indicators such as capital-output ratio, capital- labour ratio or actual cost-standard cost ratio etc. The last ratio, i.e., actual cost-minimum possible cost, may also be used to measure the internal efficiency of the firm. The overall efficiency of the firm, whether we take productive efficiency or economic efficiency, may be difficult to measure precisely. Even if all of them were amenable to precise measurement, which is not true in actual practice, there still remains the problem of attaching suitable weights to different variables. Consideration has to be given, for instance, to the cost of production of service per unit of resource, the satisfaction of the consumers in respect of quantities, qualities and prices, the state of labour relations and degree to which a spirit of willing cooperation has been created among members of staff, and the ability of the whole organization to adjust itself to the changing circumstances, its readiness to make experiments and to quickly adopt the latest technical improvements. Thus, the performance record of the nationalized industry is a controversial thing. It defies the simple description or evaluation.

Economists examine the performance of public enterprises by various approaches

1. Profit and loss approach
2. Balance sheet approach

3. Fiscal approach
4. Employment approach
5. Cost accounting approach
6. Productivity approach
7. Development and stability approach

Considering all these aspects, we may say that efficiency of a public enterprise can be judged by examining the following elements of the enterprise:

1. Value and volume of production
2. Factor productivity
3. Profit and profitability
4. Size of employment
5. Cost of production
6. Utilisation of installed capacity
7. Time schedule
8. Capital accumulation
9. Contribution to the State Treasury.

The efficiency of a public enterprise, which is generally revealed by the volume of production and productivity factor, profit and profitability, size of employment etc. is affected by a number of factors. The factors affecting efficiency are investment, capital – labour ratio, debt-equity ratio, gross fixed asset to current ratio, wage rate, and interest rate.

Thus, the efficiency of a public enterprise depends on a number of interrelated factors. The effect of an individual factor is not definite. It varies from enterprise to enterprise, time to time, and its impact changes due to the change in the circumstances. Therefore, it is very difficult to evaluate the impact of a particular factor in the determination of efficiency of a public enterprise.

Introduction to Central Coal Fields Limited (CCL)

The Central Coalfields Limited (CCL) is one of the subsidiaries of Coal India Limited (CIL), registered under the Company's Act in the year 1975. The mining and extraction of coal is entrusted to the public sector organization, CIL. The Company is divided into eight subsidiaries and CCL is one of them.

All the mines and establishment of CCL at present are situated in the districts of Ranchi, Hazaribagh, Giridih, Bokaro and Palamu. CCL has fifteen areas headed by CGM/GM with uniform organizational set up. The total manpower of the company as on 31.3.2002 was 91,649.

Main Objectives of CCL.

1. A. To carry on the business of coal mining
   B. Acquisition of coal mining
   C. To produce or otherwise engage generally in the production, sale and disposal of coal, its by-product.
   D. Mining coal, manufacturing coke, and other business,
   E. Manufacturing, trading and other business.
2. Reorganization and reconstruction of coalmines taken over by the government.
3. Policy formulation and advisory function
4. To finance replacement expenditure, to develop technical know-how
5. Exploration and Prospecting
6. To manufacture and sell coal as a patent fuel
7. To carry on mining and quarrying coal and other by- product directly or through agents.
8. To act as traders of coal and coke and other by-products directly or through agents.
9. To manufacture coke and mine proprietors coke in all their respective branches.

The main project objectives are to support the market-oriented reform India is undertaking in the coal sector and especially to provide financial and technical support to Coal India's efforts to make itself commercially viable and self-sustaining under pinning India's broad drive to achieve economic growth. The project also aims to increase domestic supplies of Coal India for the power sector and other industries until imports and production from private investments can fill the emerging supply gap.

Efficiency in CCL-An Empirical Analysis

1. To find out where there is any change in the total capital employed in the CCL, during the study period 1990-91 to 1999-2000 - the trend co-efficient was found out. The results are summarized in Table 1.

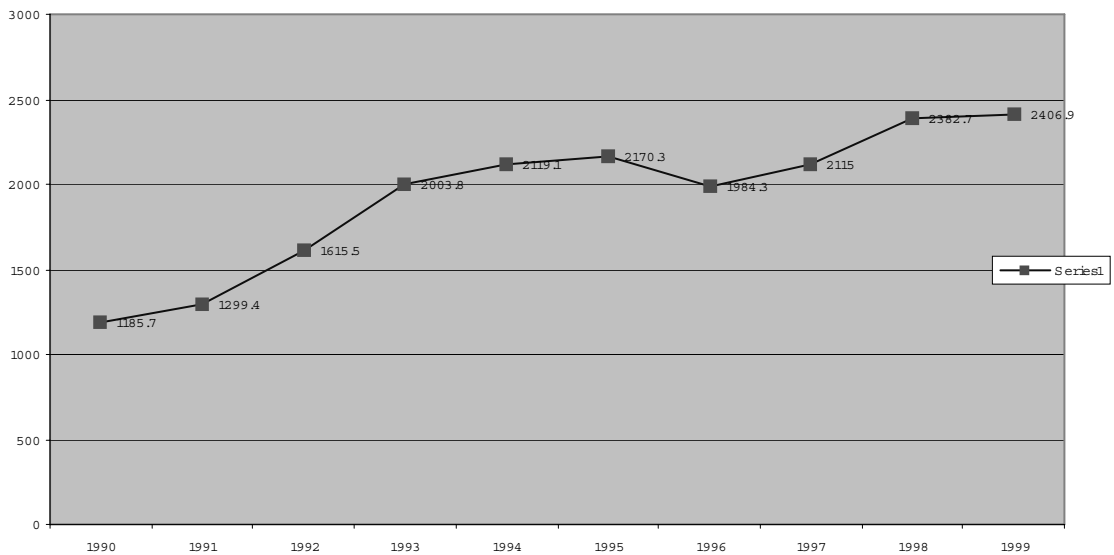
Table.1 Shows the figure of capital (K) employed in CCL, during 1990-1991 to 1999-2000. As shown in Graph1, it is found that there is continuous rise in the figure of capital (K) employed with the exception of the year 1996. The index of the capital employed has raised to 203 crores in comparison to the base year 1990-1991.

Table 1
Capital employed in CCL during 1990-1991- to 1999-2000

Year	Rs.in Crores
1990	1185.70
1991	1299.40
1992	1615.50
1993	2003.80
1994	2119.10
1995	2170.30
1996	1984.30
1997	2115.00
1998	2382.70
1999	2406.90

Source: Annual Report of CCL

Graph 1



The average of the annual capital employed is Rs.1928.32 crores with standard deviation = 447.33, the co-efficient of variation being 23.2 per cent. The linear trend of the capital employed has been estimated to be K=1226.37+127.63 T, which shows that the figure of capital employed is increasing at an annual rate of Rs.127.63 crores.

On the basis of 't' test, the trend co-efficient is significant at five per cent level of significance. It means that during the period 1990-1991 to 1999-2000, there is significant rise in the amount of capital employed in the CCL.

2. To find out whether the volume of net sale has changed or not, during the study period, the trend co-efficient was found out by examining the values of net sale during this period. The results are summarized in Table 2.

Table 2
Net sales in CCL, during, 1990-1991 to 1999-2000

Year	Net Sales (Rs. in crores)
1990	760.40
1991	788.34
1992	905.80
1993	1281.20
1994	1426.09
1995	1354.70
1996	1428.80
1997	1650.90
1998	1962.10
1999	1951.00

Source: Annual Report of CCL

Graph 2

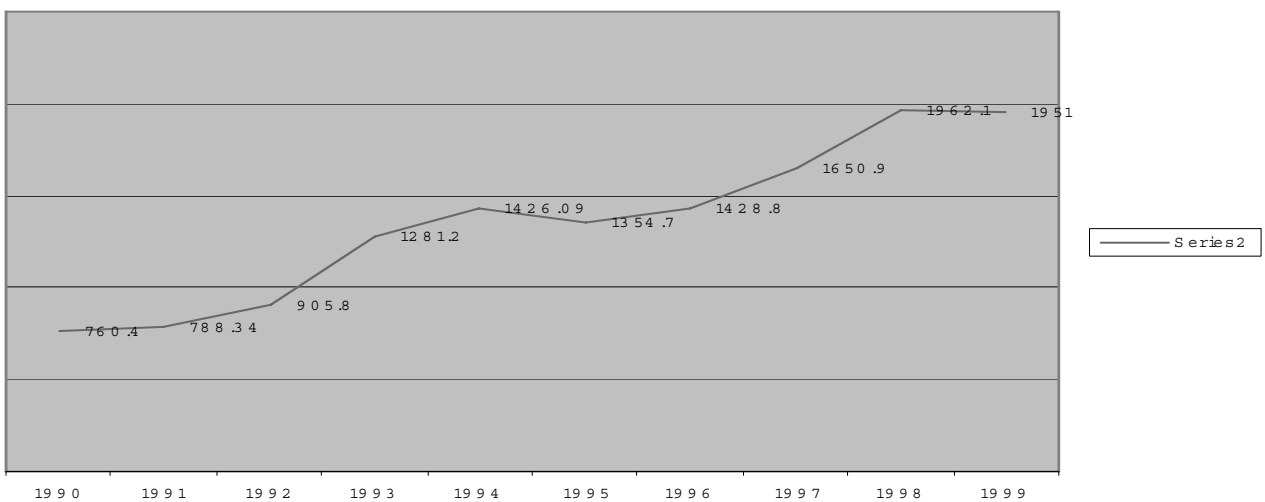


Table 2 and Graph 2 show that there is continuous rise in the net sales with the exception of the Years 1995 and 1999. The index of net sale rose to 256.67 in comparison to the base year 1990-1991.

The average of net sale for the period is Rs.1350 crores, with standard deviation equal to 412.79, the co-efficient of variation being 30.58 per cent.

The linear trend of the net sale has been estimated to N.S = 578.98+149.19T, which shows that the figure of the net sale is increasing at an annual rate of 140.19 crores.

On the basis of "t" test, the trend co-efficient is significant at five per cent level of significance. It means, during the study period, there is significant rise in the amount of net sale in the CCL.

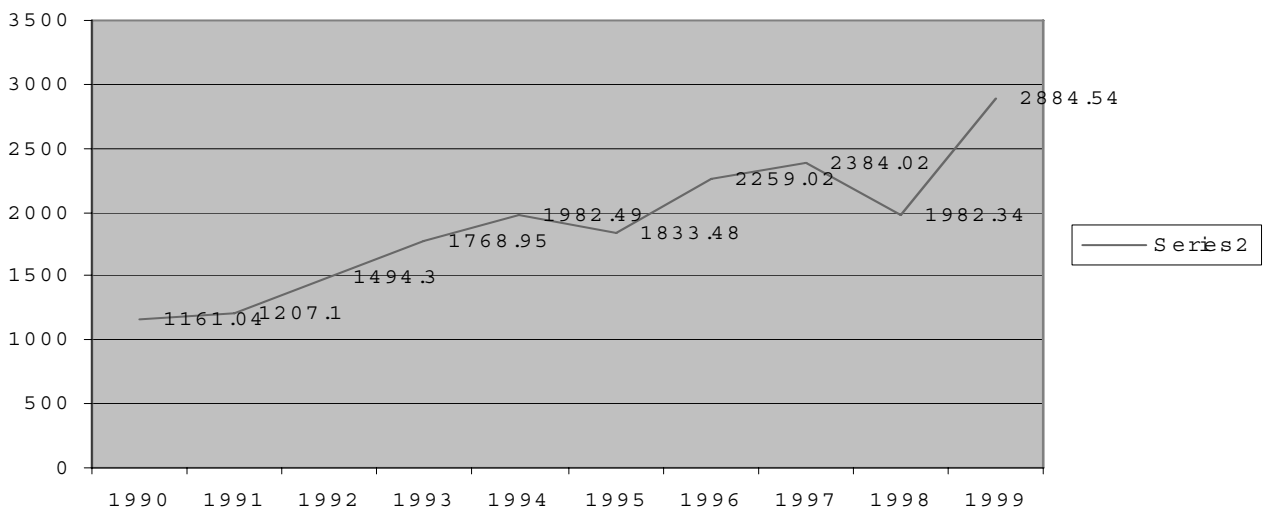
3. To find out whether the volume of total sale has changed or not during the study period, the trend co-efficient was found out by examining the values of total sale during this period. The results are summarized in **Table 3.**

Table 3
Total Sale in CCL, during, 1990-1991 to 1999-2000

Year	Sales (Rs. in crores)
1990	1161.04
1991	1207.10
1992	1494.30
1993	1768.95
1994	1982.49
1995	1833.48
1996	2259.02
1997	2384.02
1998	2982.34
1999	2884.54

Source: Annual Report of CCL

Graph 3



It is revealed from the table and graph that there is continuous rise in the amount of total sale with exception of the years 1995 and 1999. The total sale, which was Rs.1161.04 crores in the year 1990-1991, has increased to Rs.2884.54 crores in the year 1999-2000.Thus, the index of total sale rose to 248.44 in comparison to the base year 1990-1991.

The average of total sale for the period is Rs.1995.74 crores, with standard deviation equal to 602.61, the co-efficient of variation being 30.19 per cent.

The linear trend of the total sale has been estimated to be T.S.=827.19+204.28T, which shows that the figure of total sale is increasing at an annual rate of 204.28 crores of rupees.

On the basis of 't'test, the trend co-efficient was found to be significant at five per cent level of significance. It means that during the period 1990-1991 to 1999-2000, there is significant rise in the amount of total sale in the CCL.

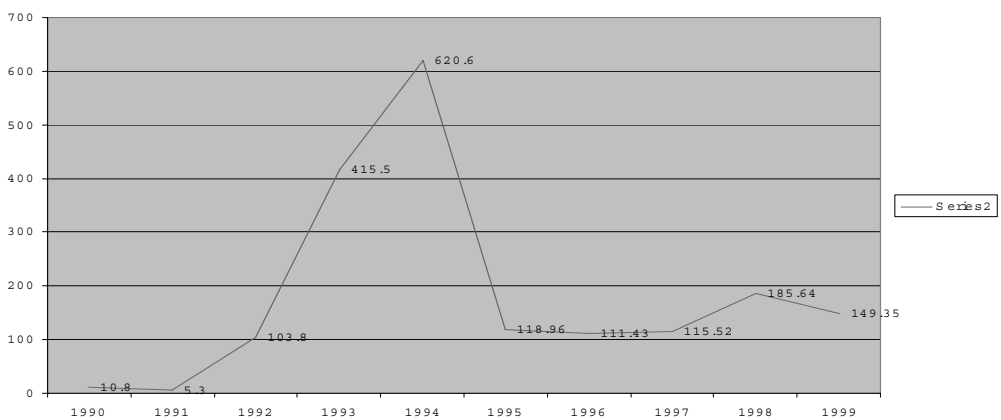
4. To find out whether there is any significant change in net profit/loss for the year (A-B) in CCL, during the period the trend co-efficient was found out by examining the values of net profit/loss during the period. The results are summarized in Table 4.

Table 4
Net profit/loss for the year (A-B) in CCL, during 1990-1991 to 1999-2000

Year	Net profit/loss (A-B) Rs. in crores
1990	10.80
1991	5.30
1992	103.8
1993	415.5
1994	620.6
1995	118.96
1996	111.43
1997	115.52
1998	185.64
1999	149.35

Source: Annual Report of CCL

Graph 4



The table and the graph reveal that there was continuous rise in the profit from 1990 to 1994, except for the year 1991. The profit for the year 1991 was Rs.5.3 crores against Rs.10.8 crores, which was the profit for the year 1990.

The trend equation shows that profit of CCL is decreasing at an annual rate of Rs.114.23 crores. However, the trend co-efficient is not found significant on the basis of 't' test. So it can be concluded that during the period 1990-1991 to 1999-2000, there is fluctuation in the amount of net profit and loss in CCL, but it has not significantly changed.

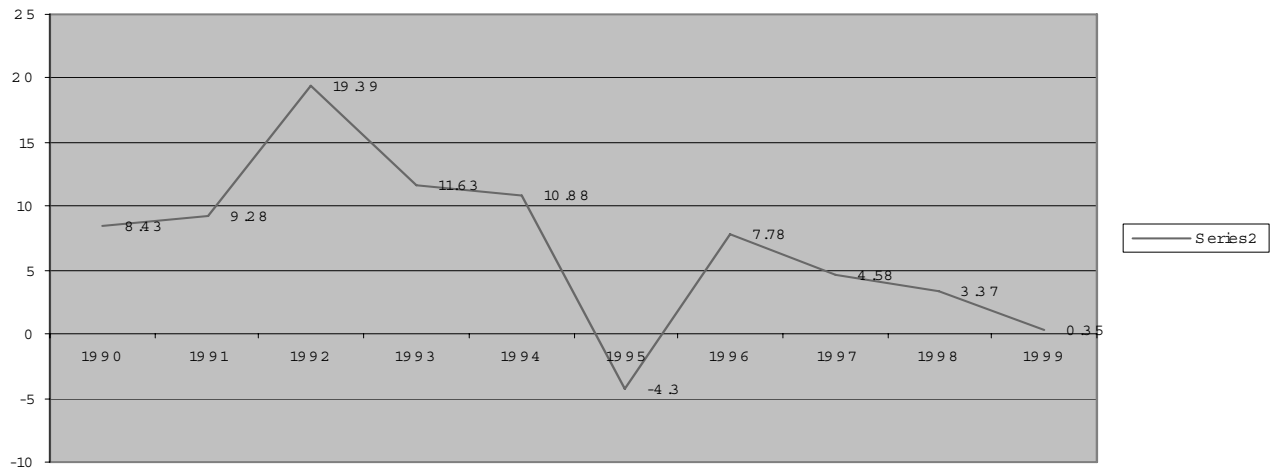
5. To find out whether there is any significant change in the gross profit on sale, during the period 1990-1991 to 1999-2000, in CCL, the trend co-efficient was found out by examining the value of gross profit on sale (in per cent) during this period. The results are summarized in Table 5 (A).

Table 5 (a)
Profitability Ratio
5 (A) Gross Profit on sale during the period 1990-1991 to 1999-2000

Year	Gross Profit on sale (in %)
1990	8.43
1991	9.28
1992	19.39
1993	11.63
1994	10.88
1995	-4.30
1996	7.78
1997	4.58
1998	3.37
1999	0.35

Source: Annual Report of CCL

Graph 5 A



It is found that the gross profit on sale is decreasing at an annual rate of 1.30 per cent. The trend co-efficient is significant. Thus it can be concluded that during this period, there is significant decline in the gross profitability in the sale.

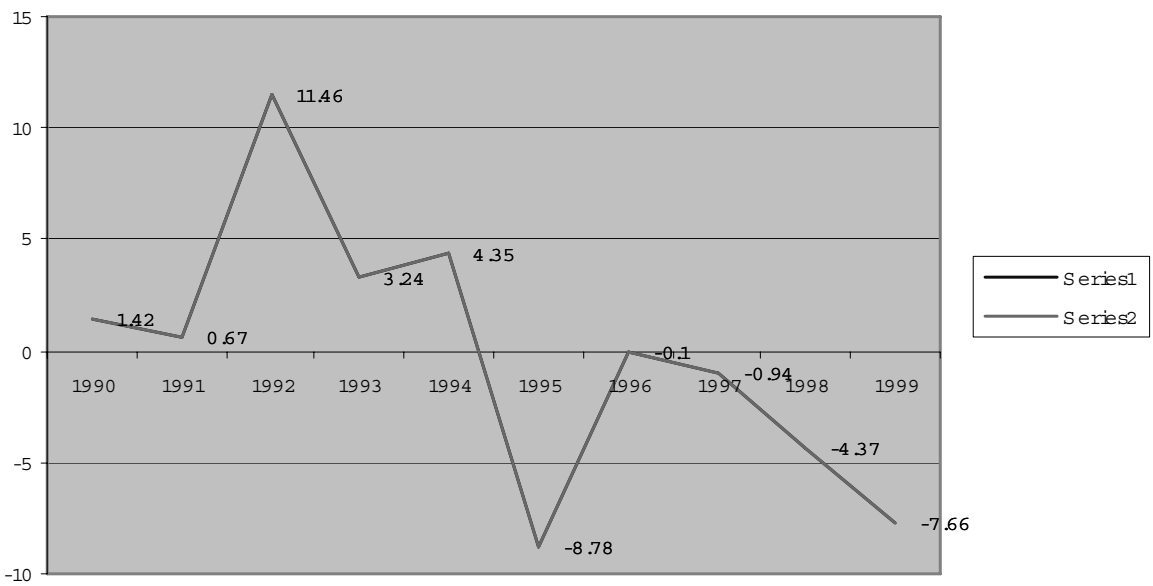
5 B To find out whether there is any significant change in the net profit on sale in the CCL, during this period, the values of net profit on sale (in %) were examined to find out the trend co-efficient during this period. The results are summarized in Table 5 (b).

Table 5 (b)
Net Profit on sale in CCL during 1990-1991 to 1999-2000

1990	1.42
1991	0.67
1992	11.46
1993	3.24
1994	4.35
1995	-8.78
1996	-0.10
1997	-0.94
1998	-4.37
1999	-7.66

Source: Annual Report of CCL

Graph 5 B



It is found that profit on sale-net profit- is increasing at an annual rate of 0.80 per cent. However, the trend co-efficient is not found to be significant on the basis of 't' test. Thus it may be said that during this period, net profitability on sale has not changed, although there is wide fluctuation in the figure of net profitability on sale during this period.

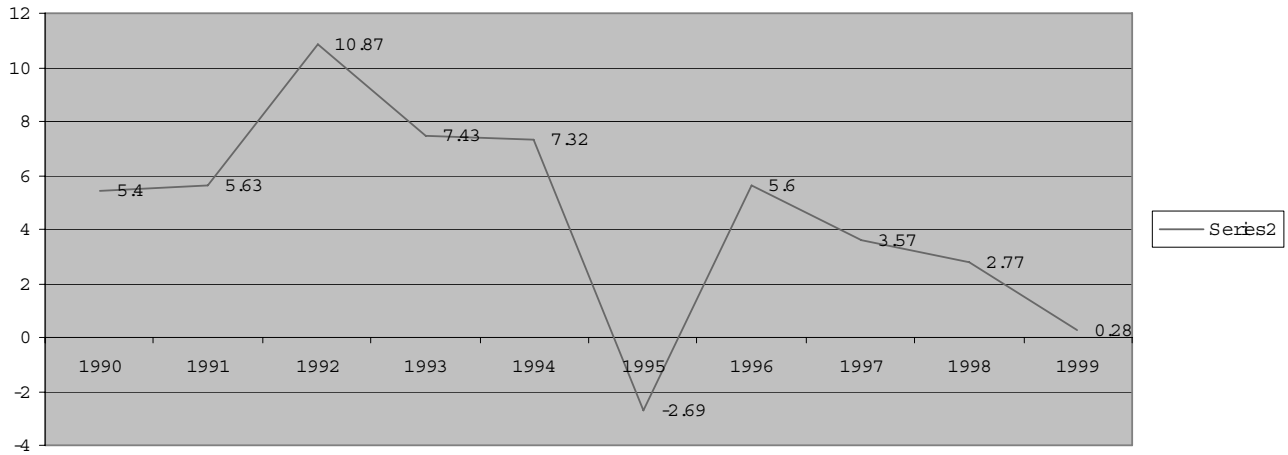
6. To find out whether there is any change in the gross profit on capital in the CCL, during this period, the values of gross profit on capital (in %) were examined to find out the trend co-efficient during that period. The results are summarized in Table 6 (a).

Table 6 (a)
Gross Profit on capital in CCL, during 1990-1991 to 1999-2000

Year	Gross Profit on capita (in %)
1990	5.40
1991	5.63
1992	10.87
1993	7.43
1994	7.32
1995	-2.69
1996	5.60
1997	3.57
1998	2.77
1999	0.28

Source: Annual Report of CCL

Graph 6 A



It was seen that the average of gross profitability during this period was 4.625 per cent with standard deviation equal to 2.90, co-efficient of variation being 62.7 per cent. Here we find that gross profitability on capital is decreasing at an annual rate of 0.72 per cent.

On the basis of 't' test, the trend co-efficient is found to be significant at five per cent level of significance. It means that during the period 1990-1991 to 1999-2000, there is significant decline in the gross profitability on capital in CCL.

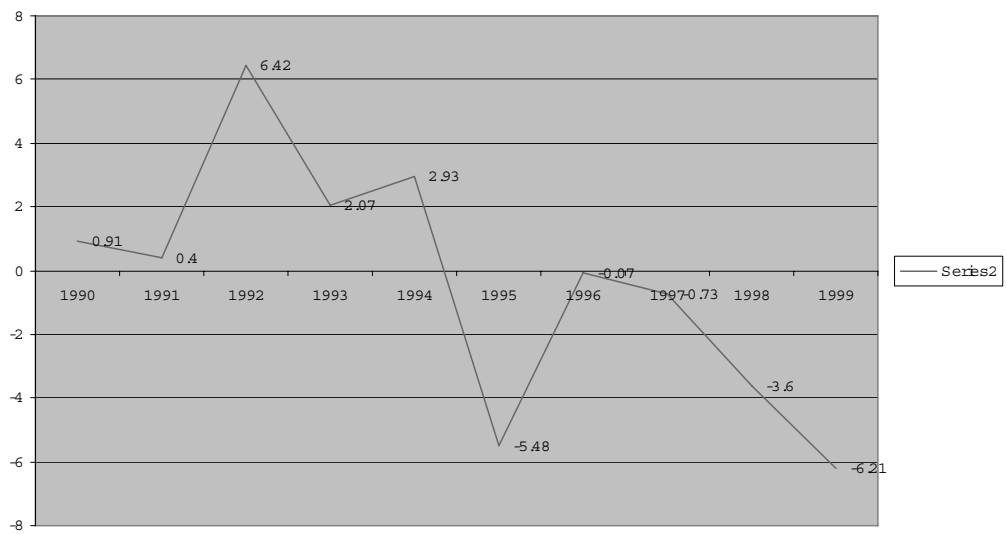
6 B. To find out whether there is any significant change in the Net Profit on Capital in the CCL, during this period, the trend co-efficient was found out by examining the values of net profit on capital (in %) during this period. The results are summarized in Table 6(b).

Table 6 (b)
Net profit on capital in CCL, during 1990-1991 to 1999-2000

Year	Net profit on capital (in %)
1990	0.91
1991	0.40
1992	6.42
1993	2.07
1994	2.93
1995	-5.48
1996	-0.07
1997	-0.73
1998	-3.60
1999	-6.21

Source: Annual Report of CCL

Graph 6 B



It is revealed that the average of net profit on capital is –0.34 (in %) with a standard deviation equivalent to 3.68 and co-efficient of variation 108.3 per cent.

The trend equation shows that the net profit on capital is decreasing at an annual rate of Rs.0.86 crores.

On the basis of 't'test, the trend co-efficient is found to be significant at five per cent level of significance. It means that during this period, there is significant decline in the net profit on capital in the CCL.

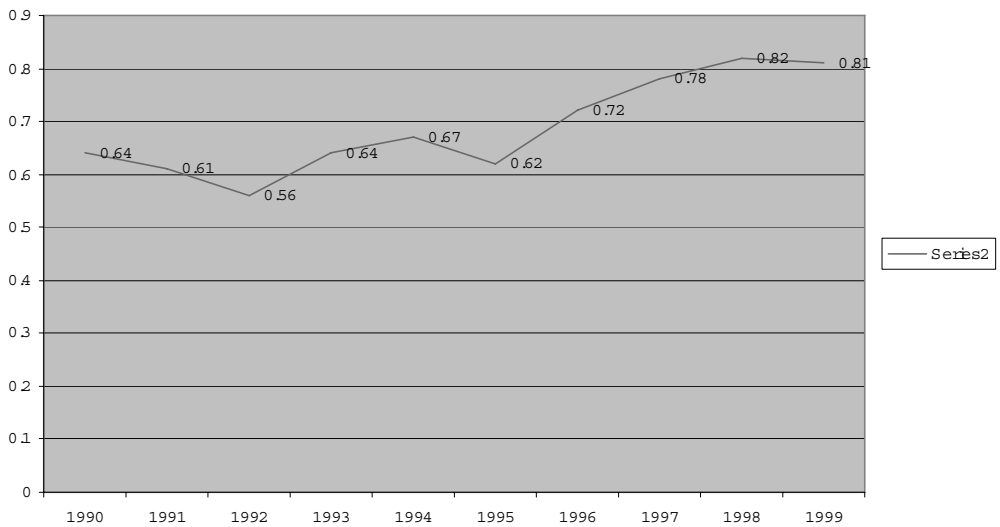
7. To find out whether there is any significant change in the capital turnover ratio in the CCL, during the period, trend co-efficient was found out by examining the capital turnover ratio (Net sale/ capital employed) during this period. The results are summarized in Table 7(a).

Table 7(a)
Capital turnover ratio (Net sale/Capital employed) in CCL, during 1990-1991 to 1999-2000

Year	Capital turnover ratio
1990	0.64
1991	0.61
1992	0.56
1993	0.64
1994	0.67
1995	0.62
1996	0.72
1997	0.78
1998	0.82
1999	0.81

Source: Annual Report of CCL

Graph 7 A



It is found out that the average of capital turnover ratio during the period is 0.69 with standard deviation equal to 0.63, the co-efficient of variation being 91.7 per cent.

The trend equation shows that the capital turnover ratio is increasing at an annual rate of 0.02 per cent. However, the trend co-efficient is not found to be significant on the basis of 't' test. So, it may be said that during this period, though there is much fluctuation in the capital turnover ratio in CCL, it has not significantly changed.

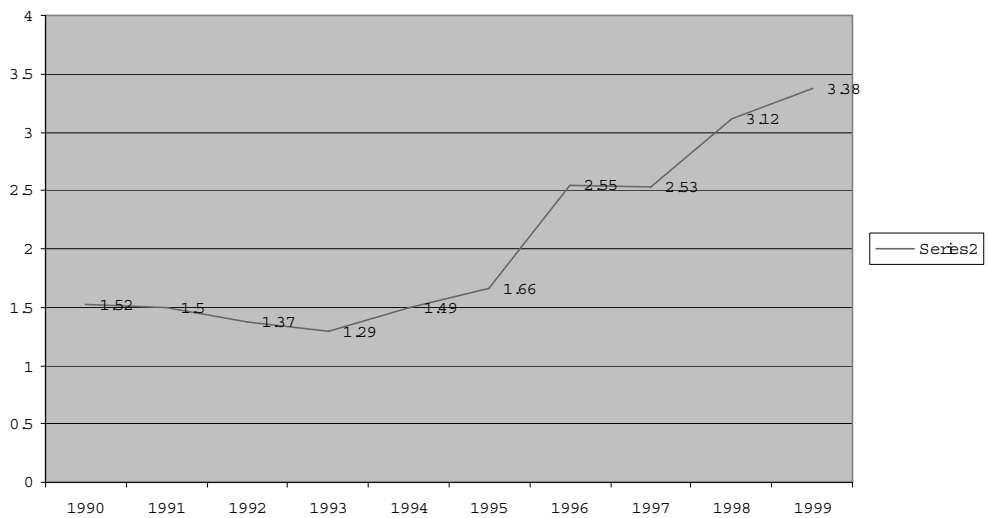
7 B. To find out whether there is any significant change in the working capital turnover ratio in CCL, during this period, the trend co-efficient was found out by examining the values of working capital turnover ratio during this period. The results are summarized in Table 7(b).

Table 7(b)
Working capital turnover ratio in CCL, during 1990-1991 to 1999-2000

Year	Working capital turnover ratio
1990	1.52
1991	1.50
1992	1.37
1993	1.29
1994	1.49
1995	1.66
1996	2.55
1997	2.53
1998	3.12
1999	3.38

Source: Annual Report of CCL

Graph 7 B



It is found that the average of working capital turnover ratio for the period is 2.04,with a standard deviation equal to 0.74, co-efficient of variation being 36.3 per cent.

The trend equation shows that the working capital turnover ratio is increasing at an annual rate of 0.23

On the basis of 't' test, the trend co-efficient is significant at five per cent level of significance. It means, during this period, there is significant rise in the working capital turnover ratio in the CCL. Thus, it is found that the capital employed has doubled during 1990-1991 to 1999-2000, and there is significant increase in the amount of capital employed during this period.

The value of sales-gross and net had also significantly increased during that period. The index of net sale has increased to 257 per cent in comparison to the sale of the base year 1990-1991. But if we consider the figure of profit and loss, we find that there is a slow increase rate of loss of the CCL. The profitability on sale has considerably declined from 8.3 per cent in 1990-1991 to 0.35 per cent in 1999-2000.

There is much fluctuation in the figure of profitability on capital and it has also declined significantly during that period. If we consider the technology side and the figure of capital turnover ratio, we find that the figure has a slow rising trend. During the period of study, there is significant rise in the figure of working capital turnover ratio. This is not good trend, the rising figure of capital output ratio indicates the poor performance trend of the CCL.

Conclusion

The study revealed that there is rise in the figure of capital employed, total production and net sale, but productivity on capital is continuously declining. As a result, there is loss in the CCL. Measures should be adopted to reduce the loss; otherwise this prestigious unit of the coal mining industry will not be able to survive. Immediate measures should be taken to reduce wasteful expenditure and reduce the loss caused by the loss of working hours due to industrial unrest. There is need to change the capital structure according to the need. An important reason for the loss of the CCL is the continuous increase in the cost, particularly wage cost and its inability to fix the price according to the need. Autonomy should be given to this unit to change the price according to the need. These measures, if adopted in good spirit, will increase the profit and profitability and this prestigious unit will survive to change the economic scenario of the country.

References

B.B.Lal, "Notes and Memoranda- A note on productivity and economic growth (with special reference to India)," The Indian Journal of Economics, No.216, Vol.V, July, 125, 1974.

B.Ganguly, The Economics of Public Enterprises (A Break-Even analysis), Bharati Bhawan, 191, 1984.

Ivan Turk, "Efficiency analysis through their interrelated indicators: The Yugoslav approach – in Ram Reddy's Government and Public Enterprises," Frank Cass and Co.Ltd., Gaimsborough House, London, 1974.

J.B.Gelbraith, Economic development in perspective, Gawcett, New York, 93, 1962.

M.J.Clay and B.H.Walley, Performance and profitability, A manual of productivity and cost reduction techniques for industry and commerce, longeman Green and Co.Ltd., London, 1965, 183-184, 1965.

R.N.Collins, and L.E. Preston, "Price-cost margin and industry structure," Review of Economics and Statistics, Vol.57, 271-286, 1969.

V.K.Gupta, "Cost functions, concentration and barriers to entry in twenty nine manufacturing industries of India," Journal of Industrial Economics, 17,1968,57-72.

Bibliography

Annual Report of CCL.

Asha Jain, "Price and cost margin in Indian manufacturing industries: An economic analysis," Ph.D.thesis, Indian Institute of Technology, Kanpur, July, 1981.

Lakshmi Narain, "Efficiency Audit of Public Enterprises in India, S.Chand and Co. Ltd., Delhi, 1984.

P.K. Gosh, "Public enterprises in India (organization and management)," Book world, Calcutta, 1982.

R.R.Barthwal, "Industrial Economics-An introductory textbook," Wiley Eastern Limited, 1984.

Reports and Government Publications.

Creative Approach to Decision Making

J.K.Sharma and B.B.Das

The decision-making is becoming difficult day by day due to the influence of many factors such as constraints of resources, highly competitive market environment, rapidly changing science and technology and ever-expanding knowledge base etc. The vast data and varied alternatives that a decision-maker is to handle for arriving at the right decision is beyond human capacity. Therefore the decision-maker has to adopt quantitative techniques with computer support. The OR techniques are highly suitable for decision-makers to identify alternatives, evaluate their merits and demerits and to choose the right alternative. The decision-maker shall be creative in his approach to promote innovative ideas. Only creative decisions can lead the organization to a future that can bring perceivable benefits. Therefore, the stress for creative decision-making is mandatory for the present day organizations.

Decision-making in the present day scenario has become a complex task. The uncertainty of the future and the nature of volatile market situation with high degree of competition, greatly influence and pose difficulties for managerial decision-making. The ever-changing knowledge and technology also add new degree of difficulties with little or no precedents. Although well-structured problems can be solved in many ways mostly at operational level, but to handle tactical and strategic issues the decision maker face the real challenge. In order to effectively address these problems and to provide suitable decisions in the recent global age, creative approach to decision-making is becoming an essential requirement.

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The quantitative techniques particularly OR techniques are most suitable for decision-makers to handle uncertain and risky situations to arrive at the right decisions. However, the faith of decision-makers on these techniques often fail due to lack of awareness and knowledge on OR and fear of mathematical modeling.

Most of the time it is the mental block of the decision-maker that compels them to avoid the use of these techniques. The experts are available to analyze the problem by using these techniques to evaluate the alternatives and to put up the choices with merits

or demerits. OR enables the analysis of the problem in a logical manner by adopting certain well defined phases through model evaluation and testing. In spite of having the powerful tools and techniques if any decision-maker fails to take the right decision that is mainly for lack of creative problem solving ability.

Problem solving in OR is a combination of approach both science and art. Much has been discussed about the science of decision-making; mathematical models, solution algorithms, statistical analysis procedures, and so on. But it is also necessary to understand the art of problem solving mainly how to make it creative in nature.

Art, by its varying nature, is a creative discipline. Thus creativity is the most important attribute of good management. Creativity is also the essence of research and motivation. While creativity is strongly allied to problem-solving, it has largely been ignored as a powerful component of the OR problem solving.

Creativity is closely linked to productivity. Therefore the stress for improving creative mind of the employer, organizations world over are conducting suitable training programmes. Research brings out that to improve organizational creativity, a focus should exist on reducing barriers to creativity, training in problem solving including problem identification, improving communication skills and participative management styles. The creativity problem solving can have number of benefits such as:

- A reduction in problem uncertainty
- An increase in the number of available solution alternatives
- An increase in competitive advantage
- A decrease in the number of solution revisions
- A more efficient utilization of individual abilities.

Problems & Problem Solving

A problem can be defined in many ways. The following are few examples:

- A felt difficulty
- A gap, or obstacle to be circumvented
- Dissatisfaction with a purposeful state
- A perception of a variance, or gap between the present and some desired state of affairs.

The selection of a course of action from among several alternatives is known as the decision and the person (s) responsible for this selection is (are) called the decision-maker(s). We emphasise that a problem exists when the present and desired state of affairs are at least perceived to be different; in reality they may actually be the same or may be perceived in a different fashion by others. Therefore, the recognition that a problem exists is the first step in problem solving.

A solution to a problem is achieved whenever the present and desired states of affairs are perceived to be sufficiently close. Hence, the size of the gap must be measurable, and the skills and resources needed to solve the problem must be obtainable. Problem-solving is the activity associated with selecting appropriate course of action and changing the present to the desired state. A solution cannot be obtained unless some change in the reality of perception occurs. Problem-solving consists of several measures cognitive functions such as:

- The ability to think rapidly of several characteristic of a given object or situation
- Classifying object or ideas
- Perceiving relationship
- Thinking of alternative outcomes
- Listening characteristics of a goal
- Producing logical solutions

Solving real problem requires a wide range of creative, conceptual and logical thinking abilities. Therefore problem solving requires definition, analysis, solution and implementation.

Problem Definition

Formal modeling approaches usually begin with the assumption that the problem has been identified. There are five components in defining a problem: the decision maker- the one faced with the problem; controllable variables – those aspects of a problem situation under the decision maker's control; uncontrollable variables – those not under the decision maker's control but which can affect the outcome of choice; constraints – limitations or requirements imposed on the possible values of the variables; and outcomes – produced jointly by the decision maker's choice and the uncontrollable variable. The value of an outcome is a specified relationship between the controllable and uncontrollable variables. The objective becomes one of maximizing or minimizing value of the outcome.

Problem definition is not a trivial task. The complexity of a problem increases when a group rather than an individual assumes responsibility for a decision, when uncontrollable factors change in an unpredictable fashion, when the number of alternatives, or controllable variables, increases, when more than one objective exists, and when human behaviour becomes an important factor.

Problem Anaylsis

An analysis of the structure and content of a problem is required in order to build an adequate model. One method of analysis that often assists the problem solving effort is classification. Classification is an aid to capturing past experience which will stimulate imagination and guide creativity.

There are many ways to classify problems. Problems are classified according to the difficulty of formulating the structure. Five categories are proposed:

1. Problems in which the logical structure is simple and transparent enough to be solved by inspection and discussion
2. Problems where the structure is apparent but the way in which to represent it symbolically is not clear
3. Problem where the structure is not apparent but nevertheless there is the possibility of extracting structure by data analysis
4. Problem where it is not possible to isolate the effects of individual variables and it is necessary to experiment.
5. Problem where sufficient data are not available and experimentation is precluded

A simpler scheme is to classify problem as well structured, semi structured or ill structured. This is determined by the amount of information available about the gap between the present and desired state of affairs.

For well-structured problems, we have complete information about the problem and means of closing the gap. An ordinary transportation problem is one example. Ill structured problem on the other hand are characterized by a lack of this information as well as fuzziness or vagueness about the present and desired states. The design of social services for instance falls into this category. Semi structured problems fall somewhere in between these two categories. Most problems addressed through simulation analysis are characteristics of semi-structured problems.

Problem for decision-making perspective can be classified in two dimensions frequency and replication. The frequency, which a given decision has to be made within a given space of time, is a measure of the repetitiveness of the task of the decision-maker. The replication refers to the uniformity in the definition of the problem; the greater the variation, the lower the level of replication. Problems with the higher degree of frequency and replication lend themselves to programmable, automated decision procedure. Those with low frequencies but higher replication suggest the need for programmable decisions but an economic issue exists as to whether the cost saving or other benefits justified the efforts and expense involved in developing an automated procedure. Problems with lower replication but with higher frequency are generally ill structured with many unpredictable and poorly defined characteristics and unclear objectives. Yet the high frequency suggests the decision support systems are appropriate. Finally, those problems with low replication and low frequency are the least amenable to automated decision aids, but are prime candidates for creative problem solving approaches.

In OR the analysis phase typically culminates in a model. Model building is a process of enrichment and elaboration, moving from the simple to the complex. Analogy or association with the previously developed logical structure plays an important role in this process. Model enrichment is accomplished through the process of changing constants into variables, adding variables, relaxing linear and other assumptions, and including randomness. In this fashion, the modeling process itself is a creative endeavour.

Classification schemes can also provide a useful frame of reference for modelers. Eight classification schemes for models i.e. functions, structure, dimensionality, temporal reference, degree of certainty, degree of generality, degree of closure, and degree of qualifications have been identified by certain authors.

Others also view several classification schemes. At the same time most classification schemes have serious deficiencies:

- Few classification schemes point to a specific problem solving approach
- Those leading to analytical techniques promote deterministic thinking and limit the size of the solution space that will be explored.

- Most have a portioning perspective, which fosters the view, that working on one or more similar problem is more effective because the whole problem is too messy to qualify.
- Little prescriptive understanding of what to do with a problem given.

Problem Solution

The problems can be solved, dissolved, or resolved. To solve a problem implies some sort of optimization. This is referred as research approach, which is the characteristic of traditional methodology. To resolve the problem, the clinical approach, is to select a course of action that satisfies and suffices. The process consists chiefly of trial and error, judgment and common sense. To dissolve a problem we change the nature of the problem and the environment so as to remove the problem. It is referred as design approach that it employs techniques of both the clinical and research perspective. It involves an assessment of the total system rather than sub optimization of its parts. One example is the problem of designing a new device to pick tomatoes in order to reduce damage during harvesting. While much thinking went into the mechanical design with little success, the actual solution was to develop a new tomato plant with tougher skin.

There are three principal means of solving a problem. First one can transform the present to the desired states (as perceived by the decision-maker) through changes in technology, policy and so on. More than likely such changes are the result of technical analysis and of modeling efforts (the research approach). Second, the desired state can be transformed to the present, usually through perception alone (the clinical or satisfying approach), finally some combination of the two approaches can be applied (the design approach).

The more structured a problem is, the more likely that the research, or algorithmic approach will be an effective means for solving the problem. While one must have a sound knowledge base of techniques and a basic facility for developing mathematical model, little creativity is required to develop a model and obtain a solution.

The majority of practical or applications occur for semi-structured problems. The design of production and service operations are typical applications which are often model as linear programs, simulations etc. Heuristics often play an important role in the solution of such problems. In contrast to structured problems, a great amount of opportunity exists for applying creative problem-solving techniques.

Ill structured problems are the most difficult to analyze and solve. Insufficient information often exists to even propose an adequate model or determined a method of solution. Such problems lend themselves well to creative problem solving approaches.

Implementation

Planning is the key element of implementation. Planning should include a consideration, action steps for implementing an idea, and the consequences of each step. To end, creative thinking is vitally important. A number of questions that should be considered for successful implementation are:

1. Are resources adequate for implementing this idea?
2. Do others possess the motivation and commitment needed for successful implementation?
3. Is the idea likely to encounter closed thinking and or resistance to change in general?
4. Are there procedural obstacles that need to be overcome?
5. Are there structural obstacles in the organization (e.g. communication channels) that need to be overcome?
6. What organizational or managerial policies will need to be overcome?
7. How much risk taking is likely to be tolerated by those responsible for implementation
8. Are there any ongoing power struggles with the organization that might block implementation?
9. Are there any inter personal conflicts that might prevent or hinder the idea from being put into action?
10. Is the general climate of the organization one of cooperation or distrust?

Operations Research Methodology

Problem formulation involving an analysis of the system under study, the objectives of the decision-maker, and alternate courses of action. Model construction consists of hypothesizing relationship between variables subject to and not subject to control by the decision-maker. Solving the model requires the use of various mathematical tools and numerical procedures.

Testing the model and solution involves determining the predictive ability of the model, verification of data, and validation of hypothesized relationships. Establishing control over the solution involves developing ranges or bounds over which the solution is applicable, and developing rules for modifying the solution when environmental changes occur. Finally, implementation involves the establishment of procedures and organizational changes necessary to make solution work.

Difficulties in Problem Solving

Many of the reasons why problems are not adequately solved are due to the lack of an appropriate methodology for problem solving and psychological perceptions on the part of the problem solver. The following aspects are highlighted to realize the gravity of problem solving.

1. **Failure to recognize the existence of a problem**
   - a) Some people tend to personalize problem
   - b) Information is not received to signal that a problem exists
   - c) Problems are too complex for comprehension
   - d) Problems arise without peoples' prior experience
   - e) There is a lack of objectives or standards
2. **Failure to define the correct problem**
   - a) One situation may contain many inter-twined problems
   - b) Obvious problems are often the symptoms of much deeper problems
   - c) An inability to identify accurately what is going on can lead to inaccurate problem identification
   - d) Incorrect inferences can lead to inaccurate problem identification
   - e) Poor questions yielding useless or erroneous information mislead the problem solver
   - f) Attitudes and beliefs can blind the problem solver to the real causes and often can led to undesirable solution
   - g) Problems and their causes are over simplified
   - h) Culprits, not causes, are identified as the source of the problem
   - i) Accepting others definitions lead to solving the wrong problem
   - j) Fixation on either world view or functions provide to narrow a scope
   - k) All problems are often treated as logical problem
3. **Failure to use all available information**
   - a) The problem solver fails to seek relevant information
   - b) Perceptual blocks to thinking
   - c) Memory limitations block the problem solving process
   - d) The problem solver gets lost in details
4. **Failure to recognize the question assumptions**
   - a) It is assumed that there is a solution to every problem
   - b) Rigid thinking limits one's view point
5. **Failure to consider wide range of alternatives**
   - a) Problem definition is limited
   - b) Premature evaluation or judgment
   - c) 'Lack of time' is cited as an excuse
6. **Failure to address implementation issues**
   - a) Responsibility for implementation is not determined
   - b) Cultural and value differences
   - c) Recommendations do not lead to decisions
   - d) Solutions are not validated against the problem definition
   - e) The cost of solving a problem is too expensive

The complexity of the many problems and difficulties that naturally arise in solving problems suggest the need for creativity. The more creative we are, the more alternatives we will have from which to select. This improves the quality and effectiveness of the resulting decision and reduces risk and error while increasing innovation.

Concepts of Creative Thinking

As can be expected, no generally accepted definition of creativity exists. Creativity has been defined from the perspective of the product of creative behaviour; the process of creative

behaviour; characteristics of the individual who creates; and environmental and cultural influences. Few definitions of creativity are:

- "…The association of thoughts, facts, ideas etc. into a new and relevant configuration, one that has meaning beyond the sum of its parts that provides a synergistic effect."
- "…That mental process in which past experience is combined and recombined, frequently with some distortion, in such a fashion that one comes up with new patterns, new configurations, new arrangements, that better solve some need of mankind."

Some eminent authors define creativity in problem solving and planning as:

"…The ability of a subject in a choice situation to modify self imposed constraints so as to enable him to select course of action or produce outcomes that he would not otherwise select or produce, and are more efficient or valuable to him than any he would otherwise have chosen."

Creative behaviour is oriented toward solving meaningful problems and results in new ideas and discoveries. It is a bending of knowledge, imagination and evaluation. This process occurs through the association of knowledge and experience in new ways. The outputs of creative thinking can be products, processes, models, algorithms, implementation strategies and so forth.

Badawy distinguishes creativity from spontaneity and originality. Spontaneity is the range of possibilities immediately available to an individual based on his or her intrinsic qualities and experience. Originally in thought does not necessarily qualify as creativity. Creativity uses what is already existing and available and changes it in unpredictable ways, producing unexpected results. One example in or can be found in George Dantzing's reminiscences on the development of linear programming. Dantzing was attempting to solve a planning problem for the Air Force, which was formulated as what we now call today a linear program.

Parnes et al. describe creativity in terms of sensitivity, synergy, and serendipity. Sensitivity involves awareness and perception in order to discover problems and invent solutions. Many internal consulting operations research groups have met their demise because of a lack of this attribute. Consultants must find problems and sell their services. Synergy is behaviour of a total system that is unpredicted by the behaviour of any of the components. Synergy is often lacking conscious thought. When two or more ideas are combined in a creative manner, the resulting idea is often significantly more useful than the individual ideas. For example, it had been known since the 1940s that the simplex method of linear programming can interpreted in a special way for network flow problems. It was not until the 1970s, however, that this idea, when combined with efficient data structures from computer science, led to extremely fast computer codes for such problems.

Serendipity refers to the awareness of the relevance of accidental happenings. A well-known example is that of Arthur Fry, a 3M chemical engineer who created the 'Post-it' notes. Spencer Silver, a 3M scientist discovered and adhesive with very low sticking power. While dismissed as an ineffective bonding agent, Fry was able to creatively put the adhesive to gel use, Rosen man provides several additional examples in science.

Sensitivity, synergy and serendipity all require divergent thinking that is the discovery and identification of many alternatives. For divergent thinking to be successful, one must have a solid foundation of knowledge, imagination and evaluation. Knowledge consists of the tools and skills acquired over the years as well as the experiences gained in applying them. For the successful practice or, this includes basic technical, mathematical and computing skills, models and algorithms, and understanding of the modeling and problem solving process, communication skills and interpersonal skills. An analogy between knowledge and creativity is often made with a kaleidoscope; the more pieces there are, the more patterns that can be produced. This increases one's knowledge base of techniques and skills necessary for creative behaviour.

Imagination is the research orientation that is devoted towards forming new patterns or ideas. Knowledge alone does not guarantee creativity. Pieces of knowledge, like the pieces in the kaleidoscope must be rearrange to form new patterns and ideas. Imagination in or must include analysis different ways of taking a problem apart, defining variables, generating hypothesis etc; and synthesis putting facts together to form objectives and constraints creating models, identifying behavioural implications, and generation ideas for solution procedures. Finally, one must be able to constructively evaluate ideas in order to produce useful ones.

Block to Creativity

Creative ability does not belong to a select few who are "born with it" a fundamental premise of creative thinking is that all people have innate creative potential unfortunately, all people also have culturally produced internal and external blocks to the use of their creative ability. These include learned habits, self-discouragement and timidity. Psychological research has shown that the two halves of the brain are responsible for different types of thinking. The left-brain controls analytical thought while the right brain is associated with creative behaviour. Over 90 per cent of formal education trains the left-brains over judicial thinking. We are taught the "one correct way" to solve problems, i.e. to judge, and to critique. Textbooks instills in this way of thought, particularly in the quantitative disciplines. For example, problems of type X are always modeled as linear programs, while those of type Y are always modeled as Markov chains. Seldom are alternative modeling strategies presented.

Creativity Enhancement

Since we can understand many of the reasons why individuals are not creative. We can continuously take steps to enhance creative behaviour. Rigid thinking and premature judgment are two of the major internal factors that block creativity. Divergent thinking and deferment of judgment are the antitheses. Creative idea results from large quantities of any idea. List-making exercises such as finding as many uses for a pencil, brick or toothpick are often used to develop creative thinking. In such a three-minute exercise, one typically finds that the average person will generate only 5-10 ideas. By understanding and practising creative behaviour, one learns to defer judgment, combine ideas and develop unusual ideas, and such lists will easily exceed. Organizational climate also has a major impact on creativity. External factors that are conductive to creative thinking includes:

- Providing freedom to think differently.
- Maintaining an optional work culture.
- Providing realistic work goals.
- Using a low level of supervision.
- Delegating responsibilities.
- Encouraging participation
- Proving immediate and timely feedback
- Providing necessary resources and support
- Encouraging open expression of ideas
- Accepting "off the wall ideas"
- Providing assistance in developing ideas
- Encouraging risk taking
- Providing time for individual efforts
- Encouraging professional growth and development
- Encouraging interaction with others outside the work group
- Recognizing the value of ideas
- Exhibiting confidence in workers

Internal factors that lead to creativity include:

- Openness to new ideas
- Curiosity
- Independence
- Perseverance
- Risk-taking
- Discipline
- Playfulness
- Impulsiveness

Conclusion

In general, the culture of many organizations does not support these conditions that lead to creative behaviour. Cultural change, education and training are necessary to develop a creative climate.

A variety of steps can be taken to enhance creativity. First, one can help individuals to understand the influence of their backgrounds, experiences and habits on behaviour. In this way, individuals are allowed to perceive themselves as being creative and remove the internal blocks to creative behaviour. Second, a climate that can be created to encourage creative thinking by removing external blocks to creativity. Sensitivity to problems can be increased; skills that will enhance the gathering of knowledge can be taught; methods to release imagination can be developed; the systematic means for evaluating ideas can be learned. Finally, opportunities to practice creative thinking in a judgmental and non-punitive climate can be encouraged.

References

Alane Jordan Starko, *Creativity in Classroom,* 2000.

Edited by M C Manuel Mora, Guisseppi A Forgionne, Jatinder N.D.Gupta "Decision Making Support Systems; Achievements and Challenges for the New Decade," 2002.

Edited by Randy Y. Hirokawa, Marshall Scott Poole, *Communication and Group Decision Making, 1996.*

Edited by Robert J Sternberg, *Handbook on creativity,* 1998.

Gareth Morgan, *Creative Organization Theory: A Resource book,* 1989.

Jacob Goldenberg, David Mazursky, *Creativity in Product Innovation,* 2002.

Louies G Pol, Richard K Thomas, *Demography for Business Decision Making,* 1997.

Marci Segal, *Creativity and Personality Type: Tools for Understanding and Inspiring the Many Voices of Creativity,* 2001.

Martin S Lindauer, *Aging, Creativity and Art: A Positive Perspective on Late-Life Development,* 2003.

Mary Schwartz, Kinsey Gimbel, *Leadership Resources: A Guide to Training and Development Tools.*

Semyon D Savransky, *Engineering of Creativity,* 2000.

The Information-Driven Healthcare Organization

Kristie J.Loescher

The purpose of this paper is to describe the necessary organizational and cultural infrastructure to support the reengineering of processes and the resolution of data integration issues required to successfully implement a clinical data warehouse (CDW). The CDW is an important step toward an electronic medical record (EMR), and the CDW must be designed and implemented with that end in mind. The Healthcare Network (HN) used as an example in this paper is participating in a national system-wide implementation of a clinical data warehousing system.

In June 1999, Premier, a group purchasing organization for more than 1,800 hospitals around the country, announced plans to invest $50 million dollars to build a clinical data warehouse "that will serve as the foundation for broad disease-management-based initiatives that aim to improve quality of care while reducing cost at member hospitals" (Hensley, 1999). Within six months, Ascension Health, the nation's largest Catholic health-care system completed vendor selection for implementation of its clinical data warehouse system to be implemented across its 38 hospitals. Both of these large systems are implementing clinical data warehouses (CDWs) for the same purpose: to improve clinical performance while decreasing costs.

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These healthcare systems are looking to a CDW to aggregate many different kinds of clinical data, which are typically found spread throughout a healthcare organization in individual department information systems, financial records, and paper-based medical records. In their typical form, these data are unconnected to each other and unavailable for use in analysis. The analytical power that could be achieved by integrating these data is the siren song of the CDW. By integrating detailed clinical measures from laboratory results to electrocardiograms to medication timing, patterns can be identified that result in the definition of "best

practice": the most efficient and effective treatment plan for a particular disease or injury. Identification of "best practice" allows healthcare practitioners to eliminate unnecessary and costly steps, decrease variation in treatment plans across similar patients, and improve overall outcomes for those patients.

A CDW, as an archival/retrieval system, takes historical data, integrates the data across several sources, and makes it available for easy retrieval and analysis. A CDW is a milestone along the path towards a fully electronic, "living" medical record system, which integrates data entry with archival and retrieval into one seamless system. While few electronic medical record (EMR) systems exist today, many healthcare and IT pundits predict they will become the standard for record keeping within the next decade (Gaillour, 1999). The implementation of the CDW must be viewed in terms of its place in the continuum toward an EMR to support initiation of process revision consistent with both systems and avoid the establishment of processes that will become redundant with a further change in platform and focus.

While not as involved as the implementation of an EMR, building a CDW is an overwhelmingly complex task, requiring the aggregation of data in multiple formats from multiple sources. In many cases, electronic data must be created where only paper records existed before. This type of transformation requires significant changes to occur in the way clinical data is gathered throughout a healthcare organization and thus requires significant changes to occur in the way healthcare professionals across all disciplines view and execute their daily work. Changes of this magnitude and depth within an organization challenge the status quo of almost every employee and will require massive amounts of training and oversight to achieve.

The purpose of this report is to identify the critical success factors for implementing a CDW within a healthcare system. The first section of this report will examine the critical success factors for implementing large-scale information technology systems like a CDW effectively. The second section will discuss the reengineering required to integrate the development, maintenance and use of a large-scale information technology system into the organization's daily work. While the subject of this report is a CDW and the examples used are from the healthcare industry, the issues discussed and the requirements identified for successful implementation and integration can apply to any large-scale information technology system in any industry.

Methods

This report utilizes literature from the healthcare information systems, training and development, and corporate management industries. Primary research for this paper was conducted in an interview with the Director of Information Systems for a healthcare network, that is, participating in a national system-wide project to obtain and implement a clinical data warehouse.

Results

Implementing Large-Scale Information Technology Systems Effectively.

In this section, the importance of connecting, sharing, and structuring of the information technology (IT) infrastructure will be discussed along with the critical need for high quality, cost effective IT support, for partnerships between IT and business management, for a specified infrastructure strategy, and for a reengineering focus in order to implement large-scale IT systems, like a CDW, effectively.

IT Infrastructure Attributes

An IT infrastructure that will support implementation of a large-scale IT system has three attributes (Haeckel & Nolan, 1993):

1. Connecting – "the degree to which the IT platform links information sources, media, locations and users" (Haeckel & Nolan, 1993). Since the purpose of a CDW is to connect users to previously unavailable data, this infrastructure attribute is essential for successful implementation.
2. Sharing – "getting everyone on the same page in a large business requires an institutional capability to share data, interpretations of that data, and specifications for core processes" (Haeckel & Nolan, 1993). How an application is implemented may be more important that the features of the application itself. "A stand-alone application is less likely to deliver sustainable competitive advantage than one implemented on an integrated technology platform designed for extensive information sharing" (Haeckel & Nolan, 1993). In the healthcare network where the primary data for this report was gathered, a plethora of stand-alone, department-based IT systems have been installed over the past ten years. Embracing sharing as a core infrastructure requirement represents a major change in the philosophy for the IT department and for the healthcare system as a whole.

To support integrated systems that are cost-effective to operate and support, technology must meet two criteria (Ross, Beath, & Goodhue, 1996):

- § A well-defined technology architecture – "rules for distributing hardware, software and support" (Ross et al., 1996) which are standard for all applications. These rules specify "what kinds of data to share and how to store them, where to locate servers, and how to support applications and technologies" (Ross et al., 1996).
- § Data and platform standards – a mechanism for achieving the architectural vision. "Standards limit the range of technologies that IT staff must support, enabling them to provide faster, more cost-effective support" (Ross et al., 1996).

3. Structuring – Metadata or data dictionaries. "Structure is created by information about information….how data is classified, organized, related, and used" (Haeckel & Nolan, 1993). Structuring is especially challenging in healthcare where nation-wide data and terminology standards are lacking (Grimson, Grimson, & Hasselbring, 2000), (Wong, 2000). However, the effort of creating structure is well worth it when implementing a large-scale IT system, especially a CDW where data from multiple sources is being integrated. "When information from previously unrelated sources is structured in a meaningful way, human beings become capable of thinking thoughts that were previously unthinkable. Computers that use their speed and memory to reveal patterns in raw data augment the extraordinary capacity of humans to recognize and assign meaning to patterns" (Haeckel & Nolan, 1993).

Each of these attributes becomes increasingly significant as an organization moves from a focus on archival systems (like the CDW) to a focus on live systems (like the EMR). Time and attention in each of these areas will serve to enhance not only the implementation process for the CDW, but also the implementation of an EMR down the road.

High Quality, Cost Effective IT Support. The literature describes three dimensions of IT knowledge and competence necessary for implementation of large-scale IT systems (Ross et al., 1996):

- Technical skills – "build bridges between old systems and new, deliver data across locations and applications, and recognize opportunities to apply new technologies as they become available" (Ross et al., 1996).
- Business understanding – developed by "co-locating IT staff with individual business units…assigning high-level IT staff as account managers or relationship managers to work closely with line managers in defining IT requirements and leading IT initiatives" (Ross et al., 1996).
- Problem-solving orientation – responsibility distributed to every member of the IT staff. Empowered teams replace staff members "responsible only for completion of well-defined tasks" (Ross et al., 1996). As IT staff become increasingly educated and increasingly expensive, it is an important means of retention and cost effectiveness to organize so that you have "more people thinking and more creative solutions" (Ross et al., 1996).

These three dimensions describe an IT department very different than the one interviewed for this report. The IT staff are centralized and largely unknown to most managers. Task-based jobs predominate, as do antiquated skills. The healthcare system has recognized these issues and completed plans to outsource the IT function to a large IT firm, specializing in the implementation and management of large-scale IT systems. According to the Director of Information Systems, this decision was mandatory for success, since the old department did not have the resources or internal political capital to make the changes necessary to build the attributes described here. Other organizations facing large-scale IT implementations must do the same "make or buy" analysis.

Partnership between IT and Business Management. As Craig writes, "successful [technology system] implementations are drive assembled, by cross-functional teams able to demonstrate the benefits of [the technology] to their various constituencies (Craig, 2000). The users and the funding sources are predominately outside of the functional IT department. There can be no successful IT implementation without shared risk and responsibility between IT and the

users/sources of funding (business management) outside of IT (Ross et al., 1996). "Shared risk and responsibility require trust and mutual respect between IT and clients, and an ability to communicate, coordinate, or negotiate quickly and effectively" (Ross et al., 1996). This relationship is maintained by two things (Ross et al., 1996):

- A business management project owner
- Top management leadership in establishing IT priorities

According to Bensaou, IT users and IT specialists should connect within an organization through a process he calls "organizational bonding" that is widely used in Japanese organizations. In Japan, integration is encouraged by "rotating managers through the IT function, co-locating specialists and users, and giving IT oversight to executives who also oversee other functions" (Bensaou & Earl, 1998). Bensaou discusses how organizational bonding helps to break down the divisions between users and IT specialists by helping them understand each other's vocabularies, issues, and needs (Bensaou & Earl, 1998). Goodhue notes, "When users understanding the business task are involved in systems design, it is more likely that the resulting system will fit the task need. Thus, user involvement potentially affects not only user commitment, but also the quality or fit of the resulting system" (Goodhue & Thompson, 1995). In addition, by having the executives in charge of IT lead other functions, such as finance and planning, IT is not isolated within the company.

This requirement poses a true challenge for the healthcare network interviewed for this report. Healthcare is highly credential conscious and tends to organize in "silos" by clinical discipline. At the same time, the healthcare professionals in this healthcare system, while technically proficient in their area of expertise, tend to have a low level of understanding of non-clinical business areas, including IT. While "organizational bonding" may not be possible in this organization in the short-term, an increased level of understanding and awareness of IT perspectives is possible and should be a priority for the future.

Infrastructure Strategy

In the labor-intensive healthcare industry, knowledge and information are the products offered to the customer (the patient). Clinical knowledge and process information are assets that require management, raw materials that must be inventoried and available to employees (Galagan, 1997). A key implementation requirement for a CDW is deciding which route to take to this goal. The literature identifies two strategies: codification and personalization.

Codification strategy tends to be the choice of "companies that sell relatively standardized products that fill common needs" (Hansen, Nohria, & al., 1999) and refers to the codification of knowledge and electronic storage of this knowledge for easy retrieval and analysis. It is a structured "discover-codify-disseminate" model (Bartlett, 1998). The personalization strategy tends to be used in "companies that provide highly customized solutions to unique problems, knowledge is shared mainly through person-to-person contacts" (Hansen et al., 1999). Personalization is a looser and more inclusive "engage-explore-apply-share" approach (Bartlett, 1998).

Codification is more easily applied to explicit knowledge, while tacit knowledge is more easily personalized. Galagan quotes Bipin Junnarkar, Director of Knowledge Management at Monsanto, "Explicit knowledge is what can be captured and shared with information technology…tacit knowledge evolves from people's interactions, and requires skill and practice." (Galagan,1997). Explicit knowledge is obviously easier to codify and store electronically for searching, sharing, and disseminating. Sharing tacit knowledge requires an expectation that employees perform at a high level of interaction and communication skills. Galagan quotes Junnarkar again, saying "The secret is in the interaction: people with people and people with information." (Galagan, 1997)

In healthcare, both explicit and tacit knowledge are widely used, making the decision of which information management strategy to choose a pivotal one. The codified strategy can provide many benefits to the management of the typical, uncomplicated patient, such as those that can be managed by clinical pathways or protocols. Examples of this type of patient include normal obstetrical deliveries, simple pneumonia, and many orthopedic procedures such as knee and hip replacements. By codifying and sharing the best practice for treating these types of patients, variation, rework, and resource use decreases. The personalized strategy can provide many benefits to the management of the a-typical and complicated patient, such as trauma and critical care

patients; patients requiring a customized plan of care, involving many different types of specialists and technicians who must coordinate their efforts and share knowledge to effectively care for their patients. By creating process and standards for sharing knowledge among people who have specialized expertise, the wealth of knowledge available to treat each patient is magnified.

Hansen presents examples of healthcare companies that chose different strategies. The first, Access Health, runs a call-in "Ask-A-Nurse"-type program. Access Health chose the codified strategy and exploits the reuse of knowledge. As with similar programs, a registered nurse responds to callers, using the company's 'clinical decision architecture' to assess the caller's symptoms, rule out possible conditions, and recommend a home remedy, doctor's visit, or emergency room trip. Access Health utilizes a "knowledge repository, which contains algorithms of the symptoms of more than 500 illnesses. CEO Joseph Tallman describes the company's strategy: We are not inventing a new way to cure disease. We are taking available knowledge and inventing a process to put it to better use" (Hansen et al., 1999). Although the investment in developing the algorithms was large, according to Hansen's research, they have been used an average of 8,000 times (as of 1998 when Hansen conducted the research). That level of reuse supports a low price per call which makes it attractive for Access Health customers (insurance companies and provider groups) to pay for its services and still save money based on the callers who avoid expensive and unnecessary emergency room visits (Hansen et al., 1999). The application of this idea might be applied to such hospital-based programs as obstetrics, day surgery, and simple pneumonia where the hospital, its patients, and its insurance company customers would benefit from the codification of best practices. The benefits would include an increase in the accessibility and dissemination of best practices, which would thereby improve quality while decreasing unnecessary resource use.

Hansen's example of a healthcare entity that chose the personalization strategy is Memorial Sloan-Kettering Cancer Center. At Sloan-Kettering "a variety of experts consults on each patient's case, and managing the experts' collaboration is, in essence, managing the center's knowledge" (Hansen et al., 1999). Hansen quotes James Dougherty, Sloan-Kettering's deputy physician-in-chief as he characterizes the collaboration among professionals, "we coordinate intensive face-to-face communication in order to ensure that knowledge is transferred between researchers and clinicians and between different types of clinicians (Hansen et al., 1999)." The infrastructure that supports this collaboration includes several face-to-face meetings per week, including all practitioners on the disease-specific team (there are 17 of these teams at Sloan-Kettering). "The meetings cover basic science initiatives, clinical findings, patient care, and ongoing research" (Hansen et al., 1999).

The type of information technology required to support a codified strategy is very different from they type that is required to support a personalized strategy, which is one of the reasons that choosing between these two approaches is a critical success factor for successful IT system implementation. Codified organizations tend to invest heavily in IT and look to data warehouses, data mining support, and, in the case of hospitals, CDWs to support knowledge acquisition and dissemination. Personalized organizations look to IT to facilitate conversations and the exchange of tacit knowledge by investing at a much more modest level in teleconferencing, groupware, and easily accessible directories of experts. Personalized organizations invest significantly more in 'people time' than in 'machine time,' while codified organizations do the opposite.

An investment in a CDW is an investment in a codified strategy. It is vital that the organization implementing such a system understand the ramifications of this choice, especially on the areas of the organization that currently rely on tacit knowledge and will not be as well served by the CDW. The CDW will not be a panacea that answers all questions. It will not be an effective tool in managing the complex, one-of-a-kind patient. These types of patients are often very expensive for a healthcare system, and it is vital that expectations on the impact a CDW can have in these situations are not overstated.

Why not add a second type of system to support the exchange of tacit knowledge required for managing the complex patient? Why must a choice be made between these two strategies? In addition to the differing levels and types of organizational and technical support, the personnel skills and abilities required to implement these strategies are widely and markedly different and require different types of incentives. As Hansen notes "emphasizing the wrong approach or trying to pursue both can quickly undermine a business" (Hansen et al., 1999). Consequences of trying to be both codified and personalized include making the major investment in technology required to support a codified approach, only to have parts of the organization not use it. Likewise investing in and incentivising people to functionally share knowledge is a time and resource

consuming approach and must be applied to those complex areas/situations where it is cost effective. "Companies that straddle the two strategies may also find themselves with an unwieldy mix of people. Having both inventors [personalized strategy] and implementers [codified strategy] rubbing elbows can be deadly" (Hansen et al., 1999). An exception, Hansen says, can be found in companies "where business units operate like stand-alone companies" (Hansen et al., 1999). In this situation, the two strategies can co-exist as long as the strategy within each business unit is consistent. However, "companies with tightly integrated business units should either focus on only one of the strategies or spin off units that don't fit the mold" (Hansen et al., 1999). Hansen also notes, however, that a company focused primarily on a codified strategy can successfully implement *pieces* of the personalized strategy to be applied in special circumstances and vice versa with a company focused primarily on a personalized strategy. The 80/20 rule should be followed when choosing between these two strategies, using the following questions:

1. Does the organization primarily (80 per cent) offer standardized or customized products? A codified strategy fits companies that are creating a standardized product, while a personalized strategy fits those with a customized product (Hansen et al., 1999).
2. Does the organization have a mature or innovative product? A codified strategy fits companies that have a mature product while a personalized strategy fits with those that have an innovative product (Hansen et al., 1999).
3. Does the organization's people rely on explicit or tacit knowledge to solve problems? Explicit knowledge (data items) obviously is easier to codify, while tacit knowledge (insights, judgment) is easier to transfer person-to-person (Hansen et al., 1999).
4. Why do customers buy your products over that of the competitors? What value do customers (which include payers and physicians as well as patients in the case of the healthcare system interviewed) expect from the organization? How does the knowledge that resides in the company add value for these customers? An organization's responses to these questions are critical in guiding the appropriate strategy choice (Hansen et al., 1999).

The healthcare system that provided input into this report meets the first two criteria for using a codified system: 80 per cent of its business is standardized, routine patient care, and the product is mature. However, the organization relies largely on tacit knowledge, given the paucity of codified data, for making decisions. Finally, according to the Director of Information Systems at the healthcare network, healthcare customers are not able to accurately judge the quality of the care they receive. Their assessments and choices are made based on the things they can assess: the quality of the personal relationships with staff, the cleanliness of the surroundings, etc., which will not be impacted directly by a CDW, but would be impacted by a personalized strategy, where obvious time and resources are spent bringing people with knowledge to their bedside for consultation. With a score of two for codified and two for personalized, the Director of Information Systems notes that successfully implementing a codified system in this environment will require fundamental changes in the way the work of a majority of employees is carried out as well as fundamental changes in the incentive and management systems. These issues are discussed in the next section.

Business Process Reengineering

Perhaps the lynchpin in the successful application of information technology, business process reengineering (BPR) "is central to ensuring that strategies are aligned through the clarification of needs, plans, and priorities" (Grimson et al., 2000). Implementing a system-wide, expensive system that is expected to fundamentally change/improve basic work processes without reengineering those processes first is putting the cart before the horse. A complete reengineering is necessary where the technology is meant to replace the old workflow patterns (Wong, 2000). BPR should drive the choice and application of such systems, which are intended to be enablers of BPR, not drivers. IT is a tool, not an end in and of itself. An organization should understand what the latest IT makes possible, but should not let it drive its own implementation. Buying IT because it exists and implementing a large system on top of existing business processes is the classic recipe for an unused or underused system, which will not offer the expected return on investment (Wong, 2000). "Business reengineering means "starting over"...it means asking this question: 'If I were re-creating this company today, given what I know and given current technology, what would it look like?" (Hammer & Champy, 1993).

Healthcare workers and systems tend to be very change resistant (Grimson et al., 2000). Much of the data "continues

to be processed manually in spite of decades of experience in the successful application of information technology in other information-intensive industries" (Grimson et al., 2000). However, as the healthcare system interviewed for this report has experienced, the pressure for change is mounting. Profit margins continue to shrink as costs rise and reimbursements decline, the number of uninsured and underinsured across the country continues to increase, and the demand for high-quality, safe healthcare is rising from an increasingly well-educated public (Grimson et al., 2000), (Wong, 2000). "Efficiency and cost effectiveness (balancing quality with cost containment) are two major driving forces behind this need to change" (Grimson et al., 2000).

The healthcare industry's answer to this crisis has consistently been a focus on best practice. Best practice in healthcare translates into the expectation that if you define the most effective and efficient protocol to treat a condition, disseminate this model, and decrease variation among practitioners; quality will increase and costs will decrease (Deming & Walton, 1988). In actuality, the dissemination of best practices has been difficult, given that few of the characteristics of an information-driven organization exist in most healthcare systems. In fact, healthcare cultures tend to be diametrically opposed to this type of information sharing (Wong, 2000). This opposition is due to the 'culture of blame' and threat of litigation that surrounds medical errors, the fragmented nature of the practice of medicine, the decentralization and relative isolation of individual healthcare entities, and the capital-poor nature of these entities (Grimson et al., 2000), (Wong, 2000).

There has been significant focus in the healthcare network interviewed here and in the healthcare industry in general on continuous quality improvement (CQI) efforts. As described by Deming, to implement CQI, the organization applies a logical, step-by-step approach to defining a process, measuring its baseline performance, identifying a desired state, and the gap between the current state and this desired state. A plan is then developed to move the process from baseline towards the desired state, measuring progress along the way (Deming & Walton, 1988). While the healthcare system interviewed here has experienced some amount of success through CQI efforts, CQI is not going to get that organization to the position of competitive advantage required to not just survive, but thrive, in today's healthcare market. As described by Hammer and Champy, while quality programs and reengineering share a number of common themes, the two approaches differ fundamentally. "Quality programs work within the framework of a company's existing processes and seek to enhance them…the aim is to do what we already do, only to do it better. Reengineering…seeks breakthroughs, not by enhancing existing processes, but by discarding them and replacing them with entirely new ones" (Hammer & Champy, 1993). Reengineering "doesn't mean tinkering with what already exists or making incremental changes that leave basic structures intact" (Hammer & Champy, 1993). Only "fundamental rethinking and radical redesign of business processes" (Hammer & Champy, 1993) will lead to the dramatic improvements in cost and quality required for competitiveness and profitability.

As the healthcare network works to implement an integrated data archival and retrieval system with a CDW, BPR must be used to create the processes needed to not only make this step successful, but also begin to create the processes that will allow live electronic record creation, retrieval, and analysis through an EMR. "Beginning with the end in mind" (Covey, 1990) is the primary critical success factor for successful large-scale IT implementation.

The next section will further discuss the necessity of using reengineering to become an information-driven organization to effectively integrate a large-scale IT system into an organization.

Integrating Large-Scale IT Systems into the Organization

This section will discuss the reengineering required to integrate the development, maintenance and use of a large-scale information technology system into the organization's daily work. The implementation of a CDW will result in unprecedented amounts of newly available data for decision-making. Having the data available is not synonymous with its effective utilization. A review of the literature identified four characteristics of organizations that are successful in managing and utilizing large amounts of codified information:

1. They view knowledge as an asset to be managed just like other key raw materials used in the business
2. They practice strong interorganizational collaboration
3. Their organizational infrastructures support learning and sharing information
4. Their corporate cultures support knowledge acquisition and dissemination through the mission/vision of the organization, through their support of creativity, and through their prioritization of knowledge management.

Knowledge as a "Manageable Asset"

The value of knowledge as an asset has grown as much of the Unites States' economy has shifted to knowledge work (Scott, 2000). As this shift has occurred, "firms attempt to retain knowledge to avoid repeating mistakes or 'reinventing the wheel.' Moreover, firms are focusing on managing and creating knowledge for competitive advantage" (Scott, 2000). Healthcare is a highly labor-intensive service industry, relying heavily on knowledge and information as its products. Organizations that have embraced knowledge as a product and who successfully manage it will be referred to in this section as "information-driven organizations."

A key characteristic of the information-driven organization is the focus and effort put toward managing both information sharing and acquisition as any other asset or raw material for the business. Knowledge, of course, does not easily fit into the role typically defined for a raw material. "Unlike traditional raw material, knowledge usually isn't coded, audited, inventoried, and stacked in a warehouse for employees to use as needed. It's scattered, messy, and easy to lose" (Galagan, 1997). An information-driven organization develops processes designed to capture and share knowledge. The core belief in an organization that supports knowledge acquisition and dissemination is that "enhanced individual learning will translate into improved organizational behaviors and performance" (King, 2001). The aphorism King uses to capture this concept is "better knowledge for better behavior for better performance" (King, 2001).

Within the healthcare network interviewed for this report, knowledge is not coherently managed. Portions of the organization assume the responsibility of "keeper of knowledge" (primarily planning/marketing and clinical support/research). This knowledge is not seen as the property of all, thus most employees, even those at the management level, have developed few skills in knowledge acquisition or dissemination. A training program and a reassignment of knowledge responsibilities will be required to give employees the tools they will need to effectively utilize the data provided by the CDW in making clinical decisions.

Interorganizational Collaboration

By allowing a wide range of external as well as internal knowledge exchange, interorganizational collaboration is an important characteristic of an information-driven organization. "Organizations collaborate with customers, suppliers, and competitors forming new networks of learning. Such knowledge links enable an organization to access and internalize the skills and capabilities of their partners. This enables the extended enterprise to create new knowledge, disseminate it throughout the value chain, and embody it in joint products, services and systems" (Scott, 2000).

A common form of interorganizational knowledge collaboration found in healthcare is benchmarking performance. "Interorganizational collaboration catalyzes the learning process by stimulating reconsideration of current practices" (Scott, 2000). By challenging assumptions, interorganizational collaboration supports innovation and experimentation. However, the literature notes that "prior experience affects the organization's absorptive capacity and how receptive it is to new knowledge. How quickly the knowledge diffuses depends on an organization's ability for imitation, and its ecology of learning" (Scott, 2000).

Finally, mutual trust is a prerequisite for interorganizational collaboration. "Collaboration depends on high levels of mutual trust to encourage the continuation and growth of successful relationships. With mutual trust, partners will reciprocate openness and sharing of information and knowledge... A receptive, trusting and supportive environment encourages risk taking and experimentation" (Scott, 2000).

An understanding of the level and amount of interorganizational collaboration required for successful integration and utilization of a large-scale IT system does not exist at the healthcare system interviewed here. Perceptions vary as to the level of trust in the environment. Given the "silo" organizational structure around clinical disciplines mentioned earlier, there is little support for interorganizational collaboration provided by the formal organizational structure. Without a clear understanding of the capacity of the organization for interorganizational collaboration, data provided by a CDW will be underutilized and the dissemination of best practices identified with the data will be limited.

Organizational Infrastructure to Support Learning/Sharing. For knowledge to be managed as an asset and for employees to use their time for learning/sharing effectively and efficiently, an infrastructure must exist to support employees. Galagan notes that Amoco defines support

for learning as "access to databases of effective practices, benchmarking studies, models and tools. It also means plenty of coaching and training in learning practices" (Galagan, 1997). This infrastructure also helps employees analyze what they have learned, to apply it, and put it into the context that will most support their work. Galagan quotes Monsato's Junnaker, "We're not constrained by information; we are constrained by sense-making. We are not constrained by ideas but by what to do with them" (Galagan, 1997).

Human resources infrastructure must also support knowledge acquisition and dissemination. Using work time for knowledge acquisition is not only accepted, but also expected. Time is built into job descriptions and learning/ sharing efforts are expected and rewarded in evaluations. Galagan quotes Amoco's Dave Ledet, Director of Shared Learning, "Learning is considered everyone's job at Amoco, from the pure knowledge workers to people who work in field and plant locations…our performance management and reward systems all reinforce shared learning." (Galagan, 1997). Craig stresses the importance of encouraging employees to "share information freely across corporate boundaries" (Craig, 2000). In short, employees must have the time, energy, and incentive to acquire knowledge and share knowledge with each other. "A high level of social interaction is necessary to surface assumptions and transform tacit organizational knowledge into explicit knowledge" (Scott, 2000).

To align with these infrastructure elements, the organizational structure of a firm must reflect the philosophy of collaboration and experimentation. A flat, decentralized structure, utilizing shared leadership and employee empowerment is most conducive to supporting an information-driven environment (King, 2001).

All of these infrastructure elements must be created within the healthcare network interviewed for this report. While knowledge is a primary product in healthcare, this system has not organized itself around that fact. The retooling and reeingineering of processes and structures required to create these infrastructure elements will be intensive and far-reaching into the organization. The foundation for this change must come from the corporate culture.

Supportive Corporate Culture

Several authors spoke of the importance of corporate culture to encourage knowledge capture and knowledge sharing within an organization. According to Galagan, "Companies that want to leverage their knowledge are finding that it takes a corporate cultural change to ensure the effective management of knowledge. This shift in culture results in a workforce that is willing to learn and share knowledge" (Galagan, 1997). An obvious interaction between the other characteristics of an information-driven organization and corporate culture is in the need for employees to have the time to learn and share knowledge. If this time is not built into job descriptions and is not an expectation within the culture, other job duties can easily take priority. Knowledge acquisition and sharing will wither on the vine without the nourishment of time and attention. King discusses the type of cultural support needed to succor knowledge acquisition and dissemination; he refers to the development of a "university culture – one that values learning, informed debate, and academic freedom" (King, 2001). King further explains that to support a culture of knowledge sharing, "the ubiquitous 'knowledge is power' assumption must be transformed into one in which sharing is appreciated and rewarded" (King, 2001).

Another key component to an ideal knowledge culture is a support for creativity. This support includes "a tolerance for the small failures that will inevitably result when innovations are pursued, the valuing of ideas that are generated (even if they are not pursued), the willingness to 'think outside the box,' and the postponing of the evaluation of ideas until they are fully formulated" (King, 2001).

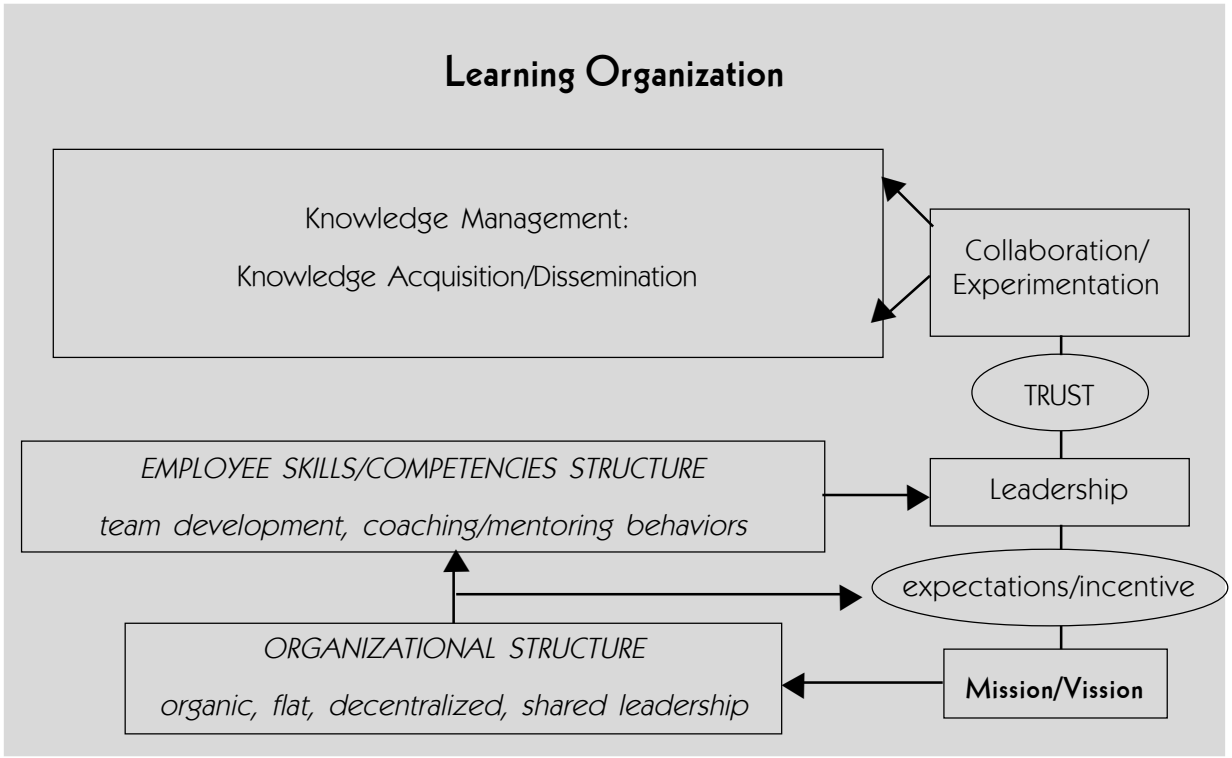
Finally, only strong leadership can provide the direction a company needs to choose, implement and overcome resistance to a new technology and a new way of working (Hansen et al., 1999). It is an organization's mission and vision as embodied by the priority structure perpetuated by the CEO and other senior management that makes an information-driven organization possible. In addition, this attention from leadership provides the support necessary to foster coordination among and between HR, IT, and the goals/ objectives of the organization, aligning all of the efforts behind creating and supporting an environment that exhibits the characteristics discussed above.

Comments

A Model for Becoming Information-Driven

Based on the literature review, Figure 1 provides a model depicting the relational view of the characteristics of an information-driven learning organization.

Figure 1: Characteristics of a Learning Organization



As figure 1 demonstrates, integrating a large-scale IT system like a CDW into an organization requires the organization to have fully developed processes for obtaining and sharing information. To enable the development and implementation of these processes, many collaboration and experimentation behaviors are required that in turn rely on:

- § Recognition of knowledge as an asset to be valued and managed within the organization
- § A high level of trust among employees
- § A leadership style that supports and encourages these behaviors (coaching, mentoring, facilitating)
- § A system of incentives and expectations that drive these behaviors (annual evaluations, metrics, bonuses, recognition/awards)
- § An organizational structure that is conducive to creating an environment where these behaviors can occur (organic, flat, decentralized, shared leadership)
- § An organizational mission/vision that provides the philosophical infrastructure and sets priorities conducive to supporting an information-driven culture.

This paper has provided a literature review of implementation and integration critical success factors for large-scale IT systems. A clinical data warehouse system purchase by a healthcare network was used to illustrate the findings from the literature. IT has a key role to play in developing infrastructure, support, business management partnerships, strategy, and reengineering processes. To effectively implement a large-scale IT system, the IT infrastructure must be built around connecting, sharing, and structuring. In addition, high quality, cost effective IT support must be available, strong partnerships must exist between IT and business management, a choice must be made between a codified and personalized infrastructure strategy, and a reorganization focus must predominate to prepare employees and create processes to support successful implementation. To effectively utilize and integrate a large-scale IT system, the limiting factors are found in the culture, the organizational structure, the skills/competencies of the employees and practitioners, and the expectations/incentives that drive their

behavior. To meet the challenges of the next ten years will require effective and efficient acquisition and dissemination of knowledge. The healthcare network interviewed for this report, and the rest of the organizations in the healthcare industry that hope to implement systems like CDW and, eventually, EMR, will be required to reengineer themselves into information-driven, learning organizations, which are able to effectively and efficiently utilize new IT systems to enable the information transfer, coordination, and analysis processes. Only then will the potential return on investment in IT be realized.

References

Bartlett, C., "McKinsey & Company: Managing Knowledge and Learning," *Harvard Business School Case 9-396-357*, 1(20), 1998.

Bensaou, M., & Earl, M., "The Right Mind-set for Managing Information Technology," *Harvard Business Review*, 119(118), 1998.

Covey, S., *The 7 Habits of Highly Effective People* (First ed.): Fireside, 1990.

Craig, R., "KM Comes of Age," *ENT, 5* (7), 36 (32), 2000.

Deming, W. E., & Walton, M., *The Deming Management Method*: Perigee, 1988.

Gaillour, F., "Rethinking the CDR: Is Perfect the Enemy of the Good?" *Clinical Computing*, 22, 1999.

Galagan, P., "Smart Companies (Knowledge Management)," *Training & Development, 51* (12), 20 (24), 1997.

Goodhue, D., & Thompson, R., "Task-Technology Fit and Individual Performance," *MIS Quarterly, 19* (2), 213 (229), 1995.

Grimson, J., Grimson, W., & Hasselbring, W., "The SI Challenge in Health Care," *Communications of the ACM, 43* (6), 48, 2000.

Haeckel, S., & Nolan, R., "Managing by Wire," *Harvard Business Review*, 122 (110), 1993.

Hammer, M., & Champy, J., *Reengineering the Corporation* (First ed.): HarperCollins, 1993.

Hansen, M., Nohria, N., & al., e. "What's Your Strategy for Managing Knowledge?" *Harvard Business Review, 77* (2), 106 (111), 1999.

Hensley, S., "Catalyst for Change," *Modern Healthcare, 29* (25), 128, 1999.

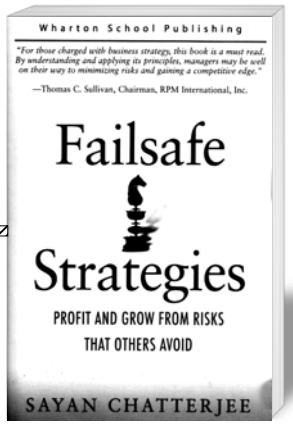
King, W., "Strategies for Creating a Learning Organization," *Information Systems Management, 18* (1), 12 (18), 2001.

Ross, J., Beath, C., & Goodhue, D., "Develop Long-Term Competitiveness through IT Assets," *Sloan Management Review, 38* (1), 31 (11), 1996.

Scott, J., "Facilitating Interorganizational Learning with Information Technology," *Journal of Management Information Systems, 17* (2), 81(86), 2000.

Wong, H., "The Diffusion of Decision Support Systems in Healthcare: Are We There Yet?" *Journal of Healthcare Management, 45* (4), 240 (213), 2000.

Skimming and Scanning



Book Title	:	***Fail Safe Strategies***
Author	:	**Sayan Chaterjee**
Pages	:	**284**
Publisher	:	**Wharton School Publishing**
Price	:	**Rs.499/-**

This book is a must read for practitioners and students of business. The aim of the book is to help the readers to design business models where risks can be reduced to manageable proportions. In this era of consolidation and acquisitions, companies are gearing to grow in scale using high-risk strategies.

The book is divided into two sections. Section one talks about designing strategies for avoiding risks while the second section deals with the risks in growth and diversification strategy.

The author identifies three major sources of business risks that can rail any strategy: Demand Risk, Competitive risk and Capability risk. Demand risk is the risk that the value proposition of the firm trying to sell will not be accepted by the market. Competitive risk is the risk that competitors will take away its customers. Capability risk that a firm is not able to deliver the value propositions that customers will pay for or the firm will not be able to make a profit because of the capabilities cost.

This book also convinces the customers to adopt a framework "outcome-to-objective" to identify options that isolate the firms from the key risks. The key is to identify more choices that deliver the desired outcomes, thus reducing the risk. The author cautions that one needs to break the inside-out mindset in order to generate these multiple choices.

The book talks about three steps to design a low risk strategy. The first step is to have a clear understanding of the competitive objective. The next step is to develop the core competitive objective that cannot be imitated by the competitors and final step is to use the core objectives to reduce capability risks.

The first section also talks on designing strategies with low capability risks. In this part, the author warns the Business leaders to devote sufficient time to develop complex capabilities. The author also considers low medium and high-risk strategies for acquiring capabilities. The high-risk strategy can be creating an entirely new value chain. The author says that to continuously sustain the competitive advantage, one has to keep track of capabilities and understand which capability is critical and which are not.

The second section of the book talks about strategies to grow the core business and strategies to entering markets, which are new to the firm. The chapter focuses on creating frameworks to understand the risks of entering existing or new markets. In the existing markets one has to overcome entry barriers. So in order to overcome the entry barrier the firm has to find value gaps, which are not satisfied by any existing players and where the firm has inherent capabilities. One of the unconventional strategies that author puts forth is that in the early stages of the lifecycle of the market, the low risks entry objective should be differentiation while in the mature stage the entry objectives should be low price.

This section also gives valuable insights into using low price entry strategy; strategies to shape markets where firms attempt to create markets from scratch. While low price entry strategy requires low cost capacities, creating markets from scratch as a high-risk venture. The author also tells the executives not to close off all options and re-evaluate the options as more precise information is obtained. This will enable the organization to develop multiple migration paths, which is a strategy to avoid risk.

The book is rich with case studies and examples but more importantly devoid of any jargons. The book aims to develop an understanding about the concepts through frameworks. Frameworks help the readers to apply these concepts to any business be it service, consumer or industry. The author cites the cases of Southwest airlines, Dell, Sony, Yamaha, Jet Blue, and Cisco, which enable the readers to relate the concepts with actual implementation. This book is not only a must read but also a book that should be owned and kept for future reference.

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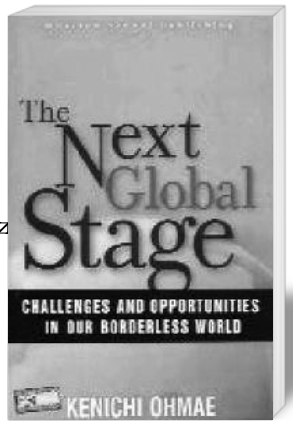

Title	:	***THE NEXT GLOBAL STAGE:*** ***Challenges and opportunities in our borderless world***
Author	:	**Kenichi Ohmae**
Edition	:	**First Indian Reprint 2005**
ISBN	:	**81 – 297 – 1132 – X**
Price	:	**Rs.499/-**
Publisher	:	**Wharton School Publishing**
Indian Reprint	:	**Pearson Education (Singapore) Pte.Ltd.**

Kenichi Ohmae, who coined the phrase globalization, has proved his expertise again on the emergence of international economy in his latest book, ***THE NEXT GLOBAL STAGE***. He has used his traditional clear writing style to simplify an extremely complex subject of how the global economy continues to metastasize into every corner of the globe, into an understandable text.

This book was first published in March 2005 and consists of three parts, each part consisting of 3-to-4 chapters. In the 3 chapters of Part I - The Stage - Ohmae looks at some of the areas of explosive growth and identifies some of the characteristics of the global economy like the 4 C's - communications, capital, corporations and consumers. The four chapters in Part II - Stage Directions - examine the major trends emerging on the global stage. And, the 3 chapters in Part III - The Script - provide analysis of how the changes and trends will impact governments, corporations and individuals.

The section on reinventing economics serves as a very useful preamble to the remainder of the book, where the author dissects both governments and business practices before going on to discuss platforms for progress inclusive of technologies and languages. The entire book is an attempt to expound on the powerful and irreversible process of economic activity moving largely unhindered to the places where it can exist most inexpensively. The thesis is that a radically new world is taking shape from the ashes of yesterday's nation-based economic world and to succeed one must act on the global stage, leveraging radically new drivers of economic power and growth.

Ohmae cautions against relying on the legacy of economic thinkers such as John Maynard Keynes and Milton Friedman. Keynes' theories might have been correct when they were presented first but Ohmae points out that conditions now are so different that thinking like Keynes will prevent one from understanding the new global economy. Capital now flows easily across borders, which has made it possible for a manufacturing opportunity to move to a place of lower labour costs. The capital to create the infrastructure will naturally be available and will flow to that region.

Regions should not cut themselves off from the flow of international capital and ideas, but instead should tap into it. The author vehemently argues for the development of the "region state," tomorrow's most potent economic institution, where the borders of political entities start to be defined by the economic activity of the region rather than political, ethnic or cultural borders. The economic zones of the People's Republic of China do not end at the political boundaries, but are defined by the presence of factories and what the people do for a living.

One of the most significant sections of the book is where Ohmae discusses how governments traditionally shore up the weakest sectors of the domestic economy. He also discusses the flow of capital into the People's Republic of China and how governments distribute wealth rather than create it. The other interesting part of the book is about China and the regions of Asia poised to be the next boom growth areas, like Vietnam. Ohmae concludes with a detailed look at strategy in an era where it's tougher to define competitors, companies, and customers than ever before.

THE NEXT GLOBAL STAGE offers a practical blueprint for businesses and governments by highlighting some of the main levers organizations can pull to tap into the global economy. For government officials, global business leaders and economists who intend to thrive in this new environment, this is one that's readable and a great desk reference as well.

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