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DEMING MODEL AND THE PURSUIT OF EXCELLENCE

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ABSTRACT

Self-assessment and business excellence models provide a framework for excellence to the companies. Of all the international excellence awards, Deming Prize is the most coveted one, and organizations adopt this award model to get their priorities right on the business front. The paper presents the case, taken up as a research study, of an auto-component manufacturing Indo-Japanese venture, in the backdrop of Deming model.

Keywords: Deming Prize, quality, competitive advantage, total quality management, business excellence.

Introduction

The objective of participation in a self-assessment scheme is to strengthen the positives and work on the weak areas. Participation in the scheme helps companies evaluate their business processes and performance vis-à-vis other participants. Japan was the first country in the world to introduce an award scheme called Deming Prize in 1951, for recognizing excellence. Then there are two other well-recognized award schemes, apart from National ones in many countries, namely Malcolm Baldrige (US) and EFQM (UK). These award schemes are based on quality concepts propounded by quality gurus and basically follow the framework of enablers and results or inputs, processes and outcomes or causes and effects. It is being increasingly felt that these models need to change and address emerging issues, for sustainability of competitive advantage in the e-age.

Quality Concepts and Practices

The Flowering of Quality

Although the concept of quality is as old as the production of goods, quality control in industrial production began with the application of statistical techniques, mainly the control chart technique, invented by Dr. Walter A. Shewhart, at Western Electric Company, U.S., in 1924. Fisher devised ways to reorganize experiments in the field of agriculture. Radford (1921) extended Fisher's work to the world of industry and published his ideas in his book entitled "The Control of Quality in Manufacturing". Shewhart expanded the work of both and developed the control chart. He was the first to see that manufacturing process was a continuous cycle rather than a straight line as thought earlier, and identified four steps: Plan-Do- Check-Act, a never ending

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quality cycle. Deming called it the Shewhart cycle and the Japanese referred to it as Deming cycle. Deming later refined it and presented it as Plan-Do-Study-Act (Schultz, L.E.1994). Both Deming and Juran worked extensively with Japanese industry.

Juran (1974) defined quality as 'fitness for use' and also 'customer satisfaction'. Crosby (1979) defined it as 'conformance to requirements' and emphasized on problem prevention by creating the attitudes and controls. Crosby coined the phrase 'Do it right first time' and 'Quality is free' and propagated the concept of 'zero defect', arguing that efforts to achieve quality would pay back more than the cost involved in terms of savings in waste, rework, inspection and returns. Feigenbaum (1957) introduced the concept of Total Quality Control (TQC) and placed emphasis on extending the quality tools and philosophies to every corner of the organization (1961). He emphasized on prevention rather than detection, and system documentation and audit. Ishikawa worked closely with Deming and Juran, invented many new quality control tools, the most famous being fish bone diagram or cause and effect diagram, advocated setting up of quality control circles and gave shape to the concept of Japanese 'Total Quality Control' also called 'Company Wide Control', a pre-cursor to the concept of TQM. Ishikawa (1985) discussed these concepts in his book "What is Total Quality Control? The Japanese Way".

Total Quality Management (TQM)

PDCA is the foundation of Japanese TQC and the TQM as practised since 1990s. Dahlgaard et al. (1988a) defined TQM as a company culture characterized by increased customer satisfaction through continuous improvements, in which all employees actively participate. According to Oakland (1989), TQM is an approach for improving the competitiveness, effectiveness and flexibility of an organization. Essentially it is a way of planning, organizing and understanding activities and individuals at each level. Juran introduced the concept of quality trilogy- quality planning, quality control and quality improvement (Juran and Gryna, 1995). Kano (1996) defined TQM as the systematic, scientific, companywide activity that places importance on customers. According to him, TQM did not appear overnight; it evolved over time by adding new activities reflecting the unique needs and background of each period. According to Ross and Perry (1999), TQM is the set of management processes that create delighted customers through empowered employees, leading to higher revenue and lower cost.

Excellence Models

Japan was the first country in the world to introduce an award scheme for recognizing excellence. It instituted Deming prize in 1951 at the suggestion of JUSE to honour Deming and promote QC in Japan. It allowed participation of overseas companies also in 1984. In India, Sundaram Clayton achieved the distinction of being the first winner of this coveted prize. Sona Koyo Steering Systems won it in 2003.

The Malcolm Baldrige award was created by public law 100-107, in 1987, in US to help improve quality and productivity. The Baldrige 2007 criteria for performance excellence are leadership, strategic planning, customer and market focus, measurement analysis and knowledge management, workforce focus, process management and results.

EFQM (1996) defines self-assessment as a comprehensive, systematic and regular review of an organization's activities and results referenced against a model of business excellence.

In India, we have Golden Peacock National Quality award model, Rajiv Gandhi National Quality award, Tata Business Excellence model and CII-Exim Business Excellence model. BHEL, Haridwar, the pioneer in launching the quality circle movement in India in 1982, is the winner of CII-EXIM Business Excellence award 2006.Wali (2000) has developed a statistically

validated model for critical success factors.

The Case (Sona Koyo Steering Systems Ltd.)

In the background of the extensive literature survey and gaps observed in research, it was decided to take up a study of quality strategy of an international business excellence award winning company. The challenges of the present age and the opinions, discussed in section 3.5, provided the motivation for the study.

Key Objectives of the Study

The research study was taken up with the purpose to:

- Study the business and quality strategy of the select organization
- Evaluate outcome of quality efforts and initiatives, cascading through various processes and functions
- Identify challenges in implementation of the quality strategy in the select organization
- Suggest recommendations for sustaining organizational excellence in the e-age

The Case Organization

The study is restricted to Sona Koyo Steering Systems Ltd. (SKSSL), a Gurgaon based technical and financial joint venture between Sona group and JTEKT (earlier called Koyo Seiko Company), Japan. Maruti has a 7.4% stake in the company and is also its largest customer. Sona Koyo is the leading supplier of hydraulic power steering systems, manual rack and pinion steering systems and collapsible, tilt and rigid steering columns for passenger vans and MUVs.

Automotive sector has traditionally led the quality movement worldwide and given birth to new concepts and techniques. Sona Koyo is in the business of auto-components. It is a TPM and Kaizen company and the first steering company in the world to receive the Deming Application Prize. It has been implementing TQM since 1998 and was identified as global growth company by World Economic Forum in 1997. Knowledge of these facts apart, proximity to the research institute (IIT-Delhi), were the main reasons for it being selected as the case organization for research.

Methodology

For the purpose of research, primary data has been collected by visiting the organization, attending company presentation, conducting semi-structured interview, holding discussions with senior and middle management and taking a guided tour of the facilities. The interaction was done at the highest level for getting information about systems and strategies and managerial level for developing insight into operations. The company presentation was made by Vice-President (Strategy and Business Development) in power point form. This apart, secondary data from company web site, annual reports and interviews/articles of top management have provided insight into the thought processes and the strategic direction of the company. The findings of the study are presented in the following sections.

Analysis and Key Findings

Business Environment

India is currently on a high growth curve. Burgeoning middle class and attractive finance schemes are translating into higher growth in car sales, particularly in A and B segment. Impressive growth is being seen in the commercial segment as well. According to Sona Koyo, following factors are leading to growth of vehicle industry, which in turn is leading to higher growth of the

steering systems business:

- High GDP growth
- Rising disposable incomes
- Attractive finance schemes
- Increased economic activity

The domestic car industry has shown an average growth rate of 18% during the last five years. The growth is particularly impressive since 2003 due to faster pace of economic growth and consequently higher disposable incomes.

In India, most vehicles are fitted with mechanical type of steering gears. The steering systems technology is evolving progressively. The usage of power steering in upper C, D and E segment in passenger vehicles is almost 100%, whereas it is 70% in B segment, which is growing at faster pace. This is an opportunity for SKSSL for further penetration into the B segment with power steering. In utility vehicle (UV) segment, power steering usage is 90%. India has an edge in the international market in forging and casting products due to the presence of global OEMs using Indian components in India.

Competitor Analysis

SKSSL is the leader in steering systems business in India. Its domestic sales are over 45% by volume. According to the management, Rane Madras located in Chennai is the company's major competitor. Rane has a higher share in terms of value as proportion of power steering to total sales are higher for Rane. Other competitor of SKSSL is Delphi, located in Gurgaon.

Company Vision

Sona Koyo has global aspirations and a global focus. It wants to be a flag bearer of India on the global scene in steering business. To realize its dreams, the company has defined its vision 2010. Following professor Shiba's advice of setting a noble goal for achieving excellence, it has defined its mission and shown it at the top in the hierarchy of mission, vision and beliefs, as shown in Fig.1, and has set ambitious targets for growth and competitiveness.

Mission	**:** Create a company that India is proud of.
Vision	**:** To make Sona a partner of choice to global customers:
	-An organization of energized and involved employees
	-Growing & achieving high profitability
	-Supplying to major global OEMs directly or indirectly
	-At least 45% of the sales are to overseas customers
	-Continue to be No.1 steering systems company in India
Beliefs	**:** The company has the following beliefs:
	-Respect for the individual
	-service to the customer
	-Excellence in the pursuit of goals

Figure 1: Vision 2010 (Source: SKSSL)

Posture

The business goals of the company, as stated in Vision 2010 statement, annual reports and the discussion with company management reveal that Sona Koyo has adopted the growth posture.

The growth is to be achieved by

- Increasing exports
- Maintaining leadership in domestic market
- Establishing alliances and partnerships
- Producing value added products and
- Diversifying the product portfolio

Business strategy

The analysis of data shows that to realize its vision, Sona Koyo has worked towards formulating its business strategy, structure, systems and processes. Focus is on effective utilization of human capital and technology and excellence in processes through implementation of TQM to achieve the goals. Work culture is an important issue for the organization and hence it considers respect for the individual, service to the customer and excellence in the pursuit of goals to be the foundation of the strategic pyramid of mission, vision and values and beliefs.

To realize its growth goals, Sona Koyo has decided to focus on:

- Technology
- Scale
- Geographical spread and
- People

It has established new management model in the framework of Deming award. The strategy, as evident from the new model, discussions with the management and company annual reports encompasses

- Scaling up - Volume, capacity, manpower
- Building capabilities-Technology, R&D, testing
- Establishing alliances and partnerships
- Diversifying product portfolio by producing value added products
- Expanding customer base
- Tapping the export opportunities
- Excelling through TQM

The company has given strategic importance to managing quality and technology, and taken a number of initiatives in this regard. To reduce the risk of excessive dependence on Maruti, SKSSL is pursuing derisking strategy. Discussion on quality strategy requires an understanding of focus areas and product/market strategy of the company.

Marketing strategy

SKSSL's products fall into two categories-steering systems and driveline products. It serves both domestic and international markets. Since 2003, the company has been focusing on overseas market, while maintaining its position in domestic market. The objectives and broad contours of

the strategy, as revealed from data analysis, are shown in Table 1.

Table 1: Marketing Strategy of SKSSL

Market	Objective	Strategy
Domestic	Maintain dominant position in domestic market, increase customer base.	⇒ Focus on passenger cars and utility vehicles ⇒ Entry into commercial vehicles business for steering columns, power steering gears ⇒ Enhance sales by targeting other customers like Hyundai, M&M etc. ⇒ Increase sales of higher margin products such as hydraulic (normal) power steering and new product segments like electric power steering (EPS)
International	Increase export revenue to the level of 45% of total sales by 2010	⇒ Leverage lower-cost high-quality manufacturing capabilities to become an integral part of JTEKT's global supply chain as Tier II supplier ⇒ Focus on supplying larger volumes of the lower-end steering systems to JTEKT for its international clients ⇒ Supply niche players in the non-passenger car segments such as off-highway vehicles (designing, developing and providing complete steering solutions as Tier I supplier)

Quality strategy

Sona Koyo's quality strategy seems to be clearly linked to its business and product/market strategy. The company's focus is on cost and quality and so it has adopted the process of flow manufacturing, earlier cellular production, and paid attention to continual improvement. The slogan of the company, displayed on the front side, visible from the main road, and written inside the plant also, is- Excellence through TQM- indicating that the company's objective is 'Excellence' and the approach is 'Total quality management'.

The company has adopted Total Quality Strategy and used this strategy for transforming the organization. It is worth noting that implementing TQM since 1998, SKSSL became the first steerings company in the world and second Indian company, after Sundaram Clayton, to achieve the distinction of winning the coveted Deming Application Prize in 2003; Rane Madras won it in 2005. The objectives and various elements of quality strategy are given in Table 2.

Table 2: Quality Strategy and its Implementation

Function	Strategy	Implementation
Quality	Total quality management	⇒ Establishing Vision 2010 ⇒ Setting a higher ideal for realizing the vision ⇒ Generating passion for excellence ⇒ TQM approach to excellence ⇒ Adopting new management model ⇒ Implementing TPM and Kaizen

Sona Koyo is transforming for globalization. The process of transformation was initiated in 2003 and for this the company has aligned its management system with Deming excellence model. The company has QS 9000/ISO9001, TS16949 and ISO14001 systems in place.

The company started implementing TQM in 1998.Since then, it has gradually moved forward. It has implemented TQM programme in the form of holistic management in three phases : retainment, improvement and breakthrough. According to the management, now the company is in the breakthrough phase. The company has 100 Kaizen teams with each team having 4 members. One of their teams has represented the company at JTEKT conference. The holistic approach of SKSSL is represented in Fig.2.

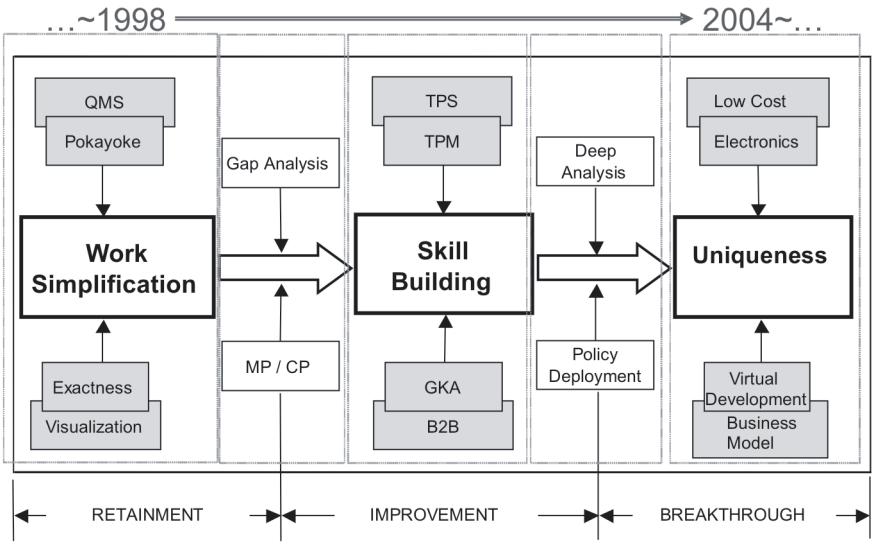

Figure 2: TOQ Activities - Holistic Manahement (Source: SKSSL)

Some of the other improvement initiatives taken by the company are: 5 S, B2B, concept of doctors on the shop floor, high volume production trial (HVPT) and quality gate 20 for new products.

According to the company, it implements TPM with the aim of attaining operational excellence, with continuous improvement. The company has strong focus on quality, cost, delivery and safety and the aim of the efforts is to achieve:

- Zero defects
- Zero waste
- Zero breakdown
- Zero accident.

In 2004,Sona Koyo joined Professor Shiba's learning community and has since then been engaging in listening to the voice of customer, developing new concepts, identifying hidden problems and applying breakthrough techniques for bringing disruptive technologies and breakthrough products into the market. It is also working on various energy saving initiatives and is targeting to become a zero waste company by 2010.

Outcomes and Discussion

Production Trends

The company is on the growth path. Barring case differential assembly, there is nearly 100% or above growth in the production of all steering and driveline products since 2003-04, as shown in Table 3.

Table 3: Production Trends (k)

Product	2003-04	2004-05	2005-06	2006-07
RPS Manual steering gear	350	525	604	850
RBS Hydraulic steering gear	90	120	147	220
Manual steering column	450	620	728	800
BS steering column	50	70	76	100
C-EPS	-	-	10	240
Case differential assembly	350	425	470	550

Trends in Sales

Domestic sales of Sona Koyo have nearly doubled since 2003-04. Its overseas sales have been increasing, though at a slower pace than targeted. The trends in sales of the company are shown in Table 4.

Table 4: Trends in Sales ($ million)

Year	Domestic	International	Total
2003-04	52	1	53
2004-05	59	7	66
2005-06	66	11	78

Sales Profile

As a result of implementation of its growth strategy, coupled with derisking initiatives, the company has diversified its customer portfolio and added many new customers. Product-wise and customer-wise sales of different types of steering gears, columns and driveline products of the company are shown in Fig.3 and 4, respectively.

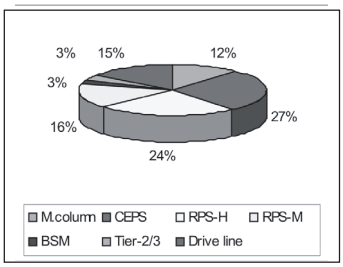

Figure 3: Product-wise Sales

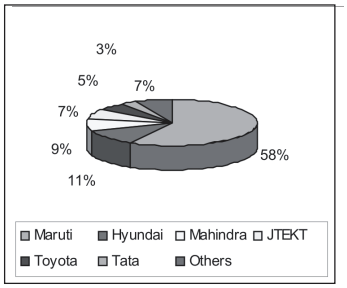

Figure 4: Customer-wise Sales

Performance Achievements

The effect of implementing TQM is distinctly positive on performance. The improvement in performance is evident on the following fronts:

- In-house rejections have come down from over 17,000 ppm in 1997 to 50
- Number of new products developed has increased
- Operator efficiency has increased from 79% in 2000-01 to 92%
- Sales per employee have also increased considerably
- Rate of accidents is practically nil and absenteeism has reduced
- Suggestions per employee have reached the level of 29 as against the target of 24

The cumulative effect of all TQM initiatives, including supply chain management is reflected in the customer returns which have come down to the level of 57 ppm. The company is actively developing in-house capabilities and transforming from being a pure manufacturing organization to a solutions provider. It has acquired capabilities to design, develop and test most of manual steering gears and columns. It is now partnering customers in product development. New products introduced during the past 3 years account for over 44% of total sales. Sona Koyo is collaborating with IIT-Delhi for new concepts and with IIT- Mumbai for developing a new generation 'Drive-by-Wire' steering. But there is an area of concern. Expansion needs large-scale recruitment. There is scarcity of talent and employee attrition is also high. The result is change in employee profile. Most of the employees, in fact nearly 75%, are new and have been with the company for less than three years. And this situation, which exists in spite of management's belief in certain values and emphasis on HR assets, is not a comfortable one for an organization engaging in creativity and innovation and pursuing excellence.

Vision 2010-Mid term Check

The company released its vision 2010 statement in 2003. Here, a mid-term check is essential to measure whether the company's plans are on course or not. While SKSSL continues to get awards from its customers for its quality achievements, and is performing well on the domestic front, its exports are not picking up. The 2006-07 trends and results (ref. 2006-07 company annual report) are as under:

- Growth in passenger vehicle sales in domestic market up by 20%
- Introduction of EPS system by the company
- Net sales increase by 70.8%
- Operating profit (OPBDT) up by 59.3%
- Cash profits (PBDT) increase by 50.8%
- Profit after tax (PAT) up by 70.4%
- ROC employed up by 27.8%
- Exports Rs. 547 million (55 crore) , 7.8% of sales, up by 9.4%

This year the company has reported 70% growth in domestic sales, mainly due to launch of a new product. But, on the export front it has not fared well and revised its export target for 2010 to 35%. The failure to meet the export target in the current year is reportedly the result of delay in launch of a new vehicle by its client. This launch is now expected to be in 2007-08, and the exports target for the year is Rs. 90 crore.

There is something more. In spite of pursuing the derisking strategy, Maruti continues to be company's largest customer and domestic sales continue to increase as a result of favourable economic environment, which of course is good for the country, and introduction of electronic power steering. According to the chairman, the success in launching new products can not be replicated every year. It seems rupee appreciation is showing its effect and forcing companies to shift focus on domestic market. The question is whether Sona Koyo had not foreseen the domestic demand and set too ambitious an export target for 2010 or it failed to get its act together to meet the targets. Or owing to entry of global majors and strengthening of the rupee, it finds the domestic market more attractive. The company claims to maintain the export sales target for 2010 but has reduced it in percentage terms due to much greater potential order book in domestic market. Obviously there are strategy as also HR and culture related issues, which may be impacting the plans.

Flexibility and Adaptability

Upton (1994) defines flexibility as the ability to change or react with little penalty in time, effort, cost or performance. Flexible systems management uses the concept of continuum (options) to build systemic flexibility in management (Sushil, 2000) and is recognized as a firm's ability to respond to emerging needs and capability to adapt to changes. The turbulence in the business environment demands adaptability and flexibility. The company has shown flexibility at the following levels as shown in Table 5, but has to be further adaptable as well as flexible.

Table 5: Flexibility in Different Layers/Functions

Layer/Function	Area
Strategic	New management model; establishing alliances; scaling up; product diversification; new product lines- commercial vehicle columns, columns for off-highway vehicles; promotion of excellence through TQM; innovation and development of new products-drive by wire
Management	Adoption of new management system; institutionalizing the concept of TQM; joining Prof. Shiba's learning community; developing new concepts
Operational	Outsourcing of non-core product; parallel sourcing; leveraging IT; group kaizen activities
Manufacturing	Change of production process from cellular to single piece flow; implementing TPM; aiming for zero defect, zero breakdown etc.
Technology development	Acquiring, licensing, collaborating, innovating

Flexibility has different connotations, adaptability being one of them. According to Basadur and Gelade (2003), adaptability is a proactive process of looking for ways to change. Adaptable organizations monitor the environment for new technologies, ideas and methods, anticipate threats and opportunities, and implement changes accordingly. Sustained competitive edge in today's environment requires flexibility as well as adaptability.

Deming model has a requirement for future planning but that does not seem to be sufficient as evidenced from company's recent performance and change of market focus. The company which had been preparing for the future by way of new management model, focusing on exports, establishing alliances and partnerships, creating market access through M&As and

also attempting to create products-first globally, gained substantially advantage initially, but now has to shift gears mid way. Apparently, excellence models need to address this aspect in proper perspective, as discussed in next section, in this era of globalization and need for not only agility and quick responsiveness but also alternate plans and some sort of backups.

Concepts and the Role of Culture

Sona Koyo has JTEKT as the alliance partner, is learning Japanese practices and implementing the Japanese model of excellence. Japanese have led the worldwide quality movement since the 1960s and given so much to the world in the form of approaches and tools like Kaizen (continuous improvement), Quality Function Deployment (QFD), Policy management and daily management, Quality circles and Company Wide Control. Benchmarking was developed by Fuji-Xerox. Taguchi (1999) stressed on the need to focus quality efforts on product design stages to produce robust design. One special feature of Japanese thinking is the process approach to control and management of quality and employee participation and their motivation. Toyota Production System (TPS), called Lean production by Womack et al. (1990), had its origin in Japan and now even General Motors also wants to establish strategic alliance with Toyota and learn from Toyota experience. In Japan, there have been a number of quality experts like Mizuno, Akao, Imai, Taguchi, Kano and kondo, to name a few, who have made immense contribution to the development of quality theories and models and given the knowledge back to the west and the world.

Dahlgaard and Dahlgaard-Park Table 5: Flexibility in Different Layers/Functions(2006) have shown that lean production philosophy and the six sigma are essentially the same, and both have developed from the same root-the Japanese TQM practices (company wide quality control). According to them, TQM is the result of an evolution starting in Japan about 50 years ago, where continuous improvement gradually became the most important management principle. A comparative study of ten notable authors have led them to conclude that TQM initiatives can only be regarded as successful when a new working environment has been created in which people are able to learn, share knowledge and make contributions.

One main reason behind the success of Japanese efforts is their culture of cooperation. While rest of the world promotes individual excellence, Japanese, according to the Japanese quality experts, have culture of interdependence in their society and so have been able to promote the concept of quality circles successfully. So, any company willing to replicate Japanese success has to pay attention to cultural aspect, otherwise their efforts may fetch initial success but will not sustain the excellence. And can anybody deny the role people play in creation or emergence of culture which evolves not in one or two years but over a period of time.

HR and Distinctive Competencies

The company has been scaling up and has more than doubled its HR strength since 2003. Owing to mass recruitment and high attrition, in spite of recent wage revision, HR continues to remain an area of concern. This is another possible factor for company's sub-optimal performance in the highly competitive global market. Afterall, the company needs not only planners but also implementers. It needs people who have distinctive competencies, are on the same wavelength as the leaders, adapt to Sona culture and progress with the company. SKSSL has set up overseas offices, which indicates the importance the company is attaching to the overseas business, but such initiatives mark just a beginning of foray into the overseas market and need placement of suitable people in key positions.

Discussing the role of people in the new millennium, Breja and Laxmi (2000) have opined that prime attention has to be paid to the people aspect of organization management. Dignity

and respect are important issues and they have listed sensitivity, flexibility, creativity, trust, openness, self-development, self-actualization and advancement as the expectations of the new millennium employee. Leadership, according to them, has to be sensitive and supportive.

According to (Hafeez et al., 2006), TQM is a philosophy of management that strives to make the best use of all available resources and opportunities through continuous improvement. TQM has been a key business improvement strategy since the 1970s, as it has been deemed essential for improving efficiency and competitiveness. A comparative study of ten notable authors has led them to conclude that TQM initiatives can only be regarded as successful when a new working environment has been created in which people are able to learn, share knowledge and make contributions. Also, it takes time to realize the real benefits of TQM. According to Nadkarni (1995), MBNQA winners realize performance benefits only after five to ten years. Thus, loyalty of employees, passion for excellence and institutionalization of quality practices are a must for success in the long run, and more so while applying Japanese models and techniques.

Award Models and Competitiveness

According to the Deming prize committee, the award is expected to result in quality stabilization and improvement, productivity improvement/cost reduction, expanded sales, increased profits, thorough implementation of management plans/ business plans, realization of top management dreams, TQM by total participation and improvement of the organizational commitment, heightened motivation to manage and improve as well as to promote standardization, uniting total organizational power and enhancing morale and establishment of various management systems and the total management system.

When we compare performance of Sona koyo against the stated expectations, we find that Sona Koyo is doing reasonably well and becoming globally competitive. Momaya (2001) has defined competitiveness of a firm as the ability to undertake any or all activities on the value chain from conceiving, designing, engineering, manufacturing, marketing, financing to servicing of a product or service or bundle of products and services, superior to those offered by competitors considering the price or non-price quality on a sustained basis. Banwet, Momaya and Shee (2002) have given detailed definitions at different levels through an extensive literature survey. The company is gradually undertaking activities across the value chain, developing new products and is even exploring the idea of developing its upgraded facilities for hydraulic power testing as a testing hub for its global partners.

In the meanwhile, awards continue to fall into its kitty. No doubt the company has been progressively improving since it won the Deming Prize and is maintaining dominant position by volume in the domestic market, but is now faltering on the exports front. Obviously, it has not been able to spread geographically and build wide enough client base to safeguard against the delays arising out of customer plans. Thus it comes out that auto-components business depends excessively on the plans of vehicle manufacturers and calls for realistic planning, aggressive derisking and creating breakthrough products with agility. The company has now revised the targets which leads one also to think about need for critical evaluation of the efficacy of the business excellence models in this era of aggressive competition. Apart from the elements contained in the present Deming framework, there are many other elements or forces which have a bearing on sustainability of excellence. This calls for efforts for identification of these forces and studying the interplay between them and quality and excellence.

Many authors have given their views about the award models. According to Prasad (1999), Deming prize model became very popular in Japan. Many Japanese companies built their

TQM model against Deming model and used it as a vehicle for change. Motorola, HP, Xerox, Texas Instruments, Lucent Technologies and 3M used the Malcolm Baldrige model to build their businesses. Any self-assessment has a mix of training/learning and measurement (Aubrey II, 1997). A self assessment exercise carried out at least once a year serves as an excellent feedback instrument for the organization (Vardarajan and Bhatt, 1999). But award is a tool and not end (Madoun,2000) and reservations are being voiced against the suitability of the current models and their efficacy in the new environment. Fagerhaug and Anderson (1998) pointed towards the lack of scientific approach in development of the models which have been developed by consultants and asked for the research to be undertaken to study which of the established models are best suited for assessment. Further, they felt a new dynamic model for self assessment which can be custom-fit for the individual company's needs should be developed. Kanji (1998), used a structured model for the measurement of business excellence using 14 interrelated latent variables.

In a study of Indian automobile industry, Khanna, Sahay, Vrat and Shankar (2007) have attempted system dynamics modelling of TQM in automobile industry and found that it takes about ten years to achieve the TQM index more than 800; similar results have been reported by others also. They have opined that in today's dynamic and fiercely competitive global market, survival of the organization depends on its ability to continuously innovate and satisfy the expectations of the demanding global and domestic customer.

Williams et al.(2006) have reviewed both the academic and practical validity of business excellence models and concluded that academic validity of these models leaves much to be desired. The business environment has changed considerably since the conception of the models in the late 1980s and more advanced organizations should choose their own relevant dimensions and weightings rather than use any standard one-size-fits-all model.

Excellence

Mashelkar (1999) says that 'attitudinal changes' and mindset change will assume greatest importance in India. Organizations need to set up truly innovative and provocative mechanisms that drive innovation. It requires a driving force for innovation, no matter how able and competent you are and CEOs will have to assume the role of 'Chief Innovation Officer in India'. And this is being amply demonstrated by the role played by the leadership of companies like Infosys, TCS and Wipro in the new age economy in India.

Competing through innovation requires leaders to move away from one-dimensional thinking to paradoxical thinking and learning to balance the competing demands (Mehra,1999). Info-tech and communications revolution has changed the way of doing business. To establish competitive edge, companies in this age are inventing new production and delivery systems and setting ever higher performance benchmarks.

The 21st century organization emphasizes on concurrent implementation of all processes. Transactions are done mostly on computers and real time data base helps in fast development cycles (Business Week, 1993). Flexibility is being built into all levels of manufacturing. According to Bill Gates (Business at the speed of thought, 1999), "If the 1980s were about quality and if the 1990s were about reengineering, then 2000s will be about velocity".

According to Athreya (1999), Excellence is rather difficult to reach; it is hard even to approach excellence; it is harder to sustain it Buckley (2006) says that, "Everyone at 3M recognizes we live in an era where speed and simplicity trump bureaucracy and complexity. Certain facets of 3M are necessarily complex, but I know we have ample opportunity to improve both speed

and efficiency. We are moving forward with a conscious focus on streamlining and supercharging both our decision making and our operations". This seems to be the bottom line, for the organizations desiring excellence in the this age.

Learnings

TQM is an effective approach for business excellence which produces results with time and experience. This study has confirmed the findings of other authors, including Hendricks and Singhal (1997), that TQM leads to an improvement in the operating performance of the company. Oakland et al.(1994); Flynn et al. (1995); Ahire (1996); Idris (2000) have reported similar results. But, realization of company vision and goals in this competitive age requires much more than what is prophesized and practised.

Conti (2006) says that Quality management models, even the most advanced ones (the so-called excellence models), have not reached a satisfactory level of insight yet into such critical relations and the value generation process that takes place within them. Hence, there is a need to instill more systems thinking into quality management models.

Today organizations have to be truly responsive and continually improve the products and processes. They have to craft their competitive strategy around speed, flexibility, quality, scale and innovation. In fact, adaptability, flexibility and innovation seem to be the pre-requisites of sustainable competitive advantage. This leads one to the conclusion that bodies administering these awards have to address the emerging issues and think about modifying the existing excellence frameworks, incorporating the realities of the e-age. And this requires the contribution of researchers.

The present study has resulted in the following valuable lessons:

- Globalization has thrown new challenges as well as the opportunities
- Implementation of TQM leads to improvement in performance
- To establish competitive edge in the global market, companies have to be agile and responsive
- Distinctive competencies and innovation provide the competitive advantage
- Culture is an important issue for the success of TQM
- Award models provide a roadmap, a framework for excellence, but ultimately the company has to find its own path

Recommendations

In the new business environment when companies are pursuing excellence, quality strategy, according to Kanji, Kristensen and Dahlgaard (1992) has shown a new approach to modern managers. Its development is an essential part of the implementation of TQM. To make SKSSL a world leader in steerings business, SKSSL has to strategize more effectively. On Professor Shiba's advice, Sona Koyo has set a noble goal, that of creating a company that India is proud of. Attainment of this goal requires shift from focusing on 'management of change' to 'leading of change'. It requires identification of key people and developing them as change leaders. It should balance people orientation towards all four thinking styles viz. generator, conceptualizer, optimizer and implementer (Basadur & Gelade, 2003). The synthesis of outcomes and learnings brings out following factors which seem to be critical to the success of Sona Koyo:

- Mindset for excellence and clear focus

- Adaptability to the environment
- Flexibility in making choices
- Faster decision making
- Retention of HR and distinctive competencies
- Further strengthening of alliances and partnerships
- Culture of interdependence and excellence
- Innovation
- Leading of change

In this context, following recommendations are made for the companies aiming at achieving global competitiveness:

- Companies should pay attention to the retention and development of people assets while implementing total quality strategy
- They should promote culture of interdependence and cooperation, and look into the issue of empowerment, creation of leaders, if they have to succeed with implementing the Japanese or any other model of excellence
- They have to adapt, take faster decisions , innovate and excel

Further, the challenge is the effectiveness and successful implementation of strategies, continued satisfaction of customers and sustainability of success. The evaluation of the suitability of the excellence models has led to the proposition that research should be conducted to study the interplay between the factors discussed above and excellence.

Conclusion

Sona Koyo is a competitive company and is transforming for globalization. It has adopted strategic approach to managing quality. It is using its alliances and partnerships to its advantage and tapping the export potential. A word of caution here! The journey has just begun! To sustain the growth and drive for excellence, and gain the competitive edge, SKSSL or any other company for that matter has to pay attention to the aspects related to human capital and change leadership. The study can be extended to other TQM companies including the award winning ones. Further, there is a need for studying the present business excellence models and introducing changes to meet the requirements of the new environment.

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