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# Quantum leap in IT productivity in an Emerging Economy- The Sony India Case

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## ABSTRACT

This paper presents a country specific case study, with specific reference to the social and business conditions prevalent in an emerging economy, namely India. In this case we see the unique conditions like cultural and religious diversity, vastness of the geography, difference in taxation systems between the different states of India, customer perception of the particular transnational brand, local sales and distribution practices, local customer needs, which have constrained the growth of the organisation in the past. However visualising the power of an integrated flexible ERP system, and the availability of well trained ERP experts and engineering graduates at nominal salaries, SONY India put together an international IT project management team that went ahead to design and implement a system that becomes the backbone of the revitalized supply chain. A quantum growth of 40% for three consecutive years from 2004 is recounted in this paper.

## Keywords

Emerging economy, enterprise systems implementation, supply chain management, IT productivity

## INTRODUCTION

India, an emerging economy, has very great potential as a vibrant market. Hawksworth and Cookson (2006) consider the 30 emerging markets which account for 85% of the world economic output. The factors assumed to have an impact on long-term GDP growth in their models are growth in physical capital stock, growth in labor force, growth in human capital and lastly technological progress. What are the factors of growth of an individual organization in such a growing market? This has not been sufficiently explored in literature and is one of the key themes of this paper. Building supply chain excellence in emerging economies from the manufacturing perspective is discussed in Lee and Lee (2007). Swaminathan (2007) emphasizes the importance of designing for the Indian market keeping in mind the huge income diversity in the Indian population. He also notices that new product launches are complicated by the diversity in culture, language and product preferences in the different states of India. India has low organized retailing compared to US, Europe, China or even Brazil; as a result large firms have to create dispersed supply chains to sell across the country. Taxation is another factor that complicates the logic of pure supply chain management in India as there are multiple taxations at the state and central levels. Introduction of value added tax in India in 2005 made the supply chain cost optimization even more complex.

In today's economy, it is important to study the problems of coordinating the complex collaborations among networked organizations, which Hayes (2008) calls 'COMO', (the Coordination of Operations across Multiple Organizations). In this paper we illustrate how Sony India achieved COMO among its numerous dealers, Sony World exclusive stores, manufacturers in different countries, Singapore regional warehouse and Sony HQ in Japan. Inputs, processes, and outputs, for physical, information and cash flows involving distributed organizations and vast geographies are extremely important in the context of the design of supply chains in emerging economies (McCormack et. al, 2003). Sony India achieved the momentum for its phenomenal growth of 40% for 3 consecutive years from a quarter million US dollars in 2004 by envisaging an appropriate supply chain strategy for the changing vibrant market in India. This was accomplished by the successful

implementation of their enterprise systems that ensured the physical, information and cash flows are integrated, synchronized, and monitored.

**THE SONY INDIA STORY**

“Sony” is supposed to represent a very small group of young people who have the energy and passion towards unlimited creations and innovative ideas. Belying the promise of their name Sony’s operations in India was low key for several years before 2003. The perception of an expensive brand, focused on a niche market with low market share, in turn seemed to have left marketing strategists content with marginal results. After sales service operations were largely outsourced and did not match customer service expectations associated with the brand. Brand image did not benefit from being perceived merely as an “expensive brand” in line with market positioning at the time. Some of Sony’s competitors chose to import semi assembled kits and complete the manufacturing process locally gaining a price advantage. Many of these brands soon made their mark on middle income customers resulting in increased market share with related growth opportunities. Overseas travelers continued to bring in high end consumer electronic products which did not help Sony India’s sales. The consumer electronics business overall infrastructure in India was far behind that of the western world, making it prohibitive to market and support latest technology products. All these factors resulted in sales that were anything but spectacular as illustrated by the Sony sales during the 1995-2003 periods (Figure 1). It was hardly keeping pace with the growth of the Indian economy. Business confidentiality restricts open access to the company’s financial information.

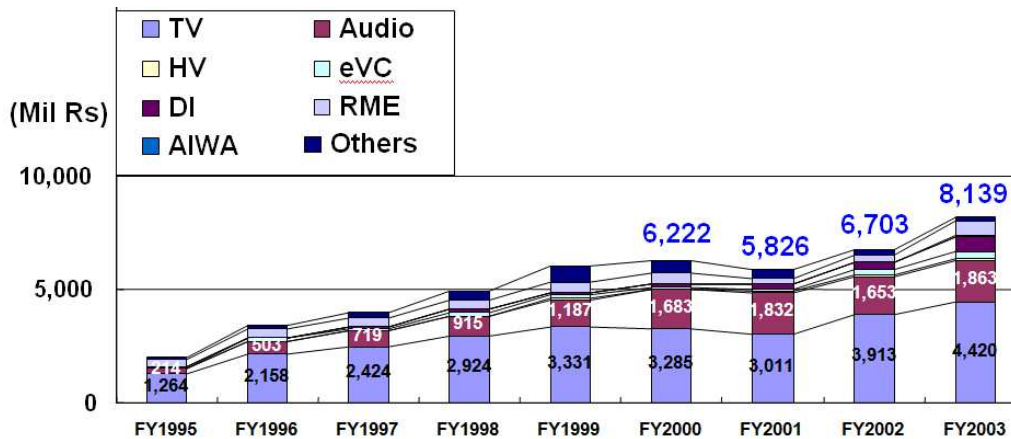


Figure 1: Sony India Sales from 1995-2003

Supply chain and distribution models were heavily skewed due to non linear demand. It was important to understand the ways in which customer wants kept changing. This meant a change in the role from representing the company to the customer to representing the customer to the company. A need to integrate people processes and technology as opposed to controlling processes, products and people. It was in this context that the Managing Director of Sony India, Mr. Keichii Sakamoto, introduced a number of measures: procedural as well as technological that accelerated Sony India’s sales, growing at the rate of 40% for 3 consecutive years till 2007 from less than a quarter million US dollars in 2004 to over 600million dollars actually achieved in 2007. Although it was unanimously agreed that radical change across the company’s operations were inevitable, it was necessary to prioritize requirements, plan and implement systems in a manner that would not disrupt current business operations, particularly related to IT.

Three important ingredients (Figure 2) that enabled this were:

1. Strategy driven business processes guided by the Hoshin methodology
2. Process driven enterprise systems (ERP, CRM, and SCM)
3. Strategy, process, and people driven implementation of the enterprise systems

Sony India used these three ingredients to integrate, collaborate, and empower customers, suppliers, and employees. In the following sections we explore how these three ingredients were skillfully interwoven together to enable Sony India to achieve 40% sales growth for 3 consecutive years from 2004 to 2007.

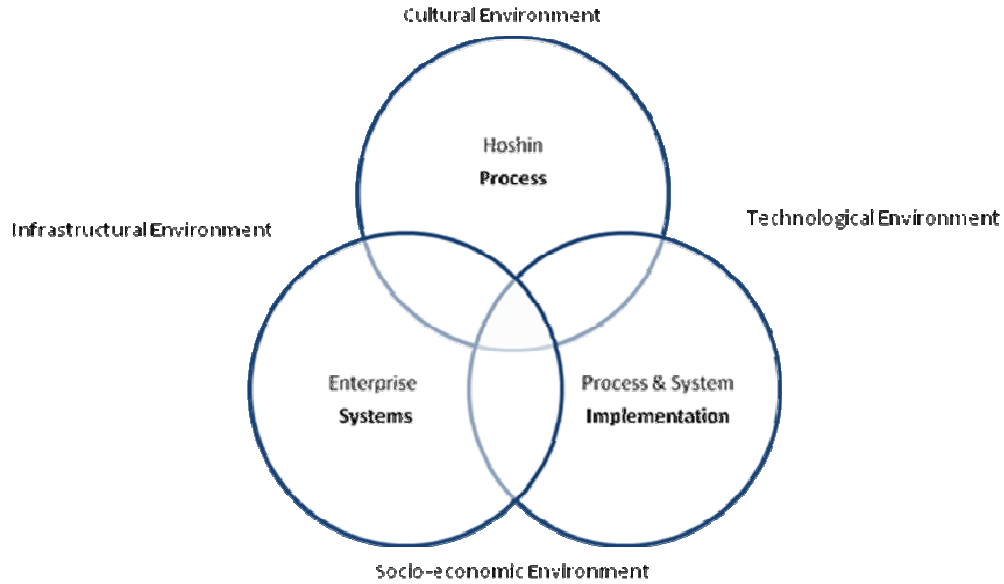


Figure 2: Key ingredients of quantum growth at Sony India

**THE VISION: FROM HALF A MILLION TOWARD A BILLION**

Mr. Keichii Sakamoto, Managing Director of Sony India, saw the promise of the Indian market. He felt the need for revolutionary change to the existing business conditions so as to withstand a multi pronged sales explosion strategy which he clearly envisioned. It was this vision that set a strategy in motion with a pace and passion that was contagious enough to quickly engulf the whole organization. He soon realized that in addition to strong leadership, decision making speed was paramount, prompting him to approve an ‘e-management approval system’ which allowed him to make informed decisions, electronically approving proposals from any location in and out of the country. Targets were set in Sony Six Sigma (page 4, Akpolat, 2004) paradigmatic style. Figure 3 shows the annual turnover plan till 2008.

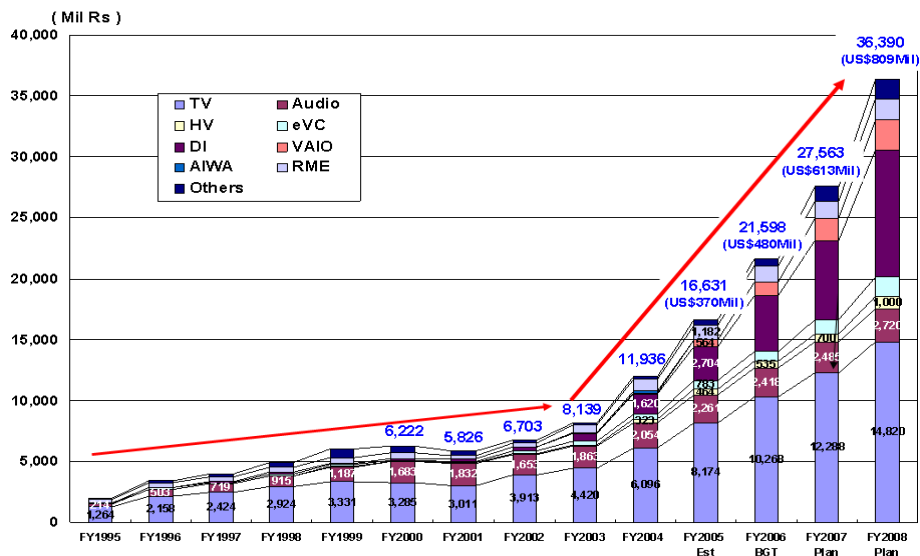


Figure 3: Sony India Sales from 1995-2008

**THE STRATEGY: CONVERGING CUSTOMER NEEDS AND CORPORATE VISION**

To ensure successful growth in India Sony envisioned striking the right balance between customer expectations and company response. The correlation between these two factors needed to be made visible at all times to everyone. Having established a

clear vision aimed at exploiting the potential Indian consumer electronics market, which seemed on the threshold of exponential growth, it was necessary to embark on a strategy capable of achieving the goals within a short timeframe. The vehicle to implement the strategy was named the *Maharaja project*.

Answers to questions about how would these latest technology products get marketed in India? What sort of show rooms and dealer shop fronts would be necessary to showcase such products? What sort of hands on facility for first time buyers would be available? How would product knowledge to be communicated to customers? What after sales support will be necessary? And numerous more related questions, led to the conclusion that incremental improvement would not suffice. The decision was made to go down the path of business process reengineering (BPR). But the question arose regarding which projects to focus on. The traditional approach of divide and conquer and Pareto analysis were not used. Rather the approach that was used is well captured by the metaphors implied by the words 'shotgun' and 'bootstrap'. That is, Sony India simultaneously embarked upon a number of projects that together were mutually supportive of each other resulting in quantum synergies. Needless to say the management was practicing principles that reflected lean and six sigma paradigms.

## **BUSINESS PROCESSES TO REALIZE THE STRATEGY**

Sony India is part of Sony Corporation's Global operations with Head Quarters in Tokyo, regional HQ in Singapore and finished goods manufacturing centre for the Indian market located in Japan, Singapore, Malaysia, Thailand, China, Indonesia and other countries depending on the product type. Spare parts got supplied and invoiced from one of the four world repair part centers via Singapore, with the capability of viewing global inventories. Dealers selling finished goods and Authorized Service Centers repairing product needed to view inventories via Sony India's web site in local currency. Overseas offices would invoice Sony India who in turn would invoice local dealers.

Obtaining accurate dealer sell through data was not possible without a robust integrated system. Goods once sold to end customers needed to be followed up with Sony's product demonstration activity making it necessary to know customer details related to the product they purchased. The Customer Care Centre activities needed to be integrated with the larger system so that all information from the first contact with the customer over the telephone, through to order placing, delivery, product-demonstration and after sales support got recorded in one central system visible to users from any location.

## **SOCIO-ECONOMIC, CULTURAL, INFRASTRUCTURAL, AND TECHNOLOGICAL ISSUES**

Global companies soon realized they are faced with culture challenges in different countries on all fronts of business and people relations, especially customers and staff. Considerable differences in customer and dealer behavior in the Indian context required Sony India to explicitly address cultural issues. Indian customers paid much attention to value for money. This is noticeable from the common questions asked of floor sales staff. While brand loyalty continues to exist to a limited extent, customers always prefer to view and compare brands and models. Floor sales people can largely influence customer choices, especially with negative comments often due to lack of training and product knowledge. They prefer to recommend products they are familiar with and have had good feedback about. This approach is very different from the western style, where customers are provided with information necessary for making informed choices. Sony staff had to be trained rigorously to attain a level of professionalism commensurate with the brand image.

Customer behavior and expectation gave rise to another interesting contrast – in Japan; customers keep upgrading and replacing their electronic equipment often. They could then manufacture product with a shorter lifespan in mind extending to spare parts support which impacts the overall product price. Newer products with more features sell for much less than their predecessor models, causing much anguish to the Indian customer who always sees every purchase as a long term investment. Repair and technical support play a very important role in the Indian operations. This can be seen as an opportunity for CRM. The special buying seasons, many festivals, holiday time and marriage season introduced special challenges. They became a key part of the sales planning and supply chain activity due to the resultant lumpy demand pattern. The shift from multi brand dealership to exclusive Sony stores provided another challenge with dealers accustomed to using the situation to their advantage during terms of trade negotiations. The well known handshake and gentleman's word during business negotiations was challenged and the shift to more formal documented methods to suit the local business culture became necessary. Overall communication problems needed to be addressed between dealers and Sony. Language issues further compounded this problem which prevailed both within and outside the organization.

Sony was also faced with infrastructural and technological problems. Obtaining accurate dealer sell through data was a major obstacle in accurate forecasting. Factories overseas would not cater for quantities beyond forecasted orders. This would cause serious inventory problems in the form of shortages resulting in missed sales opportunities and surplus inventory causing pricing problems. The crux of the matter is in communicating the inventory information of the retailer to the manufacturer and not vice versa. As posited by Croson and Donohue (2002) "the biggest bang for the buck may lie in tracking and sharing

downstream inventory information” and this is what Sony India set out to achieve. Sony India saw the need for relationship marketing to go beyond customers and encompass suppliers, employees, governments and even competitors.

**STRATEGY AND PROCESS DRIVEN ENTERPRISE SYSTEMS**

Enterprise Systems (ES) per se was by no means perceived as the core part of the strategy expected to deal with the challenges of an expanding new global market, rather it was used as a strategic tool in the wider plan of integrating the total business and it’s elements both within and external to its operations.

**The Drivers: Integration, Collaboration, and Empowerment**

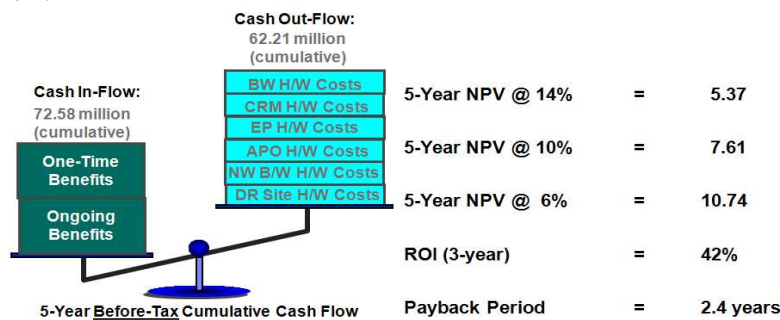
Three overarching reasons for the introduction of enterprise systems were their ability to support integration, collaboration, and empowerment. These three reasons are closely linked with Heinrich and Betts (2003) prescriptions for an adaptive business network such as a supply chain, namely: visibility, community, collaboration, and adaptability. It is these capabilities that enable an organization to quickly sense and respond.

The importance of having in place a suitable ES however, was paramount to providing an application capable of integrating total company operations in an environment with fast and seamless access to uniform information. This needed to include operations related to business partners, overseas manufacturers, financial departments, auditors and the like. A closely related second key reason was the ability to extend reach and range to enable collaboration with all stakeholders (Broadbent, Weill and St. Clair, 1998). Empowering decision makers to take informed decisions through mechanisms that enable them to sense and respond is another reason. Sensing the changes in the environment, both internal and external, and responding at strategic, tactical, operational, and technological levels that will enable Sony India to adapt, survive, and grow in quantum bounds.

**Expected Benefits**

An important factor influencing individual Sony sales companies’ performance is a measure of their ‘Stock Freshness Trend’, which is an overall indicator of how the supply chain process is functioning. Under and over supply directly impact the P&L. Thus stock freshness was one of the key benefits that Sony expected to derive through the upgrade and implementation of enterprise systems.

Other benefits that Sony hoped to achieve through the introduction of Enterprise Systems included the following: 1) Using the SAP enterprise system would provide the opportunity to adopt industry standards and proven processes with tight integration between various operations starting with Purchasing and going on to Selling and Accounting. 2) From a human resource aspect, improved system automation was expected to allow staff to be allocated to higher task levels resulting in increased capability and motivation. 3) Customer service teams were predicted to deliver improved levels of service with the availability of centralized information systems that were not only more informative but closer to real time. Centralized customer care would allow for multi-lingual support at reduced operation and training costs, including savings on duplicated infrastructure. 4) Fast and accurate capture of the Voice of the Customer and being able to communicate it to overseas factories and regional marketing offices would improve the response to customer requests. 5) Dealers and business partners were expected to gain from more accurate and timely supply chain information. 6) Faster and comprehensive billing and sales scheme modules for dealers were predicted to increase accuracy and speed of operation, making dealings with Sony more attractive especially to multi brand dealers. In concrete terms the enterprise systems were expected to pay-back in 2.4 years as illustrated in Figure 4.



**Figure 4: Summary of Discounted Cost Benefit Analysis**

**ENTERPRISE SYSTEMS: SAP ENTERPRISE, CRM, APO, BW, EP & TALISMA**

To deliver the aforementioned benefits Sony India implemented enterprise systems to support the operational, tactical, and strategic levels of management. This included the core SAP enterprise system package SAP 4.7, SAP Customer Relationship Management (CRM), SAP Advanced Planning and Optimization (APO), SAP’s Business Information Warehouse (BW) to provide decision support and analytical information, and SAP’s Enterprise Portal (EP) to enable flexible reach and range. Oracle was selected as the database management system. The SAP 4.7 Enterprise System was initially to be used in conjunction with the existing CRM package ‘TALISMA’. The decision not to simultaneously introduce SAP CRM was due to the many simultaneous development changes happening in SAP CRM which was not widely used by any of the Sony sales companies at the time. The system landscape that was implemented as part of the Maharaja project is illustrated in Figure 5.

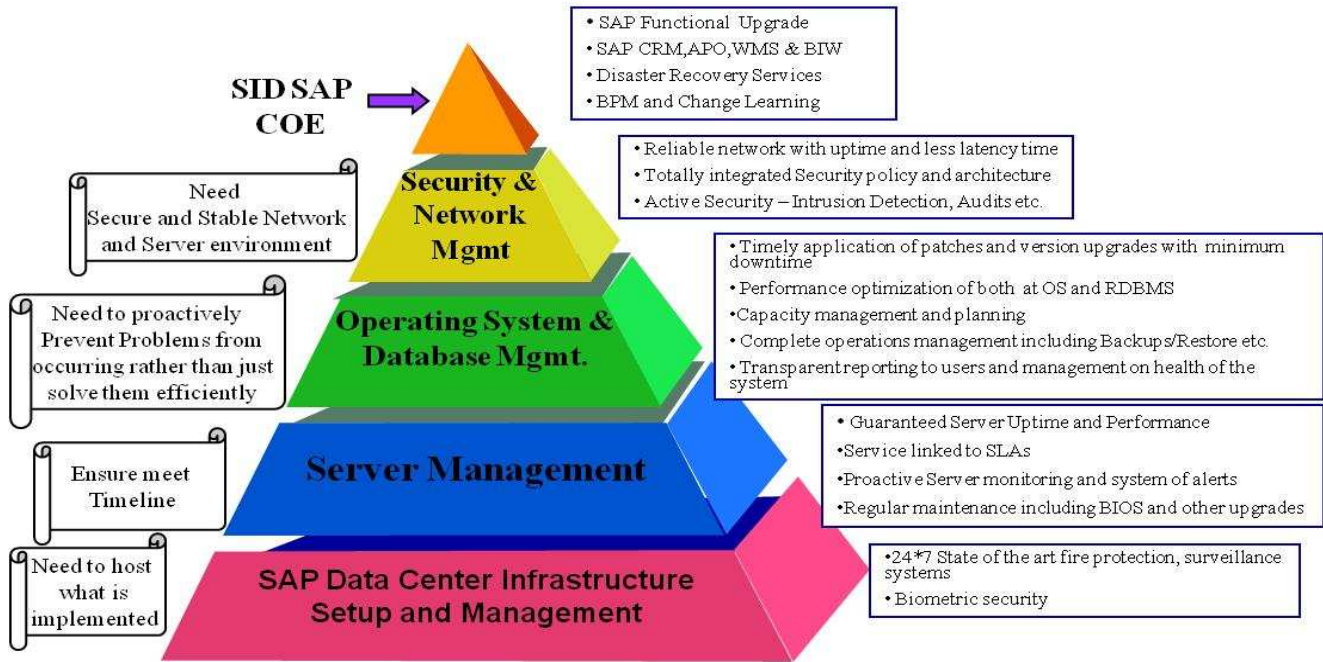


Figure 5: Enterprise System Landscape

**Enterprise System Implementation**

Every one of the critical factors for successful implementation of Enterprise Systems identified by Nah, et.al (2001) has been addressed by Sony India through effective Hoshin processes. Factors that Sony India focused on included: business plan and vision, top management support, effective communication, change management program and culture with shared values and common aims, business process reengineering (BPR) with minimum customization and effective project management. Some of these factors and how Sony India addressed them are discussed in the following subsections.

**Project Lifecycle and Phases**

A comprehensive business process reengineering (BPR) exercise led to the choice and implementation of a successful enterprise system. Considering the timeframe and expected growth, BPR was decided upon to precede the implementation. Change was necessary for traditional vertical integration to give rise to a more flexible networked form of coordination, shaping intra-organizational and inter-organizational relationships among independent business units. There was a need for efficient coordination and control of these cross functional business processes by using integrated information systems which could deliver exact and timely information at every point for every user. There was a need to address multiple application integration problems, constraints of one standard software, customization and cost implications, financial drivers and ROI. The overarching enterprise system implementation process was a phased one, splitting up the whole Maharaja Project into many sub projects. The key phases of the project during the period 2005-2006 are illustrated in Figure 6. Careful planning, resource allocation and cost estimations ensured that the project came in On Time and Within Budget. At 5am on the scheduled Go-Live date, the system was ready to be used, allowing users who came in to the office from 8am, to login and use a system that looked almost familiar to them because of the pre-trials and parallel operations run in a simulation mode for

several days before the Go-Live date. Much care and attention was paid to ensure that the whole transition of this otherwise ‘Fast Track Project’ was smooth and gradual, avoiding sudden and surprising changes for users (Markus and Tanis., 2000). The main constituents of communication, content and context have been discussed and defined in several dimensions. The ‘Maharaja Project’ formed the home page of the communication system to all employees.

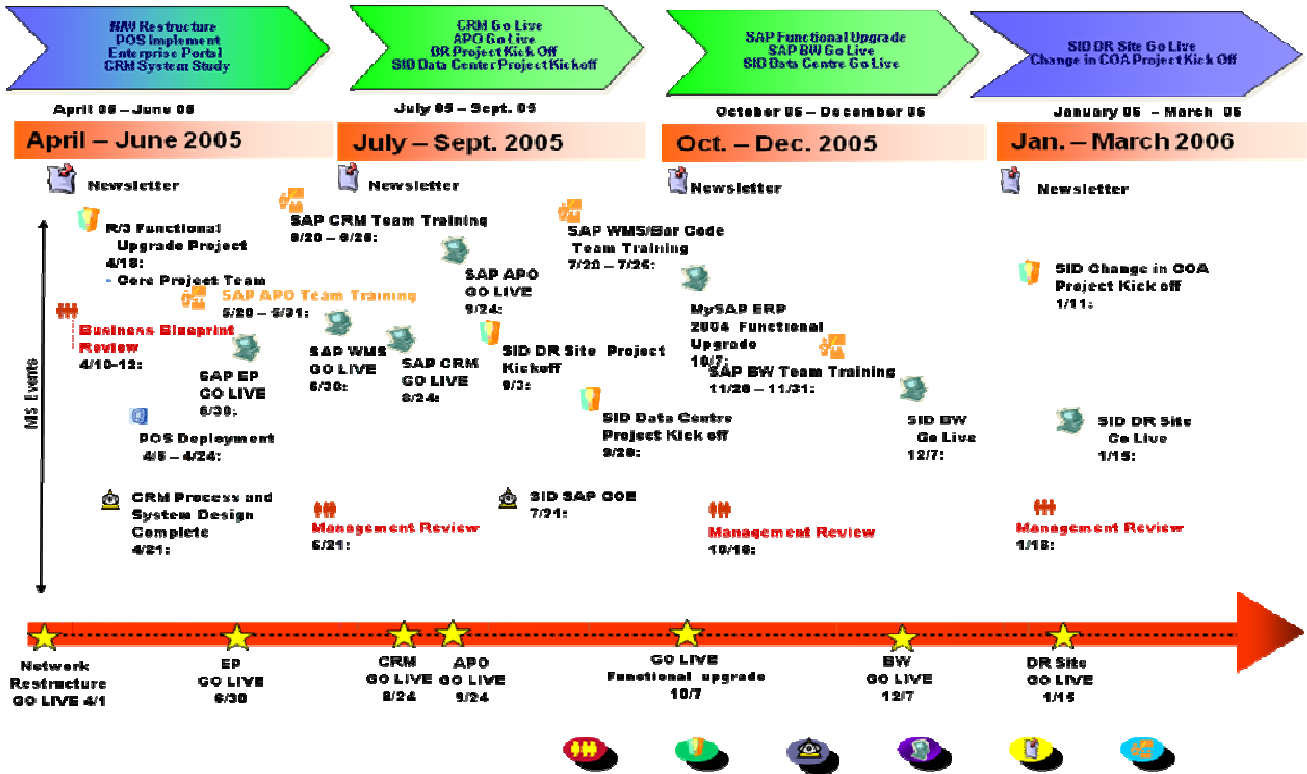


Figure 6: Enterprise System Implementation Phases in 2005-2006

Remote locations were connected using Radio Frequency (RF) networks to the nearest sub offices and connection points. Local and international bandwidth was more than doubled at considerable cost. Context on the other hand was a carefully tested approach involving representatives of every department and branch to ensure that what was being communicated was understood the way it was meant to be. In this journey, the human resource department prepared the ground for the culture shock that their staff were to face, considering the fact that regardless of the technology, strategy and infrastructure, the strength of an organization is still its people. Of significance, was the management’s awareness and caution not to get caught up in the difference between knowledge and information which has taken its toll on many a reputed global organization where millions were invested in information technology with very marginal results.

**REALIZING THE BENEFITS**

The stock freshness status illustrated in Figure 7, indicated a considerable reduction of slow moving inventory (over 8 weeks) and was very significant in certain categories which in addition to financial savings, contributed to warehouse storage space reduction by belonging to the large television category. Real time information due to IT systems enhancements contributed significantly toward this achievement which was previously constrained by delayed reporting, resulting in reactive actions. Timely management of non-saleable or slow moving inventory enabled better cash flow for optimized supply chain. Non saleable stock, due to models being superseded with better features at lower prices, reduced from 1.5% to 0.38% (Figure 8). ‘B-Type’ represents refurbished goods and ‘Demo’ refers to show room display items.



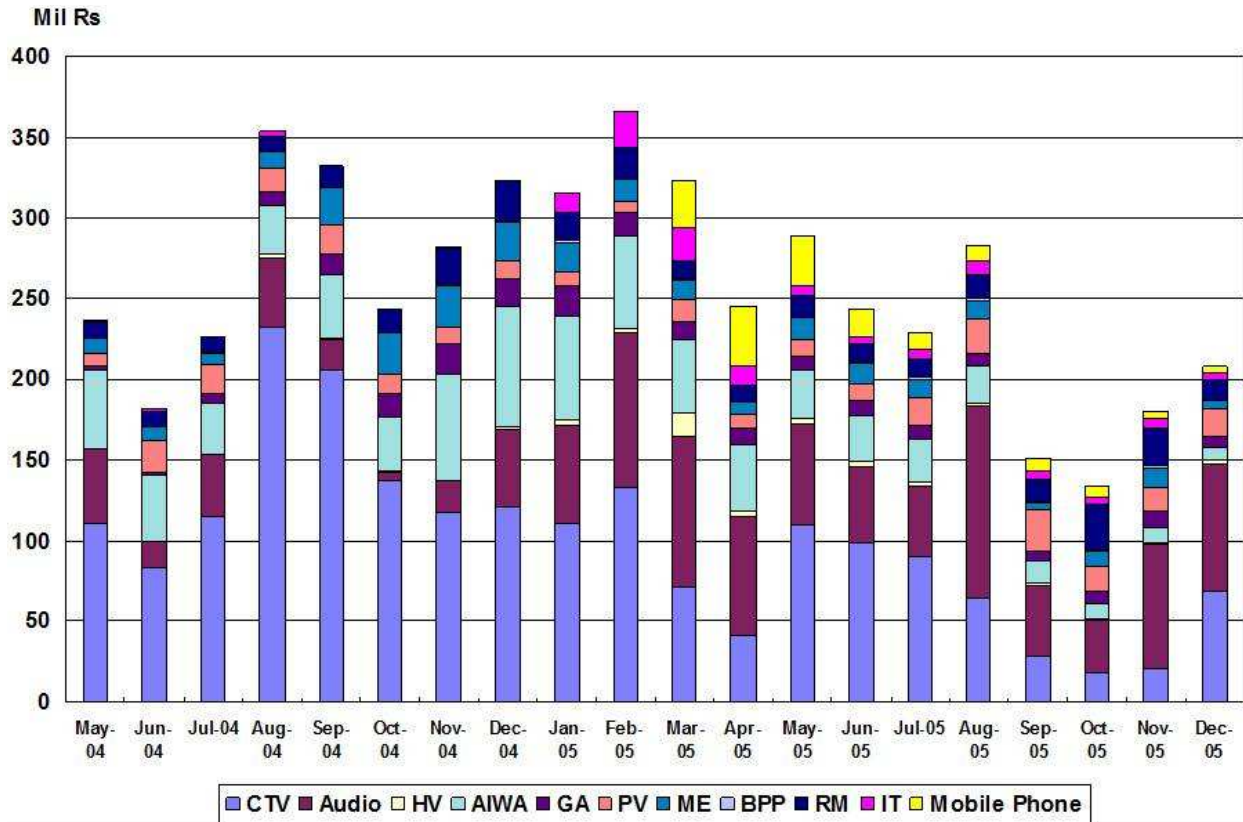


Figure 7: Stock Freshness Trend (over 8 weeks)

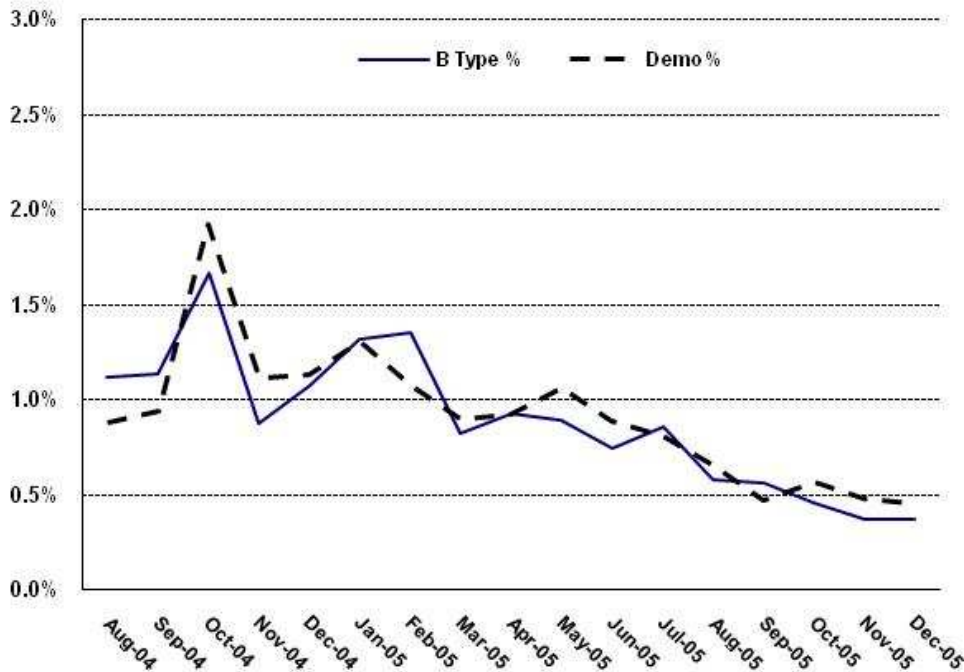


Figure 8: Percentage of non-saleable Stock

The new customer care centre allowed for multi lingual support in 10 languages at reduced operation and training costs, including savings on eliminating regional support centers. This was possible with centralized information becoming accessible to customer care centre staff in Figure 9.

The Voice of Customer (VOC) system highlighted the need for India specific models that catered to customers who preferred television sets with powerful speakers and amplifiers built in, to enhance the Hindi movie experience through added sound quality. The models soon became top sellers in the market. The Enterprise Portal provided the opportunity not only to analyze the past but to monitor the present and make better timely informed decisions.

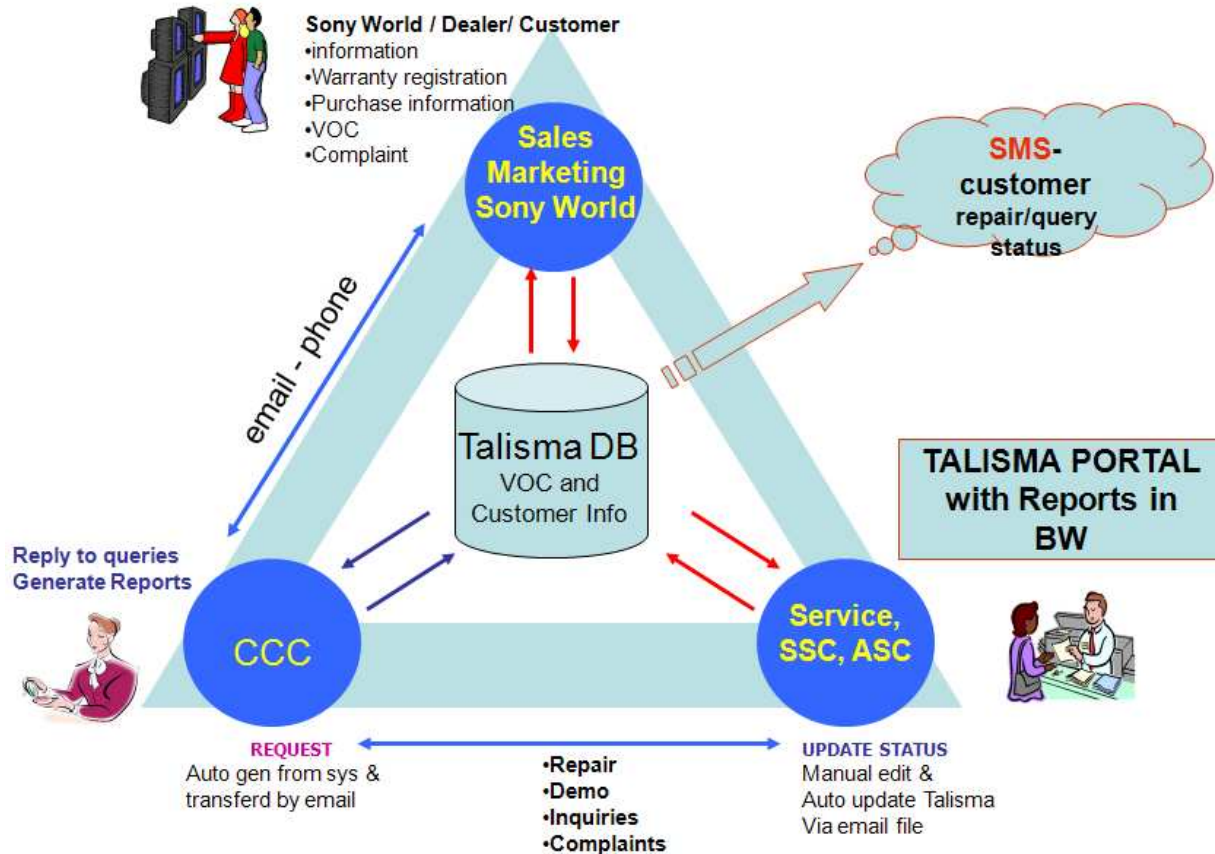


Figure 9: Capturing and Sharing Customer Information

Person hour saving, process automation, accurate accounting and financial statements were considerable benefits gained within Sony’s operations. Adoption of internationally proven processes was beneficial during external and overseas audits. Sales Scheme automation, where provisions made on the sales schemes became more accurate due to on-line booking rather than booking on Sales estimation. As a result Management could take faster decisions related to projection of particular products or categories in the market. Early settlement of dealer schemes gained the organization much good will and appreciation. This provided a competitive advantage especially among multi-brand dealers.

The implementation of Business Warehouse (BW) resulted in three substantial benefits: 1) one day old data could be accessed by any user, including those with overseas access without impacting on system response time especially when large reports with historic data are simultaneously required by several users 2) individual users enjoyed the benefit of the ‘slice and dice’ functionality of BW with provision for refreshing data into predetermined report formats and 3) Information System department staff were freed from otherwise having to help individuals extract tailor made reports from SAP directly. Improvement in financial reporting time from 5 days to day 1 every month, helped consolidate regional data faster.

From a human resource aspect, attrition dropped from 17.5 to 4.8. Improved system automation allowed for employees earlier engaged in routine tasks to move to more creative and challenging job functions. Improvements in comprehensive customer survey results (Figure 10) became evident at a very early stage in the improvement project. The highest increase in customer commitment share was considered the prize benefit in a market where lower product prices have traditionally dominated market share with less regard for brand loyalty. The reduction in customer vulnerability scores endorses the commitment scores along with the satisfaction index (eQ). This is a AC Neilson managed annual regional survey.

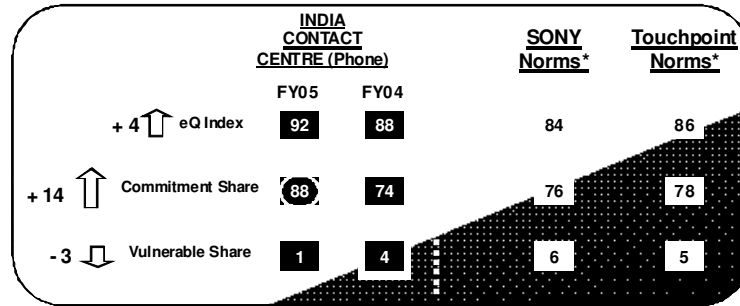


Figure 10: Customer Surveys 2004-2005 compared with Sony Norms

**FACTORS THAT INFLUENCED SUCCESS**

The decision to go for Business Process Re-engineering (BPR) along with the implementation of enterprise system to adopt standard processes reaped more benefits in a timely manner. By instituting change management processes in the beginning of the project, Sony India was able to actually reap the perceived benefits after successful implementation of the ES. To allow the existing operations to continue uninterrupted, it was decided to build a total new operation around each individual segment, allowing its influence to soon engulf and absorb it into itself, avoiding barriers of change that would otherwise have resulted, especially from the human resource aspect. A development server, quality server and production server with the inclusion of a staging server provided the infrastructure necessary to support this transition. Much care and attention was paid to ensure that the whole transition of this otherwise ‘Fast Track Project’ was smooth and gradual. Keeping the ‘quality’ server active from a very early stage gave users the opportunity to experience the new environment with real data and feedback valuable user comments. Highly visible operations and results reduced uncertainty and reflected positively on the rate of adoption of new technology (Scott and Vessey, 2002).

**CONCLUSION**

Sony India strategically applied enterprise systems to achieve supply chain integration enabling inter-organizational collaboration not only between its regional office at Singapore and head office at Tokyo but also its vast dealer network. It successfully achieved quantum growth of 40% per year by aligning processes with the upgrade to SAP 4.7 Enterprise, concentrating on people, integration, supply chain and making decisions based on enterprise-systems data. This supports the observation, made by Davenport, Harris and Cantrell (2004). Sony India made revolutionary changes to its infrastructure which earlier comprised of several fragmented independent applications, including Excel spreadsheets that were not totally integrated posing problems related to inter-organizational coordination and collaboration. Within a short span of time Sony India was transformed into an ultra modern business enterprise, where the vision of the Managing Director and Global leaders, catapulted this seemingly conservative and almost reactive business region for Sony, to a world class business enterprise. This was accomplished using SAP 4.7 Enterprise, BW (Business Warehouse), RF scanners in the warehouse, and showcased by Sony World and Sony Exclusive retail outlets housed in large prime locations with modern decoration and signage, and serviced by a network of Sony Service Centers across the country. Lee et al. (2007) establish that high correlations exist between supply chain performance and degree of linkage among supplier, internal integration and customer. Sony India has ensured such linkages existed both internally and externally and operated effectively. In addition we see how Sony India’s business performance is linked to its supply chain performance. Coleman (2006) identifies five innovative strategies to grow profitably in emerging markets. Of the five three were extremely relevant for Sony India namely: 1) tailoring product offering for the emerging market 2) capturing and sharing customer information and 3) adopting and adapting strategies that allow integration, collaboration, and empowerment. The essentiality of enterprise systems in achieving COMO (Hayes 2008) is demonstrated beyond doubt. This reiterates the need for dialogue between the Enterprise Systems and Operations and Supply Chain communities (Dickersbach, 2006). Ayers (2002) lists 1) designing supply chain for strategic management 2) implementing collaborative relationships within the organization 3) forging supply chain partnerships with other organizations 4) managing supply chain information and 5) making money from the supply chain as the five management tasks that are changing organizations to compete as parts of supply chains rather than standalone entities. In conclusion, Sony India successfully achieved inter-organizational coordination and collaboration by performing all the above five tasks well.

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