Impact of Change Management : A Case Study of Select Indian Manufacturing Organizations

** Sanjiv Gupta*

Abstract

The last two decades saw brisk changes in consumer perception. Indian organizations competed with multinational companies and offered the best-quality products at most competitive prices as and when required by the customer. After the liberalization of the Indian economy, the Indian organizations, which were earlier operating in a protective market, faced tough competition not only for exporting their products, but also to find a market within the country. These conditions necessitated the adoption of a change process by the Indian industry. Most organizations adopted the 'change management' methodology to compete and grow their businesses nationally and internationally. Through change management, every level of an organization can be accessed and transformed. The strategies include transformation of systems both within and outside the organization - production process, quality process, inventory process, and sales and marketing. This paper studied the change management methodology adopted by four leading manufacturing organizations and the results achieved by them in various business parameters. They were bestowed with various quality awards in the last decade. The study was conducted from July to December 2017.

Keywords: **change, globalization, improvement, productivity, quality**

JEL Classification: L200, L210, L620, M110

Paper Submission Date : April 23, 2018 ; Paper sent back for Revision : September 20, 2018 ; Paper Acceptance Date : September 26, 2018

The concept of change is 'a new state of things, different from old state of things.' However, it is more difficult to define change in a manufacturing organization. Change management in general refers to change in all the operations of the organization whether it is human resource, production process, customer relations, supply chain management, or sales and marketing (Tripon & Dodu, 2011). According to Raju (2010), organizational change involves the implementation of not only the new tools, but also change in the procedures or technologies. This is necessary so as to face challenges due to the changing business environment and to create new business opportunities. Change management has been a widely debated and researched topic in management. Managers in Indian organizations have experienced radical changes at their work place in the last few years. A stable business environment is now a history and change is the only response to continuously evolving conditions to stay in the market. To survive in the market, managements have to adopt multiple strategies and make change a continuous process. The turning point in the growth of the organization is to adopt the change not only in the processes, but also in the culture.

According to Raju (2010), change management refers to the making of changes in a planned and systematic fashion. The aim is to effectively implement new methods and systems in an organization which leads to its growth. Change can also be synonymous with or can be called innovation. Innovation is defined as a technology, product, or practice used by the members of an organization for the first time regardless of whether it has already

* *Ph.D. Scholar and Management Consultant & Trainer,* University School of Business, Chandigarh University, Gharaun - 140 413, Punjab. E- mail: sanjivgupta2090@gmail.com

been used by other organizations or not. Though some authors define innovation implementation as the process of determining the appropriate and continuous use of an innovation by the certain members of an organization ; yet, it applies to change management to some extent. Change management prepares each and every arm of the organization for a new working system and ensures its success to meet the organization mission and vision. Silva (2011) stated that lean manufacturing is a manufacturing philosophy which was originated and developed in the Toyota Motor Company, Japan. The philosophy is based on the implementation of systems which lead to improvement in productivity and quality in organizations, thus gaining a competitive advantage. This concept has been followed by various industries to improve their bottom lines. The implementation of this philosophy has been successfully carried out not only by the automobile industry, but by other manufacturing organizations like garment manufacturing, etc.

In this fast-changing business environment, the change can be due to internal factors like technology or new-product development. It can be due to external factors like customer requirement, government rules and regulations, and cost competitiveness (Passenheim, 2010).

In the Indian context, change has occurred due to two major factors :

(i) The globalization of the Indian economy ;

(ii) Innovation in the Fourth Industrial Revolution.

Prior to the opening up of the Indian economy, the Indian manufacturing organizations were satisfied with serving the Indian market. It was more or less a sellers' market. Customers were satisfied to buy and use whatever was available in the market. They had no choice but to buy the products at the prices decided by the producers and at the profit margin decided by them. Since the competition was minimal, the quality of goods was not very high, though the prices were high due to poor cost efficiency. According to Garg (2007), though the Indian automobile industry has made efforts to manage change in socio-technical, technology, systems, structure, people and culture, yet the industry has to strive hard to be innovative, technologically superior, as well as working- culture conscious. Major changes that occurred in various industrial sectors in recent years have had a direct impact on almost all organizations. Environmental factors such as globalization, innovation, technology changes, increasing changes in human behavior, and tough competitive conditions have necessitated the organizations to go through a natural process of change. Organizations inevitably need to adapt to the changing conditions. To sustain in these conditions, the need is to achieve effectiveness so as to contribute towards organizational success (Vivek, 2016).

Organizations who did not emphasize upon the introduction of new technology and innovation were given a backseat. Upto early 1980, there were only two car manufacturers in the country. One was Hindustan Motors selling under the brand of Ambassador, and the other was Premier Automobiles Limited selling under the brand name of Fiat (Premier Padmini). The technology and the features remained the same over the years, and customers had to wait for about six months after the initial payment to get the delivery of a vehicle (Garg & Singh, n.d.). In 1982, Maruti Udyog Limited (MUL) in collaboration with Suzuki Motor Corporation brought in new technology and cost efficiency based on Japanese technology and methodology to manufacture cars in India. This ushered in a new era in automobile engineering. MUL dominated the Indian automobile market and commanded a share of approximately 80% by the end of the decade. The same was the case with white goods products, consumers durables, two wheelers, and other four wheeler automobiles. Though the Indian manufacturers, realizing that the competition is increasing, tried to bring in changes in technology and started working on cost efficiency, yet the pace was too slow and only little could be achieved till the Indian economy was opened up and the new economic policy was announced by the Government of India.

Some of the objectives behind the launching of the new policy were:

(i) Plunge the Indian economy into the arena of globalization and give it a new thrust in market orientation.

(ii) Move towards a higher economic growth rate and build sufficient foreign exchange reserves.

(iii) Permit the international flow of goods, services, capital, human resource, and technology without restriction.

Subsequently, the equity participation of foreign investors was raised from 40% to 100%, barring some sectors. Consequent to this major change in economic policy, the Indian industry underwent the following changes:

(i) Signed technical and financial collaboration agreements with foreign industries.

(ii) Set up wholly owned subsidies by MNCs.

(iii) Adopted the management philosophy of successful foreign companies.

A large number of Indian companies either collaborated with or adopted the policy of Japanese organizations. To compete in the growing but competitive market, the companies realized that product quality, cost efficiency, and service decide the fate of their products. This realization forced them to adopt change strategies. Those who followed them met with success, some with limited, and some with huge success. The strategies followed by different organizations were different and were based on the business environment in their sector, financial constraints, technology available, customer perception, and behavior patterns of their employees.

The second reason for adopting change management was the technological storm created by the Fourth Industrial Revolution. This phase of the industrial revolution brought huge opportunities for different kinds of businesses in India, primarily because of innovation in different fields of operation. These innovations have the potential to raise the global economic level and improve the quality of life for populations around the world. To date, those who have gained the most from it have been consumers who are able to afford and access the digital world. Technology has made possible new products and services that increase the efficiency and pleasure of our personal life. Technological innovation has also led to supply side miracles with long term gains in efficiency and productivity. Logistics and supply chain have become more effective and cost efficiencies are going up. This is opening new markets, which drive economic growth. The competitors of Indian industries have started using innovations in artificial intelligence, virtual reality, robotics, and automation to improve their product range and deliver new products in the market before the consumer has demanded. As the quality of the products has improved and the cost is going down, it is imperative for Indian business houses to match their international competitors in these parameters. To survive, most Indian manufacturing organizations have adopted change management as their strategy.

Change management represents the process, tools, and techniques to manage the people side of business to achieve the required business outcomes and to realize that business changes can be effectively implemented within the social infrastructure of the workplace (Prosci, n.d.). Change management is a planned strategy for structured change from the present system to a new system. Be it production processes, human resource development, quality improvement, sales and marketing strategy, or new-product development. According to Khosla and Saini (2014), effective utilization of human resources besides other resources is the key to achieving organizational goals. To achieve the goals, organizations need to judicially use the potential of their manpower, and enable them to fully participate in their growth. Organizations should ensure that their competencies should integrate with other resources. The strategy differs from organization to organization and also differs in the pace at which it is implemented. Whatever the strategy and pace, organizations have to ensure that the change is stable and rewards are achieved as planned.

Implementation of Change Management in Organizations

Since a large number of manufacturing organizations have gone through the process of change management in the last two decades, a study was conducted on some of the Indian manufacturers who have implemented this system

Table 1. Change Management Matrix

	Parameter	APL	CEAT	ALH2	M&M
1	Policy Deployment	A	A	A	A
2	Objectives Clearly Spelt	A	A	A	A
3	Daily Work Management	B	A	A	B
4	Major Technology Changes	B	B	A	B
5	Cost Management	B	B	B	A
6	Total Employee Involvement	A	B	A	A
7	Education & Training	A	A	A	A
8	Quality Management Policy	A	A	B	A
9	Total Productive Maintenance	C	C	C	A
10	New Product Development	A	B	B	C

Note : A: Early, B : In time, C : Late, D: Very late

Source : Based on primary data collected from personal interaction during multiple plant visits.

in the last decade. The data for this study came from the Union of Japanese Scientists and Engineers (JUSE) and I visited these plants and interacted with the senior management teams at all levels in order to understand their strategies. The success of the strategies is evident as all these organizations have been bestowed with the Deming Prize along with various other awards during the last 6 years. The Deming Prize awarded by JUSE is also popularly known as the Nobel Prize in the field of the manufacturing industry. These companies are:

(1) Ashok Leyland, Pant Nagar

(2) CEAT

(3) Ashok Leyland Hosur Unit 2

(4) Mahindra & Mahindra - Swaraj Division

All these organizations had some-what similar strategies for implementing change. All of them conducted a preliminary study in order to pin down current practices, design the desired practices, and explored ways to bridge the gaps between these two practices. These organizations laid emphasis on some of the critical processes, but the level of emphasis varied from organization to organization and from process to process. A change management matrix was prepared for these four organizations. The ratings against each initiative are depicted in the Table 1. The methodology adopted and the results achieved by each company are as described below :

Ashok Leyland Pantnagar (ALP)

Ashok Leyland was established in 1948 as Ashok Motors in order to assemble cars in collaboration with the Austin Motors Company. In 1954, it started manufacturing commercial vehicles (CV). Ashok Leyland set up Ashok Leyland Pantnagar plant (ALP) in 2011 to establish a complete manufacturing base in North India. It manufactures trucks with 10 Ton to 49 Ton GVW (gross vehicle weight). It also manufactures engines from 120 H.P to 230 H.P capacities. With total capability to manufacture 50,000 trucks, it rolls out its products in 349 variants. After studying the various change management models, ALP decided to implement change by adopting total quality management (TQM) as one of the major drivers. ALP developed its own model of TQM. The framework represented their own TQM philosophy that integrated principles, methods, systems, and tools for

improving their performance using total employee involvement as the base for change. ALP undertook the change management journey in two phases.

During the first phase, the major focus was to set up the TQM promotion organization, identify the goals for improvement which were based on corporate vision, and strategic goals.

- Establishment & Improvements - Phase 1 (FY 13-15): During this phase, the focus was on TQM education, improvement process, and daily management.
- Expanding the Horizon - Phase 2: (FY 16 onwards): During this phase , ALP focused on flexibility, expansion of product range, updating of policy, management practices, cross functional management, and problem solving techniques. More emphasis was laid on : Development and implementation of management system.
- Education and promotion of TQM.
- Total employee involvement.
- Stakeholder centric processes.

(1) Management Systems : Standard operating procedures and work instructions: Introduced along with daily management and use of ISO standards which led to the certification of TS 16946.

- Daily Management : Introduced in FY 13 to keep control over key performance indicators of quality, cost, delivery, safety, and morale. Internal review mechanism was introduced to sustain the initiative of daily management. Consequentially, role specific KPIs were introduced which were based on departmental objectives and process outputs.
- Policy Management : Structured policy formulation process with top down approach was introduced in FY15. 'Competitive quality level' and 'on line delivery' were short listed for sustained improvement in FY 16 (Union of Japanese Scientists and Engineers (JUSE), 2016). Different kinds of methodologies were deployed for improvement in quality assurance, manufacturing quality, supplier quality, and central planning systems.
- Policy Management Through Cross Functional Management : The concept of a cross functional team was introduced for carrying out improvements in various processes. Such processes include cost management, delivery management, quality management, and new product development.

(2) Total Employee Involvement : Improvement in employee involvement was achieved through :

- People participation- 'Mission Gemba'.
- Small group activities.
- Participation in internal and external conventions.

To strengthen the implementation of new management policies, emphasis was also laid on customer focused practices, harmonization of quality assurance, people participation, team work, and suppliers' capability building programmes (Union of Japanese Scientists and Engineers (JUSE), 2016).

CEAT Ltd.

CEAT is one of the leading tyre manufacturers and is the flagship company of RPG Enterprises. RPG Enterprises acquired CEAT Tyres of India in 1981. CEAT is ranked fourth in the Indian tyre industry in terms of revenue. It manufactures a wide range of radials and bias tyres for both commercial and passenger vehicle segments (Union of Japanese Scientists and Engineers (JUSE), 2017a).

Prior to FY08, the organization faced many challenges, as described below :

- Volatile Profits: Operating profits varied as a result of inability to correct selling price to offset raw material price swings (natural rubber) due to low brand pull. PBT% varied from -1.4% to 8.5% in the period, depending almost entirely on commodity rates (Union of Japanese Scientists and Engineers (JUSE), 2017b).
- No Leadership in Any Product Category: CEAT was predominantly a truck and bus category player with 8% market share (4th ranked player). The category contributed to more than 50% of sales turnover (Union of Japanese Scientists and Engineers (JUSE), 2017a).
- Higher Conversion Costs : Poor profits hindered CEAT's ability to spend on overhaul and replacement of equipment in old plants leading to poor reliability, thus further increasing costs. Many of the plants were located in high tax zones with 80% of turnover being contributed by these plants (Union of Japanese Scientists and Engineers (JUSE), 2017a).

The management carried out a SWOT analysis of the organization. Based on the analysis, a strategy was drawn to introduce new management systems which shall be focused on improving product quality, cost efficiency, and being customer centric.

They introduced quality based management (QBM) in FY 09. Its initial phase (FY09 - FY11) saw the introduction of QBM in manufacturing, quality, and delivery. FY12- FY15 was the development phase when QBM was rolled out across the value chain of CEAT. FY16 - FY 18 is the consolidation phase, when a companywide integrated QBM approach for capability building and strategy planning is being adopted (Union of Japanese Scientists and Engineers (JUSE), 2017a).

(1) Management Approach

- Policy Management : The policies defined at the company level were adopted through the top management to the respective functions and further down to function level L1.
- Daily Management (DM) : 'Role Templates' which outlined the blueprint of a role by providing objectives and key performance indicators (KPIs) were deployed. Abnormalities in daily working were tackled through hourly monitoring, whereas chronic issues were taken up as quality improvement projects for a 7 step problem solving approach.
- Cross Functional Management: Cross functional councils for product development, delivery management, and quality assurance were formed. These councils reviewed end to end chains of business processes and deployed QCD (quality, cost, and delivery) goals.

(2) Improvement Approach

- Gemba Based Improvements : The goal of Gemba improvements was to encourage participation by everyone in the improvement activities.
- Quality Circles (QC) : The QC teams prioritized a problem from the problem bank created from issues identified in DM and worked towards improving QCDSM parameters.
- Quality Improvement Projects (QIP) : QIPs were initiated to resolve chronic issues affecting KPIs. Solutions were found by adopting the 7-step problem solving methodology.
- Trust Building : As an outcome of various QBM activities, the engagement of all employees was measured through various internal and external means.

↳ Participation : Worker satisfaction was reflected in improvement in 'workmen engagement score'.

↳ Boosting Employee Morale : Various reward and recognition schemes were introduced to boost employee morale. Participation in external competitions for high level QIP was encouraged.

(3) Development Approach

↳ QBM Knowledge and Skill Building : Skill building for all employees was addressed under two main branches: QBM skill and functional / business skill. A basic to advanced training module was taken up by both internal and external faculty to build capability.

(4) Quality Assurance : Quality assurance covers the entire value chain from product development to sales, services, raw material supplies, and manufacturing including outsourcing vendors.

↳ Development of Quality Development System at Vendors : The quality assurance approach in outsourcing was designed to complement all vendors by helping them to develop their own quality management system. Various trainings on 7 QC tools, 5S, and safety were imparted.

↳ Strengthening the Internal Process Controls : Process failure mode and effect analysis manual, control plan, and work instructions were developed. Special controls were put in place in the form of SPC, poka-yoke, and inspections.

↳ In addition to the above measures, the revision of a new product development process, well integrated planning system (long term to daily scheduling), KANBAN, and other technological advancements were carried out for sustained implementation of new strategies and policies (Union of Japanese Scientists and Engineers (JUSE), 2017a).

Ashok Leyland Hosur Unit 2 (ALH2)

The Ashok Leyland Hosur Unit 2 (ALH2) was established in 1994 for manufacturing light commercial vehicles (GVW 2.5 to 7.5 ton capacity), medium commercial vehicles (>7.5 to 12 Ton), heavy commercial vehicles (>12 to 49 ton), and special vehicles.

ALH2 was one of the key players to help Ashok Leyland (AL) to achieve the top 10 position in the truck segment. The relationship between AL vision and ALH2 vision depicted that ALH2 needs to improve operational excellence, excel in quality, cost, and delivery. Though ALH2 was achieving its production targets, being a two-decade old legacy plant, it had challenges of achieving the company's overall requirements in terms of producing all ranges of vehicles with fluctuating volumes and order quantities. Also, relocation of two batches of permanent manpower from ALH1 between FY10 and FY14 to ALH2 led to further increase in conversion cost. As a part of AL's strategy in FY12, LCV range of vehicles were added to ALH2's product portfolio. Thus, the challenges became multifold in meeting the delivery and operational efficiency along with sustaining quality levels. Hence, the most appropriate way to manage the complexities in a structured way was to implement a new model of management. They developed its new model for overall improvement in 2012. Some of the salient features of the new model were:

(1) Daily Management (DM) : DM was accomplished in four stages:

The key performance indicators (henceforth, KPI) of quality, cost, delivery, safety, and morale (QCDSM) were established. Standardization, control plan, and standard operating procedures were introduced. Along with these, management analysis and review system was established to monitor the performance of two major criteria

(stability and capability). Another major improvement initiative was the introduction of four quadrant analysis to compare KPI's migration from one quadrant to the other. This enabled achievement of stability in the improvements (Union of Japanese Scientists and Engineers (JUSE), 2017b).

(2) Policy Management : An eight-step methodology was adopted to align the efforts of all employees towards company goals. This methodology was based on : (a) factors important to the company's performance, (b) priority issues, (c) efforts required to achieve the goals.

(3) Cross Functional Management : The following steps were taken :

- Introduction of Process Reliability Ramp Up Methodology to reduce in-process defects.
- Improvement in in-process quality through occurrence prevention control.
- Introduction of human error prevention techniques.
- Improvement in incoming quality by system improvements for surface protection and dimensional issues (Union of Japanese Scientists and Engineers (JUSE), 2017b).

(4) Improvement Techniques : The following improvement techniques were adopted :

- Problem solving through small group activity (SGA) by imparting training on 7QC tools, suggestion schemes, and Sigma green belts.
- Mission Gemba : This initiative was based on information, skill, empowerment, and rewards & recognition (ISER).
- Internal and External Competition : Participation in internal and external conventions was ensured for all SGA teams. Top teams participated in national (CII, QCFI) and international level competitions.

(5) Education and Training : A unique system of 'job ability development' for workers and role based 'competence development' for officers was created. In addition, several TQM training programmes were organized for various levels of employees.

- Maturity Index: To gauge the progress of these initiatives, a maturity index was established. Under this index, the monitoring of four categories, that is, TQM basic, TQM way, TQM culture, and Deming Prize was initiated (Union of Japanese Scientists and Engineers (JUSE), 2017b).

Mahindra & Mahindra – Swaraj Division

Mahindra & Mahindra, a US $ 20.7 billion multinational group was established in 1945. The Automotive and Farm Equipment sector (AFS) is one of the 10 sectors of the Mahindra Group (Mahindra Rise, 2018). The Swaraj Division of M&M is an independent strategic business unit of AFS and is engaged in the manufacture of tractors in the range of 21 H.P. to 72 H.P. It has two manufacturing plants in India namely Plant 1 and Plant 2.

In 2007-2008, the forecast of the tractor market showed multiple jumps in the next 3- 5 years. To utilize the opportunity for substantial business growth, the top management studied various models of improvement implemented by various industries in the last few years. The team witnessed the benefits realized by various organizations and decided to implement new policies and strategies based on total quality management methodology. By implementing a new management system, the major aim of Swaraj Division was :

- Achievement of high level of stakeholder (including customer) satisfaction.
- Achievement of business objectives towards the realization of vision.

- Involvement of all functions and all employees of the organization for improving performance.
- Achieving consistent and sustainable performance.

The following steps were initiated :

(1) Total Employee Involvement : To improve employee involvement, Swaraj Division took the following initiatives :

- Training in improvement of tools and techniques.
- Involvement Through Improvement in Culture: For promoting employee involvement, initiation of quality circles, officers' improvement teams, cross functional team, total productive maintenance, and participation in internal and external conventions were carried out in a phased manner.

(2) Stakeholders' Satisfaction : Various initiatives like customer voice capturing, customer surveys, and market research were undertaken to identify customer needs. Customer satisfaction and dealer & supplier satisfaction surveys were carried out to identify the gaps. The business objectives were achieved with the support of the following pillars :

- Standardization: All the processes were standardized in the form of SOP through a four- level standardization process.
- Policy Deployment: Policy management process was initiated for aligning business objectives with those of the employees.
- Daily Work Management: Daily work management was introduced to monitor progress with regard to the objectives of the organization. In case of gaps, improvement projects were undertaken to fill them.
- PDCA: PDCA cycle was very effectively used while implementing practices for improving the performance of various parameters.
- Kaizen : Small and big improvements in various fields were initiated under the Kaizen umbrella. Individual and group improvement activities using QC story, design of experiment, and other methodologies were introduced.

(3) Major Improvement Activities

- Manufacturing Quality Improvements: Improvement in manufacturing quality were achieved through : (a) effective utilization of SOP and QCPC (quality control process chart), (b) introduction of statistical process control, (c) establishment of quality post system in assembly line, (d) initiation of PFMEA.
- Productivity Improvement: Productivity improvement was achieved through : (a) reduction in cycle time of various machining and assembly operations, (b) manufacturing process re-engineering, (c) line balancing.
- Total Productive Maintenance (TPM): TPM was introduced to reduce the productivity loss due to breakdown of critical equipment. This resulted in improvement in delivery schedules.
- Introduction of KANBAN System: KANBAN was introduced to resolve the problem of line shortage of critical components and high inventory of non - critical components.
- Manufacturing Cost Reduction: To deliver a cost competitive product, manufacturing cost was reduced by : (a) reduction in tooling cost, (b) power & fuel saving, (c) consumable saving.
- In addition, a new Product Development System, additional support to dealers through Dealer Management

System and various cost management initiatives were introduced to achieve organizational objectives (Mahindra & Mahindra Ltd. Swaraj Division, 2012).

Results Achieved by Implementing Change Management

Implementation of change management by these organizations led to substantial growth in their businesses. The data were collected from Union of Japanese Scientists and Engineers (JUSE). Some of the improvements are discussed below :

(1) Reduction in Defect Rates : ALP measured the rejection cost / vehicle, which came down from ₹ 5064 (FY 13) to ₹ 954 per vehicle (Fy16), that is, a reduction by over 75%. Similarly, action taken to reduce in house manufacturing rejection was measured in terms of '0' MIS at the sales yard (a parameter for measuring early hour failure). The value showed an improvement by 94% from FY12 to FY17. In the same period, field failure showed a reduction by 20% (Union of Japanese Scientists and Engineers (JUSE), 2016).

CEAT measured the improvement in quality by measuring the warranty claim, which got reduced from 4057 PPM to 3667 between FY12 and FY16. Similarly, the quality system audit score increased from 68 to 80 during FY14 and FY17, that is, the quality of the product improved by 23% (Union of Japanese Scientists and Engineers (JUSE), 2017a).

ALH2 also measures '0' MIS at the sales yard. This parameter showed an improvement of 71% in FY17 over FY15. A major reduction was seen in the rejection of incoming components. The rejection came down to 297 PPM (FY17) from 7197 PPM (FY12) (Union of Japanese Scientists and Engineers (JUSE), 2017b).

M&M Swaraj Division calculated the improvement in the defect ratio on three parameters. The first is the rejection of components supplied by vendors. This rejection rate was reduced from 20000 PPM in FY11 to 2042 in FY16. The second is the direct pass ratio which improved from 50% in FY13 to 95.7% in FY16 at Plant 1. Similarly, this ratio improved from 50.4% to 92.5% at Plant 2. Defects per vehicle also showed a decreasing trend. The value showed a reduction of 64% for both the plants during this period. The third parameter is the measurement of field failures in 0 - 250 hours of operation. This value decreased from 5.95 RPH (reports per hundred vehicles) (FY11) to 3.03 (FY16). By FY16, supply of 'direct on-line' parts from the supplier also touched the figure of 80.17% (Mahindra & Mahindra Ltd. Swaraj Division, 2017, pp. 50-52).

The specifics will vary from organization to organization because of the role of unique situational factors. Each organization implements its own parameters for quantifying changes in rejection rates. Anyone with industry experience will agree that rejection rate is a big nightmare in all teams. According to local and global factors, an organization can select the parameters that are most suitable for quantification and then proceed to implement strategies. A comparative analysis of the trends above reveals the fact that each instance showed a positive trend, and that is enough in order to emphasize the importance of change management.

(2) Improvement in Productivity : At ALP, capacity utilization was 59% in FY12. Due to the implementation of TQM and other measures taken by the organization, the capacity utilization increased to 100% in FY 16. Rough machining capacity of the engine block increased from 28,000 units to 36,000 units per year after the bottlenecks were removed. Vehicle loss due to shortage of material on assembly line was reduced from 9.6% to 1.62% between FY12 and FY16. After the introduction of material requirement planning (MRP) software, losses due to material scheduling issues were reduced from 11.4% to 8.4% in the same period (Union of Japanese Scientists and Engineers (JUSE), 2016).

CEAT calculated the improvement in productivity by reducing the breakdown hour's index. Implementation of various measures saw a reduction of breakdown hrs index from 55 (FY12) to 14.9 (FY17), that is, a reduction of

70% (the lower the index, the better is the equipment availability). Introduction of KANBAN in FY16 resulted in 'stock delay' reduction from 3.7% in November 2016 to 3.3% in February 2017. The result of implementing other TQM measures resulted in an increase in production of SKU / week by 42% in the Bhandpur unit and 27% at the Nasik unit. Calicut unit increased its production from 45,900 units in Q1 of FY12 to 1,30,000 units in Q3 of FY17 (Union of Japanese Scientists and Engineers (JUSE), 2017a).

ALH2 increased its production volume from 18,800 to 31,700 between FY12 and FY17. Compared to the total industry volume, their share of production increased from 5.54% to 9.93% during this period. Lead time of production (lay down to scrap yard) reduced from 6.7 days in FY12 to 2.6 in FY17 (Union of Japanese Scientists and Engineers (JUSE), 2017b).

M&M Swaraj Division improved its productivity in both plants. In Plant 1, this value went down from 55.12 man-hours/ tractor (FY12) to 47.6 man-hours / tractor (FY16). Similarly, for Plant 2, this value improved from 57.5 to 45.2 in the same period. The implementation of TQM also resulted in reduction of manufacturing cost. It reduced from ₹ 5625 per tractor in FY13 to ₹ 4865 per tractor in FY16 at Plant 1, a reduction by 13.5%. The same parameter also came down by 16.5% in Plant 2 during this period (Mahindra & Mahindra Ltd. Swaraj Division, 2017, pp. 135-137).

Once new systems step in, whether through the introduction of MRP Software as in ALP or QBM as in CEAT or several small steps across the board, all the figures recorded a rise in productivity. Change management works as both philosophy and praxis since it is an umbrella concept that can cover so many ideas and techniques. In fact, all the changes that take place after its implementation are actually the natural progression in the growth of any organization. The implementation is quite organic in nature, with one thing leading to another, and a natural progression from step to step of growth.

(3) Improvement in Total Employee Involvement (TEI) : ALP deployed 'Mission Gemba' to deploy all TQM initiatives with 100% involvement of employees. With Kaizen [(JUST DO IT (JDI) / Keiden Kan Dokyo (KKD)], cost reduction strategies were promoted ; 26229 improvements were carried out till FY16. During this period, 1035 projects were completed under KKD, a four step methodology for system level analysis. Small group activities increased from 1153 in FY12 to 4630 in FY16, an increase of over 300%. A saving of more than ₹15 lakhs was achieved through these projects. All these activities resulted in improvement in TEI from 61% (FY12) to 86% (FY16) (Union of Japanese Scientists and Engineers (JUSE), 2016).

CEAT improved its TEI by involving all employees in various improvement projects. They classified the improvement under different categories. L1 and L2 are Gemba based improvements. In FY17, participation rate increased to 11 Kaizen per person per year. L3 are quality circle kaizen which were more scientific in nature. In the same year, its participation was 1.2 projects per QCC. L4 were quality improvement projects for chronic problems. A total of 350 projects were completed in FY 17 out of which 103 were rated as good-quality projects. As an outcome of all these activities, the engagement of all employees was measured through internal and external means. A red book system was introduced to record employee grievances. QBM involvement matrix was calculated and published monthly. Employee morale was boosted through various reward and recognition schemes for Kaizen and QIPs. Consequently, the accident index came down from 60 (FY12) to 4.7 (FY17). Total employee involvement improved from 53% (FY13) to 93% (FY17) (Union of Japanese Scientists and Engineers (JUSE), 2017a).

ALH2 introduced 'Mission Gemba' to improve TEI. It initiated various TQM activities such as 5S, quality improvement, cost reduction, Go Green, etc., under this mission. Participation was monitored through suggestion schemes, SGA, and CFT activities. The number of improvements carried out by the employees increased from 1365 (FY12) to 18011 in FY17. Number of QC Stories completed were 228 in FY 17, which were zero in 2012. The company organized training for officers on basic problem solving techniques and 68% of them were covered till FY17. A saving of ₹ 276 million was achieved from FY12 to FY16. All these initiatives resulted in an increase

in TEI from 56% to 89% between FY15 and FY17, an improvement by 58% (Union of Japanese Scientists and Engineers (JUSE), 2017b).

M&M Swaraj Division has its HR vision as: Build a strong corporate constitution through highly skilled and engaged employees ensuring total employee involvement in all continual improvement initiatives. Training on standardization, basic QC tools, SPC, PFMEA, and DOE were conducted. These trainings were followed by skill evaluation. Based on evaluation, further training plans were drawn. All employees were involved in improvement activities, which were carried out through quality circles and officers' improvement teams (OIP). The complex problems were solved through Mahindra Yellow Belt programmes. The numbers of Kaizen initiatives implemented by FY16 were 14880. Similarly, 172 problems were resolved in FY11 and 263 in FY16 by QCC. Participation in internal and external conventions was encouraged, and the teams also won Gold awards at some international events. Consequent to these initiatives, reportable accidents showed a downward trend. No accident was reported in the second half of FY16. During the last four years, a reduction in the carbon foot print by 23% at Plant 1 and 15% at Plant 2 was achieved. Similarly, reduction of 16% (Plant 1) and 19% (Plant 2) in water foot print was achieved. To keep track of employee involvement, a cell members' engagement survey was carried out. The score increased from 4.26 (FY14) to 4.41(FY16) at Plant 1 and from 4.11 to 4.3 at Plant 2 in the same period (Mahindra & Mahindra Ltd. Swaraj Division, 2017, pp. 136-137).

Human research and thought has established the significance of motivation in all spheres of achievement. The bottom-line of JDI, KKD, Gemba, or Kaizen is the boost these strategies give to employee motivation. These concepts through their implementation give a tremendous boost to motivation levels all-around, a shot in the arm that no amount of lecturing brings because all such implementation means experiential learning. So far, no substitute has been found for this kind of learning by doing, which brings consistent and long-term results in every area of human endeavour.

(4) Improvement in Business Performance : ALP's market share in the Eastern and Northern markets improved from 46% in FY12 and to 48.3% in FY15. A vehicle named 'BOSS' was introduced on a new vehicle platform with 132 variants based on different wheel bases, colors, and load body sizes (Union of Japanese Scientists and Engineers (JUSE), 2016).

CEAT increased its net sales from 44.4 billion INR in FY12 to 54.6 billion INR in FY16, an increase of 22%. Profit before tax (PBT) increased from 0.1 to 6.4 billion INR during the same period (Union of Japanese Scientists and Engineers (JUSE), JUSE, 2017a).

ALH2 increased its sales by 2.2 times during the period from FY12 to FY17. Similarly, EBIDTA increased by 16.3 times during this period. The number of models and their variants available to the customers increased from 118 (FY12) to 247(FY17) (Union of Japanese Scientists and Engineers (JUSE), 2017b].

M&M Swaraj Division could increase their production capacity from 81,000 tractors in FY13 to 1,08,000 in FY16. The production volume increased from 71,710 in FY11 to 79,038 in FY16 (Mahindra & Mahindra Ltd. Swaraj Division, 2017, p. 135).

Discussion and Conclusion

Evolution brings all kinds of change. Growth itself is a kind of change management. The traditional practices followed by organizations were sufficient in themselves before the cycles of industrial revolution. All stakeholders could instinctively intuit and apply the kind of strategies that time demanded. However, subsequent periods of complex development in the world have led to a more complex paradigm in business and commerce. This complex ecosystem on the one hand has led to tougher challenges, but has also rewarded organizations with the tools to handle these challenges. The overall improvement in business performance is a case in point. It is not

as if business performance was bad in the past ; rather, with the passage of time, many organizations reengineered themselves to rise to the occasion. The complete change management umbrella is designed to foster and promote ideas that are in creative minds but need concrete scaffolding for implementation. The improvement in business performance is the natural development and consequence of the inclusive strategies implemented over years by these four organizations.

An overview of developments in these four organizations makes four facts very clear. One, change has to be introduced at every level. There can be no excuse for excluding any area of a plant or organization from this revamp. Any small detail becomes the Achilles heel in the long run. Two, every member of the organization needs to keep an open mind, ready to embrace changes whole-heartedly and ready to put in hours, days, weeks, months, even years of dedicated, sincere effort. Three, training and planning are the key drivers. Even if this means that an organization will need to send personnel away for training programs at great cost, so be it. Four, an overall culture of change management has to be installed and followed with rigour and it needs to include each stakeholder, right from the security guards and dealers to the top management. No individual remains untouched.

Managerial Implications

In the present business environment, the Indian industry is facing stiff competition from developed as well as developing countries. To sustain and grow, the Indian manufacturing industry must attain excellence in terms of quality, cost, and efficiency. The only way for Indian managers is to discard old methods of operations and opt for change management. The study will be quite useful for the managers who wish to implement the change management process in their organizations. Since change management is an overarching, guided process for transforming individuals, teams, and organizations from the present state to the desired state, the study of different organizations which have successfully implemented the process and have been bestowed with the prestigious Deming Prize, provides clear guidelines to them. Though there were variations in the process of implementing change in these organizations, which was due to the business and cultural environment of the particular organization, the study indicates a clear path which can be followed for achieving business excellence. The study also helps in identifying gaps between their operational systems and those being practised by the respondent companies. They can also benchmark best industry practices for future improvement. The study helps set a time line to achieve short term and long term goals.

Limitations of the Study and the Way Forward

The study was carried out on four Indian manufacturing organizations that have won various quality awards in the last decade. To find the impact of change management on the businesses of organizations, more manufacturing and non manufacturing organizations can be studied.

This study was carried out on four organizations of the automobile sector. All these organizations have won the Deming Prize. To substantiate the findings, further research can be carried out on non-automobile manufacturing industries. Some other automobile companies that have not applied for the Deming award, if they have successfully implemented change management, the process of its implementation can be studied and a definite model for implementation can be drawn. Research can also be carried out in the service industry to analyze the effect of change management in this sector of the industry. Researchers can also build more detailed models, which can be specific to a different set of circumstances. Future research needs to continue the development of sound theoretical models and instruments.

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APPENDIX. Abbreviations Explained

DM	-	Daily management
QCDSM	-	Quality, cost, delivery, safety, morale
QIP	-	Quality improvement programme
QBM	-	Quality based management
7QC	-	Seven quality control
PPM	-	Parts per million
TQM	-	Total quality management
SKU	-	Stock keeping unit
KKD	-	Keiden kan dokyo (Just Do It)
TEI	-	Total employee involvement
QCC	-	Quality control circle
SGA	-	Small group activity
CFT	-	Cross functional team
QC	-	Quality circle
SPC	-	Statistical process control
PFMEA	-	Process failure mode and effect analysis
DOE	-	Design of experiment
JDI	-	Just do it

About the Author

Sanjiv Gupta is ex- Chief GM - Manufacturing, SML Isuzu Ltd. ; Business Head, Swaraj Automotive Ltd. ; and Plant Head at M & M (Swaraj Division). He is an Electrical Engineer with an MBA in human resource management. He is pursuing Ph.D. in total quality management. He helps to implement change management in plants through total quality management, lean manufacturing, and TPM methodology.