

2014年度

デミング賞
受賞報告講演要旨

Mahindra & Mahindra Limited, Mahindra Powerol Business

1.1 Profile of Mahindra Group:

We Mahindra Powerol are a part of the US\$ 16.2 billion Mahindra Group. The Mahindra Group is one of the most diversified group and a trusted name in India. Through its businesses the group touches every strata of the economy - Aircraft to Automobiles; Hospitality to Home Finance; Tractors to Telecom and so on.

Since its foundation in 1945, the Mahindra Group has played a responsible role in development of independent India. Being a part of it, we are guided by the Group’s core values - Customer First, Quality Focus, Dignity of Individual, Professionalism, and Good Corporate Citizenship. In cognisance of our geographical spread and diversity of nationalities amongst our employees, the Mahindra Group has defined a core purpose for all the businesses of the Mahindra Group based on the idea of **Rise**:

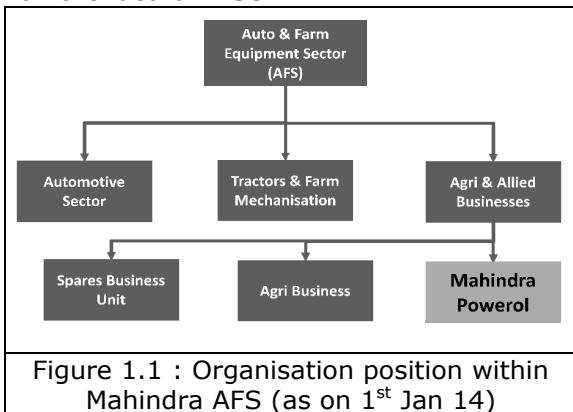


Figure 1.1 : Organisation position within Mahindra AFS (as on 1st Jan 14)

“We will challenge conventional thinking and innovatively use all our resources to drive positive change in the lives of our stakeholders and communities across the world, to enable them to **Rise**.”

The group is a federation of several businesses, grouped into cohesive structures called – business sectors. We are a part of the ‘Automotive & Farm Equipment Sectors’ (AFS). The AFS caters to Automotive, Tractors & Farm mechanization and Agri & Allied industries. Mahindra Powerol (Applicant) is one of the Business Units under the Agri & Allied Business group.

1.2 Profile of Mahindra Powerol Business (Applicant):

We are in the business of providing off-grid power solutions and engines for industrial applications. Our business was formed as an adjacency to the Tractor business in F02, out of the customers’ need for a fuel efficient and reliable power source. We are a Rs. 10 billion (approx US \$ 160 Million) (US \$ 1 = approx. INR Rs. 62) [F13] business and have grown at 59% CAGR since our inception. Mahindra Tractor is known for its best in class fuel efficient engines. We started our business by offering diesel engines for various engine applications. In the initial years after our inception, we saw good demand for Diesel Generator (DG) set. We started selling engines for DG set application to fulfill the customer’s need for a reliable power source and went on to create our own brand of DG sets - ‘Mahindra Powerol’.

1.3 Business Growth drivers:

In India, the opportunity for off-grid power solutions and engine applications arises because of a combination of two economic factors:

- A rapidly growing Indian economy (measured in GDP growth rate) with corresponding increasing demand for power. From F02 onwards the Indian economy has been growing on an average rate of 7%, reaching high growth rate levels of 9% and better.
- Inadequate and inefficient grid power supply which results in interruptions or complete breakdown of grid power. The unreliable power supply situation drives the need for ‘Off-grid’ power solutions. An ‘Off-grid’ power solution delivers electric power for limited use and is not connected to the electric supply grid of the Utility companies.

1.4 Market segments, Products / Services and Business Model:

(1) Market segments

Geography	Customer Group	Our segment definition	Product/ Services offered
India	Mobile Telecom companies and Telecom Tower companies	Telecom	DG sets TIM and EMS
	Small business establishments	Retail-LkVA	DG sets < 62.5kVA

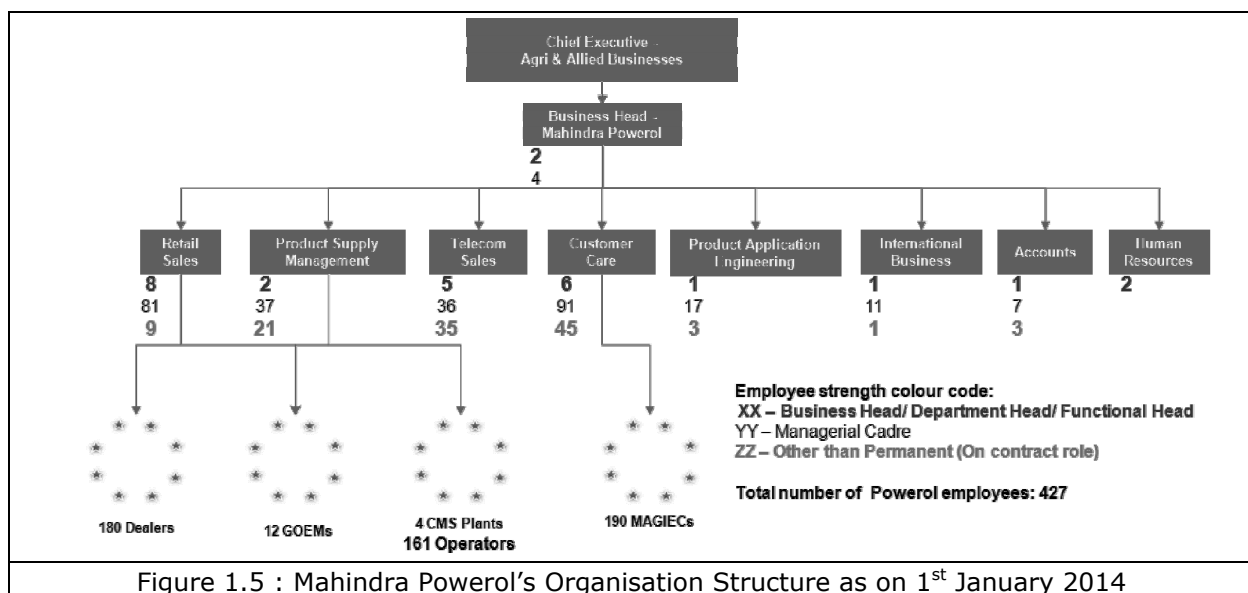
Geography	Customer Group	Our segment definition	Product/ Services offered
	Business establishments which require larger capacity power back-up solution	Retail-HkVA	DG sets >62.5kVA
	OEMs of industrial equipment requiring motive power source	Industrial Engine Applications	Diesel engines (10 – 260 hp)
	Home owners.	HUPS	HUPS (250-5000 VA) HUPS Battery
Overseas	Need for Power back-up solutions by various market segments	International Business	DG sets
		Customer Service in India	

(2) Products and Services

- **DG sets** - A DG set is a **back-up** electric power source in case regular electric power supply fails or is not available. In a DG set, a diesel engine drives the alternator to generate electricity. A DG set gives continuous power for wide variety of applications – ranging from residential to industrial establishments. As per need of some customers we also undertake complete system design, installation and commissioning of DG sets on a turnkey basis.
- **Customer service** – To meet the customers’ expectation of a superior and trouble-free ownership experience, we offer Services for our DG sets and industrial engines through our ‘Customer Care’.
- **Tele Infra Management (TIM)** - Through TIM we take care of the complete infrastructure of customer’s Telecom Tower site, other than electronic equipment like DG sets, air-conditioners and battery banks.
- **Energy Management Solutions (EMS)** - Through EMS, we supply energy for a Telecom Tower site.
- **HUPS** - A HUPS is power back-up device intended for residences, small shops and offices. A HUPS gives power back-up for duration of 2-8 hours.

1.5 Management Organisation:

(1) Mahindra Powerol Organisation structure



Our organization structure is unique as it originates from Mahindra AFS and extends to our partners. The Business Head, Mr. P Palaniappan, reports to Mr. Ashok Sharma - Chief Executive (CE) – Agri & Allied Businesses of the AFS. The Business Head takes inputs and guidance from the CE periodically on matters related to long-term directions and corporate policies.

(2) Our Partners

Apart from managing the internal organisation comprising of 427 employees, we manage multiple partners' networks through different departments. Our partners are:

- **CMS plants (4)** – We created these plants to meet high growth and fluctuating demands. We have developed our unique 'Lean Asset' model of manufacturing in collaboration with our partners
- **GOEMs (12)** – We sell DG sets in the domestic Retail segment by supplying engines to our 12 GOEMs. Our GOEM is like a value-added distributor for us.
- **MAGIECs (190)** – We provide countrywide Customer Service for our DG sets and Industrial engines through our Service network of MAGIECs.
- **Dealers (180)** – We sell our DG sets in the domestic Retail segment through our Dealers. We also created branded showrooms, where a customer can touch and feel the product.

(3) Authorities and Responsibilities of the Top Management

- Plan growth through customer-oriented business objectives and strategies
- Identify new business opportunities in 'Off-grid Power Solutions' and Industrial Engine applications.
- Decide the business policies including the choice of market segments and customers.
- Select appropriate technology provider or supplier for new product development and enhancements in terms of efficiency, quality and safety.
- Plan for resources including business partners and capable manpower.
- Establish effective systems and processes to meet stakeholders' expectation
- Inculcate culture of continual improvement through the 'Living **Rise**' movement

(4) Corporate Social Responsibility (CSR) and Sustainability

Since its inception the Mahindra Group has woven CSR and Sustainability in its growth journey. It has set in place several initiatives to render its role of corporate citizenship. Some of the key initiatives are:

- **K C Mahindra Education Trust** – Founded in 1953 with an objective of transforming the lives of people in India through education and financial assistance across age groups and income strata, the trust has provided disadvantaged students with more than USD 22.03 million in grants, scholarships, and loans.
- **Contribute 1% of PAT to CSR** – The Mahindra Group has declared and contributes 1% of the Group's net profits for social causes.
- **Sustainability roadmap** – with the focus on 3Ps – Planet, People and Profits. In 2008, the Group developed comprehensive sustainability roadmaps within each of its sectors. The Mahindra Group was one of the early business houses in India to start reporting its sustainability initiatives as per 'Global Reporting Initiative' (GRI) guidelines.

In line with our group's focus, we actively play our role in development of the society and sustainability. Some of the key activities are:

- *Nanhi Kali (little flower bud)*: Socially an Indian girl child gets less attention compared to a boy and often do not get educated. Nanhi Kali is an organization dedicated to education of poor girls. We along with our partners support Nanhi kali periodically.
- **Increasing Green Cover**: Cumulatively we have planted 60,000+ trees in last 3 years.
- *Tejas (enlightened person)*: Training of independent local mechanics (15000 cumulatively) to improve their earning as well as provide better service to their customers.

1.6 Business Evolution:

We attribute our growth and success to three competitive advantages that we enjoy:

- Value for customer through Fuel Efficiency
- Accessibility through our Geographical Reach and
- Responsiveness through our Agility

While the above three factors were the key for our success, our evolution is also a story which accentuates one theme – when faced with an **adversity** or challenge, we have always responded by **converting** it to an **opportunity**, using TQM approach.

We would like to share the evolution of our business in following distinct phases as shown below:

	Inception (F02-04)	Growth (F05-09)	Diversification (F10-13)
	<p style="text-align: center;">Revenue Trend (Rs. Mn.)</p> <p style="text-align: center;">Set up CMS plants to meet rapid growth in Telecom</p> <p style="text-align: center;">Diversified into adjacencies to counter Telecom demand drop</p> <p style="text-align: center;">F02 F03 F04 F05 F06 F07 F08 F09 F10 F11 F12 F13</p> <p style="text-align: center;">■ Telecom ■ Service ■ Retail-LkVA ■ Retail-HkVA ■ Exports ■ HUPS ■ Ind. Engines ■ EMS+TIM</p>		
Market Dynamics	<ul style="list-style-type: none"> Engines needed for industrial applications Increasing DG set demand from Telecom segment Need for pan-India service by Telecom customers 	<ul style="list-style-type: none"> Rapid network expansion by Telecom companies due to explosive growth of Mobile Telephony in India. (From 37 Mn users in F05 to 258 Mn in F09) Rising demand for DG sets from Telecom segment 	<ul style="list-style-type: none"> Growth in Mobile Telephony moderated. Tower sharing amongst Telecom companies to optimize costs. Telecom DG set demand dropped by 85% from F09 to F13 Retail segment grew at 10-15%
Our response	<ul style="list-style-type: none"> Tied-up with GOEMs for addressing DG set demand Created a network of MAGIECs to service Telecom DGs 	<ul style="list-style-type: none"> Created 'Contract Manufacturing Setup' (CMS) plants based on 'Lean Asset Model' to address Telecom demand Started TIM to serve the Telecom customer's need for total tower maintenance. Catered to Retail segment through GOEMs & by creating 'Powerol' brand 	<ul style="list-style-type: none"> Systematic measurement of Customer Satisfaction and actions for continuous improvement TQM approach to achieve vision Grew Retail DG business with focus on HkVA Started exports to Africa and S. Asia Piloted innovative technological products to provide fuel saving to Telecom customers

Table 1.6 : Evolution of Mahindra Powerol

Converting adversity into opportunity: In the above journey we came across adversities in the form of external challenges and internal capability gaps. But in every such instance we have endeavored to convert imminent adversity into an opportunity. Two key examples are:

(1) Unprecedented spurt in demand from Telecom segment=> Lean Asset model

The period F05-09 saw ten-fold growth in subscriber base of mobile phones in India. This unparalleled growth in subscribers prompted Telecom companies to expand their network rapidly. This in turn increased the demand for DG sets. However our customers had to expand their network in spurts. We understood our customers' challenges and responded to this adversity by creating 4 CMS plants based on our unique 'Lean Asset' model of manufacturing. The Lean Asset model helped us in ramping the capacity up or down as per the demand, with agility. In F09, we made 48,000 DG sets for Telecom segment from our CMS plants.

(2) Heavy dependence on Telecom segment=> Diversification into adjacencies

In F09, Telecom segment accounted for 70% of our revenue. We got the first warning of impending decline in Telecom demand in F10, when we reported a flat growth. We responded to this adversity by diversifying into adjacencies to compensate for drop in Telecom demand. In doing so we harnessed our partners' capabilities. Anticipating slowdown in Telecom segment, we proactively diversified into Retail segment in F06 by harnessing our GOEM network and by creating the Mahindra Powerol brand. Similarly we also diversified into HUPS in F10, to cater to the power back-up needs of home owners. And in F11 we started exporting DG sets to S.Asia and Africa. Through these diversification moves we have brought down our dependence on Telecom segment from a high of 70% in F09 to 19% in F13.

2.1 Background:

In this chapter we describe our process of vision formulation and its deployment, customer oriented business objectives and strategies identified to achieve the same. Taking into account the external environment we formulated our vision in F11. To assess our progress towards the vision realization, we defined short-term goals in the form of Promise statement. The Promise statement is a set of objectives covering our goals and strategies. These strategies and goals are reviewed quarterly, annually as an ongoing process w.r.t changing business environment and customer expectations.

2.2 Vision:

(1) Business environment

Our growth from F05-09 was primarily driven by demand from the Telecom segment. After F09, as anticipated, the demand for DG sets from Telecom segment started coming down. To reduce our dependence on Telecom segment, we formulated a Vision.

(2) Vision statement

We studied our presence in the market & its requirements and realized that we have opportunity to become a full range Powergen player. The major voice of our stakeholders was that M&M being a leader in various business segments in India and having a significant global presence. In F11, the Top management based on this feedback, assessment of our strength and weakness and past performances charted an all-compassing and progressive vision statement as:

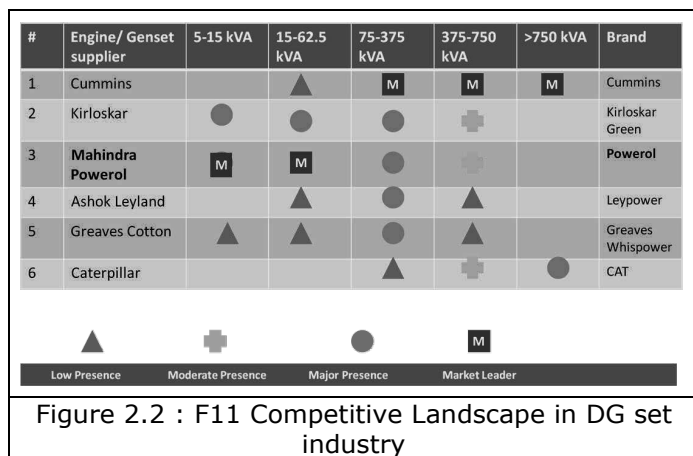


Figure 2.2 : F11 Competitive Landscape in DG set industry

To be the market leader in India for off-grid power solutions and engine applications with significant global presence.

While aspiring for market leadership we took a holistic approach which covered both - business outcomes and the enablers. Hence for achieving market leadership we focused on leadership in customer satisfaction, market share, employee engagement, revenue, profitability, technology and innovation.

2.3 Goal and Strategy formulation and deployment process:

(1) Mahindra and Mahindra strategy formulation framework

Taking inputs from SWOT analysis, the vision statement and using the Mahindra 11 (M11) framework, long-term goals are formulated and these goals are reviewed yearly with a 3 year projection. Our strategy formulation and deployment process is explained through accompanying schematic diagram.

The M11 guides the business to review the assumptions about the external environment and accordingly make choices about the market segments, products and the supporting operations.

The M11 covers 11 areas that a business must address while evolving its strategy:

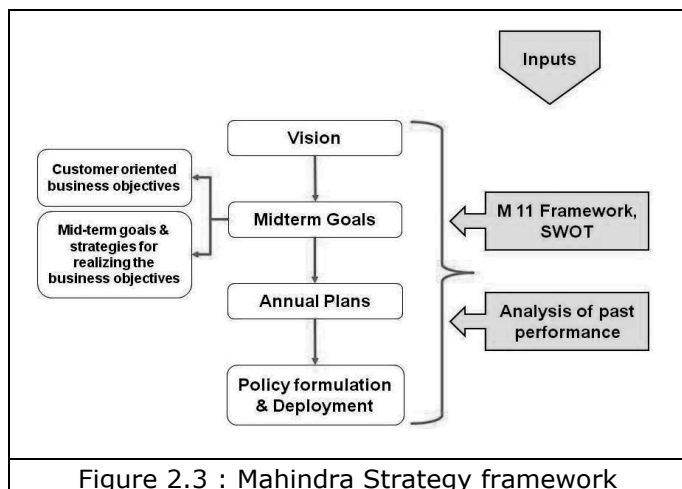


Figure 2.3 : Mahindra Strategy framework

External Environment	Our Plan	Human Aspects
Environment scan	Product-market choice	Human Capital
Market segmentation and sizing	Value proposition	Technology & IT
Competition understanding	Operations	Synergy
Customer understanding	Innovation	

Table 2.3 : Areas covered by Mahindra M11

(2) AFS promise formulation framework

To progress our journey towards vision, we develop a three year time-frame **Promise statement**. The Promise statement is a set of business objectives extracted from the 3-year strategy and the various objectives are selected on the basis of 'Balanced Scorecard' framework.

2.4 Promise 2013 and its realization:

(1) Promise 2013 goal and achievement

Based on the roadmap for achieving our vision, the Promise 2013 statement was prepared. In preparing the Promise statement, we took into account the external environment and challenges in front of us. In keeping with the Powerol spirit we planned to convert adversity into opportunity. For example to respond to the adversity of Telecom demand coming down we planned to grow the Tower population under TIM service to 50,000.

(2) Learnings from Promise 2013

In the period F11-13, our business growth drivers – GDP growth rate and Electricity shortage – were affected. The economy which was growing at 8-9% till F10, slowed down to a rate of 5%. And, the peak load deficit level which was around 13% in F10, dropped to 9% by F13. The drop in electricity shortage was also helped by better monsoon season in country. Both these factors affected the demand for DG sets.

2.5 Promise 2016:

After taking inputs from PDCA of Promise 2013 and external environment at end of F13 and the feedback received from TQM Diagnosis, in line with our vision we formulated Promise 2016.

Promise 2016 statement
<ul style="list-style-type: none"> • No. 1 in CSI in Powergen industry • No. 1 player in the Retail LkVA segment & 12% share in HkVA segment • Leadership in Telecom Energy Management Solutions • Exports revenue of Rs. 300 Mn and be among Top 3 DG suppliers in S.Asia • HUPS revenue of Rs. 450 Mn • Be an overall Rs. 11 bn business • 10% of revenue coming from Alternate Energy Solutions • Challenge Deming Prize • Capabilities to undertake orders of DG sets up to 1000kVA • Deliver superior financial performance and maintain 50%-50% • Be among Top 3 in terms of Employee Engagement score in the AFS

Table 2.5 (1) : Promise 2016

Strategies to achieve Promise 2016

To achieve the Promise 2016 objectives we have evolved strategies and deployed them across various functions. Fundamentally the Base Building strategies are aimed at strengthening the internal constitution of the business while the Challenging strategies are aimed at gaining competitive advantage. The list of Base Building and Challenging strategies is given below:

Base Building Strategies	Challenging Strategies
New Product Development	Leveraging partnerships for business growth
Quality Assurance	Service as a differentiator
Employee Involvement and Development	Transformation from Product supplier to Solution provider
Leveraging IT for business growth	-

Table 2.5 (2) : Base Building and Challenging strategies

These strategies are utilized for achieving promise 2016 elements; broad deployment is as shown below:

#	Promise 2016 Element	Strategy
1	Be No.1 in CSI	<ul style="list-style-type: none"> • Quality Assurance • Service as a differentiator
2	No.1 in Retail LkVA and 12% share in HkVA segment	<ul style="list-style-type: none"> • New Product Development • Quality Assurance • Leveraging IT for business growth
3	Leadership In Telecom Energy Management Solutions	<ul style="list-style-type: none"> • Quality Assurance • Transformation from Product supplier to Solution provider
4	Exports Revenue	<ul style="list-style-type: none"> • Quality Assurance • Leveraging IT for business growth • New Product Development
5	HUPS Revenue	<ul style="list-style-type: none"> • Quality Assurance • Leveraging IT for Business growth
6	Overall Revenue	<ul style="list-style-type: none"> • Leveraging partnerships for business growth • Transformation from Product supplier to Solution provider
7	Revenue from Alternate energy	<ul style="list-style-type: none"> • Transformation from Product supplier to Solution provider • New Product Development
8	Deming Examination	<ul style="list-style-type: none"> • Employee Involvement and Development • Quality Assurance • New Product Development
9	Capabilities to execute DG set orders upto 1000 kVA	<ul style="list-style-type: none"> • Leveraging partnerships for business growth
10	Deliver superior financial performance	<ul style="list-style-type: none"> • Leveraging partnerships for business growth • Leveraging IT for Business growth
11	Be among Top 3 in AFS in terms of Employee Engagement	<ul style="list-style-type: none"> • Employee Involvement and Development

Table 2.5 (3) : Promise 2016 and strategies

2.6 Policy Management:

The managing points of the annual policy are derived from the roadmap of the Promise statement and the checking points are based on the business strategies. The policy document is formulated based PDCA of previous year achievements and through a catch ball process across the organization. It contains various business objectives grouped as per the Balanced Scorecard (BSC) framework, viz. Customer perspective, Financial perspective, Internal Business Process and Learning & Growth. The policy is communicated with employees, partners and deployed to various departments. For achievement of quality, cost and new product development targets, structured cross functional approach is followed. The progress of CFTs is reviewed at various forums including the Divisional Management Team (DMT). The DMT is led by Business Head and comprises Functional Heads, who meet once a month for reviewing performance of the business and subjects related to long term growth

3.1 Background:

We have formulated our TQM philosophy based on the core values of the Mahindra Group: *"We believe that TQM approach is a scientific methodology for achieving Excellence in our various Business Processes with a view to satisfy all our Stakeholders (viz. Customers, Employees, Suppliers, Partners and Society) and realize our vision".*

As explained in earlier chapters, our business started in F02, as an adjacency of Tractor business (then known as Farm Equipment Sector-FES); winner of Deming Prize in 2003 and JQM in 2007. Our senior management had witnessed the high customer centricity achieved through TQM way of working at FES and thus chose to pursue TQM approach for achieving our vision.

In our TQM Journey, we established our TQM Model to provide direction to the entire organization. It is derived from 'Fundamental concepts of TQM' and our vision.

The roof of our model demonstrates the 'Stakeholders including our customers satisfaction' followed by 'Achievement of Business Goals'. The base reflects strong foundation of 'Total Employee Involvement'. Our key strengths which reinforce the foundation are:

- Value for customer through Fuel Efficiency
- Accessibility through our Geographical Reach
- Responsiveness through our Agility

The TQM pillars promote utilization of our key strengths in their fullest potential

- Standardization & DWM
- Policy Management (PD & PDCA)
- Kaizen

The major challenge we encountered whilst development and deployment of our TQM approach was of aligning our partners with our improvement efforts. During the course of years we have provided them ongoing support to strengthen their quality assurance systems and enhancing their team capabilities with an aim to achieve customer satisfaction and mutually beneficial business results

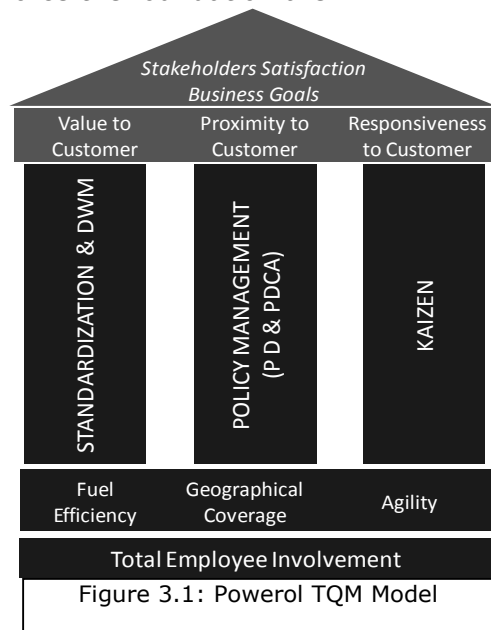


Figure 3.1: Powerol TQM Model

3.2 Evolution of our TQM Journey:

TQM approach for achieving objectives

We had witnessed high customer centricity achieved through TQM way of working at FES and thus chose to pursue TQM approach for achieving our Vision and following objectives:

- High level of Customers satisfaction.
- Total Employees Involvement & empowerment
- Build improvement culture through PDCA and Kaizen
- Consistent business results to accomplish our vision

Progression of our TQM Journey and growth of the business is described in Table 3.2

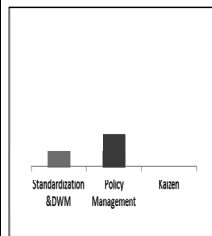
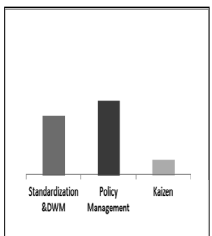
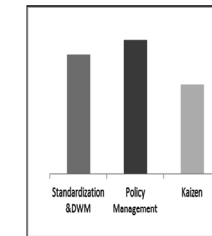
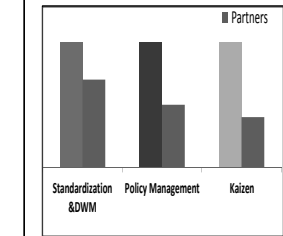
	F02-F04	F05-F09	F10-F13	F14-onwards
Business Evolution	Inception Customer offering:- <ul style="list-style-type: none"> • DG Sets for Telecom Segment • Industrial Engines Partnered with <ul style="list-style-type: none"> • GOEMs - 4, MAGIECs - 22 	Growth Customers offering:- <ul style="list-style-type: none"> • DG Sets for Telecom and Retail Segments • Industrial Engines Partnership increased to <ul style="list-style-type: none"> • GOEMs - 12, MAGIECs - 111, CMS - 2, Sales Dealers - 80 	Diversification Customers offering:- <ul style="list-style-type: none"> • DG Sets for Telecom, Retail, Export segments • TIM, EMS, HUPS • Industrial Engines Partnership further increased to <ul style="list-style-type: none"> • GOEMs - 12, MAGIECs - 190, CMS - 4, Sales Dealers - 160, Exports Distributors: 24 	Consolidation Expand product portfolio by <ul style="list-style-type: none"> • Technology Roadmap • Strategic partnership for expanding product range Strengthen & nurture partnerships by <ul style="list-style-type: none"> • Total Employee Involvement in TQM movement
	Initiation & Basic TQM education Challenges Basic product quality & systems at partners setups. Focus on Product Quality <ul style="list-style-type: none"> • Inspection, testing of Engines at FES and 100% inspection of DG sets at GOEMs for ensuring product quality • Establish basic quality systems at GOEMs & MAGIECs • Capability building of Powerol team for understanding and meeting customer requirements. 	Promotion across functions & deployment to partners Challenges Quality Assurance with increasing partners base for achieving growth Focus on Process Quality <ul style="list-style-type: none"> • Establish QA systems for DG Set assembly • Quality Points (work stations) for ensuring no defects are forwarded on assembly line • Implementation of ISO 9001, 14001, 18001 guidelines • Training for business partners for uniform quality of sales & service across India • Capability building of our team members on Policy Management use of systematic problem solving methodologies • Promotion of Individual Kaizens at CMS Plants 	Using TQM as a strategic management tool Challenges Integrating TQM approach with new businesses for achieving our vision Focus on System Quality <ul style="list-style-type: none"> • Focus on new products quality through Powerol New Product Development process (PNPD) & Know Your Customer (KYC) initiative • Formulating quality systems for new businesses • Leveraging IT for improving coverage, effectiveness and efficiency of unique systems like, PSS, eFSR etc • Initiation of lean approach at CMS Plants and TPM approach at field service. • Partner Quality Improvement Group [PQIG] established to support GOEMs • Kaizen framework established. Increased focus on advanced techniques viz. DOE, DFSS. MYB approach extended to Partners • Kano 4-Student Analysis initiated to strengthen Policy Diagnosis at Powerol. • Policy Management introduced at Partners • Introduction of Mahindra Excellence Model 	Further strengthen TQM within Powerol & Partners Challenges Strengthen & enhance TQM deployment at partners Focus on institutionalising TQM approach <ul style="list-style-type: none"> • Strengthen customer understanding & develop first time products through PNPD • Enhance usage of innovation and benchmarking for Customer Delight through business excellence. • Total Employee Involvement by establishing robust QMS & Kaizen culture at Partners. • Strengthen standardization by improving effectiveness of unique systems (e.g. PSS, eFSR) to ensure customer satisfaction and superior business results. • Extend AFS Excellence Model guidelines to partners (Evolved from Mahindra Excellence Model, in F14) • Enhance usage of advanced statistical tools, techniques & thrust of Horizontal Deployment of actions. • Focus on practice of Policy Management at Partners. • Foster the Rise philosophy to align Powerol and Partners to achieve our common goals.
TQM Evolution				
Conceptual TQM Status				

Table 3.2: Powerol TQM Journey

3.3 Implementation of TQM:

We have identified specific strategies to achieve goals as per Promise 2016. These are implemented through systematic TQM approach as per our TQM Model.



(1) Policy Management

During Inception phase, we deployed Policy Management process from Farm Equipment Sector to Powerol. Initially it was adopted for communication & management of our objectives. During the course of time we were able to align our organizational priorities and individuals’ targets in structured manner.

Major initiative to enhance Policy Management:

Kano 4-Student Analysis: This technique has been utilized by our Business Head and Functional/ Departmental heads for reviewing the yearly targets and establishing policies for the subsequent year

Policy Deployment at business Partners [CMS, GOEMs and MAGIECs and Sales Dealers]: This

was a challenge for us since our partner’s capability on annual planning and realization of targets were limited. We have gradually inducted them with systematic way of planning & included them in our Policy Deployment process. As shown in Table 3.3, the respective departments are responsible to sharing our annual targets with our business partners in form of agreements, policies and review its progress on periodic basis.

S.No	Business Partners	Powerol Dept.
1	CMS Plants	PSM
2	GOEMs (Sales)	Retails Sales
	GOEM (Manufacturing and Quality)	PSM
3	MAGIECs	Customer Care
4	Sales Dealers	Retail Sales

Table 3.3: Policy Deployment at partners

(2) Standardization and DWM:

To ensure uniformity in actions and processes across Powerol & partners we have utilized framework of ISO 9001:2008 to deliver quality product and services. We have leveraged Information Technology to optimize and standardize our processes viz. Powerol Sales System (PSS), eFSR (electronic Field Service Report). Also we have identified and selected Leveraging IT for Business Growth as one of our Base Building Strategy

Daily Work Management:

Daily work Management is an integral part of our Policy Management process. The DWM is practiced across all departments in Powerol by all officers

Standardization and DWM at our Business Partners: we have extended the framework of ISO standards to establish systems at our partner locations.

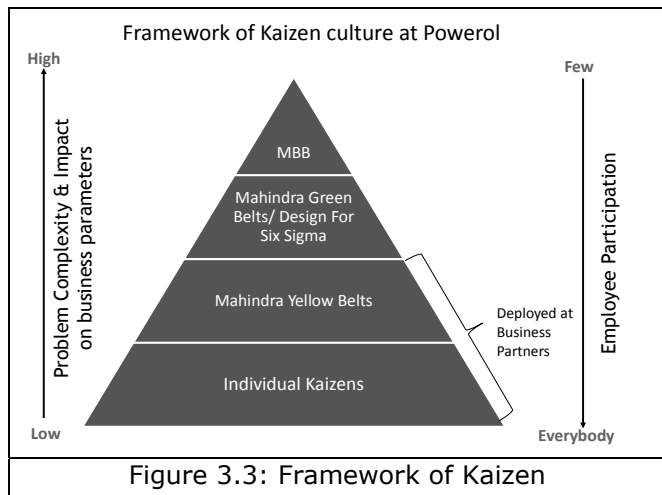
(3) Kaizen:

Kaizen is an integral part of our way of working. As per our definition any “Change for Better, small or big, is Kaizen”. Figure 3.3 describes the various forms of kaizens deployed by us.

Individual Kaizens: These are small improvements done by our team members in their own work areas.

Mahindra Yellow Belt (MYB): We introduced MYB in F11. This is a systematic problem solving approach like QC story for solving complex high impact cross functional problems.

MGB, DFSS & MBB projects are identified for solving organizational level issues by utilizing advanced statistical tools



(4) Total Employee Involvement:

Total employee involvement (TEI) is the foundation of our TQM model and we believe it is key for achieving our vision. We have encouraged TEI in various aspects of the business viz. systematic communication by top management, Kaizen framework, Policy Management, **Rise** initiatives, capability building and ensuring high morale by implementing actions on findings from Employee Satisfaction Survey.

We have induced culture of pride & trust by encouraging & recognizing the team on their achievements.

Some of the initiatives taken towards TEI are:

- Cross Functional Teams
- Reach out communication meets
- Quality Month celebration
- Excellence Day celebration
- Celebrating **Rise** Stories through Quarterly communication meets

Celebrating Rise Stories through Quarterly communication:

Rise is a simple yet powerful verb which defines the Mahindra Group and succinctly sums up the aspirations of its stakeholders and employees. Mahindra’s customers across the world, all of them without exception expressed a strong sense of optimism about the future and shared a common desire to Rise, to succeed and create a better future for themselves, their families and their communities. We strongly believe that the Mahindra brand epitomizes what our customers’ want – a company that empowers them to **Rise**.

The spirit of **Rise** is based on the following three Brand Pillars:

Accepting No Limits	Alternative Thinking	Driving Positive Change
---------------------	----------------------	-------------------------

Implicit in the **Rise** message is the belief that anything is possible, that we can achieve whatever we set our minds to. It seeks to unite the Mahindra workforce as a group of passionate individuals and unconventional thinkers who create world-class offerings and aspire to greatness.

Quarterly **Rise** Celebrations: **Rise** stories are recognized and celebrated quarterly along with all employees on a common platform. We come together through an All-India Video conference which is chaired by our CE & Business Head.

Spreading **Rise** philosophy at our Business Partners:



We celebrated Mega **Rise** day (on 17 Jan’13) at 32 Indian & 1 international locations which covered over 5000 team members on a single day. The objective was to re-affirm the commitment and to re-align our partners with **Rise** philosophy.



Figure 3.3.4 : Mr. Palaniappan, addressing our Partners at Chennai

4.1 Introduction:

Through our base building strategies we aim to meet stakeholders’ requirements consistently by strengthening the constitution of our business. We ensure this by building our organization capabilities w.r.t products, processes, people and partners. While our efforts to strengthen our organization span all departments, we are presenting in this chapter the four base building strategies:

1. New Product Development, 2. Quality Assurance, 3. Employee Involvement and Development, 4. Leveraging IT for Business growth

4.2 New Product Development:

To meet our Promise 2016 goals and long term plans, we need to introduce new products to delight our customers. Through our Powerol New Product Development (PNPD) process, we systematically understand our customer needs and design products. We have revised our new product development process based on the PDCA of Promise 2013 and integrated it with Quality Assurance map of Mahindra Powerol. In order to achieve our Vision & Promise 2016, the key focus areas are:

- Understand customer requirements
- Establish robust systems & processes for supplying first time right products
- Customer satisfaction by enhancing quality of Sales and Service

Accordingly we have established comprehensive quality assurance system across Powerol. A consisted version of QA chart is as shown here:

The product development process has two stages – Product Planning and Design. Our PNPD process defines the roadmap starting from the product concept at Product Planning stage to releasing the final drawings at the end of the Design stage. We have strengthened the PNPD process and made it more robust through a Gate Review mechanism. There are three gates which ensure a check on process adherence, timelines & Quality parameters. We have enhanced the quality of design by the use of advanced Quality Engineering tools like Design Failure Mode Effect Analysis (DFMEA), Design for Serviceability (DFS), and Design for Assembly (DFA) at appropriate stages to ensure all potential failures modes/issues are identified and corrective actions are taken. A comprehensive Design Validation Plan ensures prevention of Design defects.

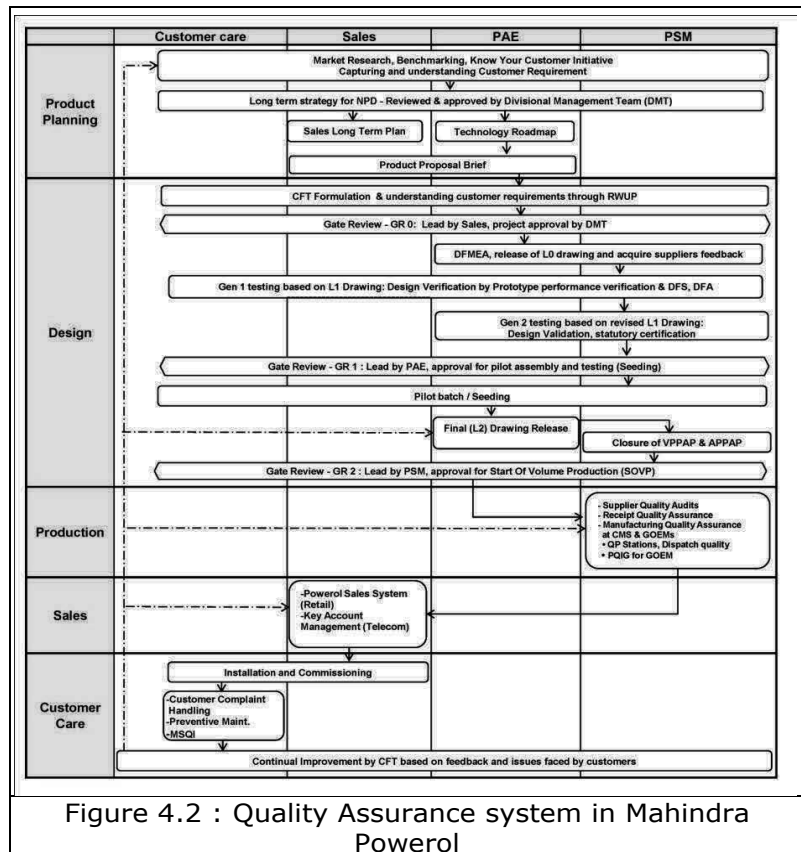


Figure 4.2 : Quality Assurance system in Mahindra Powerol

QA system in stages from Production to Customer Care is described the subsequent Base building strategy – Quality Assurance.

In this section we have described how the quality assurance is deployed in the New Product Development process. The major deployment areas are:

1. Product Planning, Design, 2. Design Review, 3. Modification of design

4.3 Quality Assurance:

(1) Overview

While our initiatives for quality assurance in new product development were covered in the earlier section, we are presenting the initiatives in other functions

We are describing our QA initiatives other functions – Manufacturing, Sales and Customer Care functions

(2) Quality in Manufacturing

1. Supplier Quality Improvement at CMS: Reduction of Goods Receipt Rejection [GR] & Line Rejection [LR]: Conformance to quality of supplier parts is assessed as Parts Per Million (PPM) at two stages:

- Good Receipt Rejection (GR): Estimated at receipt of parts through sample inspection
- Line Rejection (LR): Estimated based on assembly line rejections

Quality Assurance is ensured at supplier end through analysis of failure data, actions taken against top rejections, strengthening Pre Dispatch Inspection (PDI) and checking of fit & functioning of component during inspection and by establishing control over special processes viz. Painting and Powder coating. After achieving desired level of GR & LR we have initiated “Direct On Line” (DOL) approach in F13 with an aim to ensure ‘quality at source’.

2. Improving Product and Process Quality at CMS Plants

The two major activities for enhancing Product Quality are:

- Initial Quality Study (IQS)- figure 4.3 (1)
- Third Party Product Audit

Improving Process Quality

Training on Dexterity: Dexterity rooms have been established at all plants where operators are systematically trained on our product and processes.

Quality Control and Assurance of Assembly Processes: Quality of Engine & DG set is checked on assembly line at four Quality Verification Stages known as Quality Check Points (QP stations).

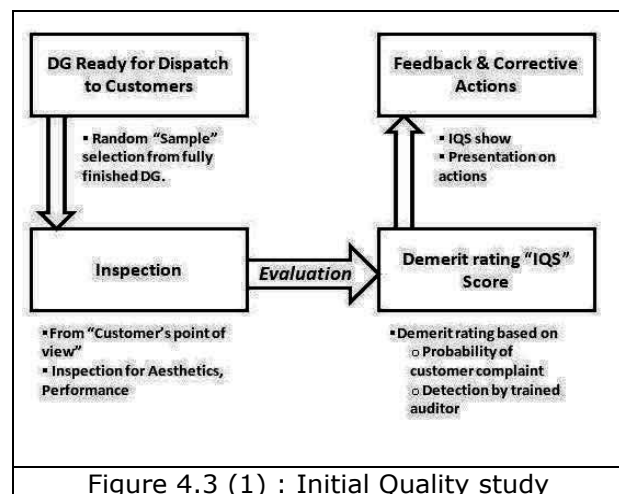
3. Improving Quality at GOEMs Plants

GOEMs have played a major role for increasing our market share in Retail segment. In order to support & upgrade their manufacturing capabilities, in F11 we established a special team called as PQIG (Partner Quality Improvement Group). Some of the top initiatives taken by this PQIG team are:

- Training & Skill Up gradation.
- GOEM Council
- Manufacturing Quality Assurance

(3) Quality Assurance in Sales

Powerol Sales System (PSS): PSS is an enquiry management and sales analysis system developed by Retail Sales. In the Retail DG segment proper follow up of tracked enquiry is required. PSS is a web-based enquiry management system through which dealers and GOEM can keep track of enquiries in their respective region for boosting the sales. This system is



useful for dealers/GOEM and our Sales team members to review performance of their areas and take corrective actions for improving the market share. Details of PSS are added in section 4.5 (Leveraging IT for Business Growth) of this chapter and in Departmental DTQMP Chapter 2 (Retail Sales)

Key Account Management: In order to strengthen the account & relationship management with our corporate customers, we have placed managers in selected regions. The entire customer base is completely distributed among them for effective Key Account Management.

(4) Enhance Quality of after sales service

1. Domestic:

To ensure customer satisfaction we focused on enhancing our quality of service. Some of the major initiatives undertaken are:

- Improving product quality in field: Defects in engine and DG sets are monitored in Repairs Per Hundred (RPH) in DG Sets. Top Contributors are analysed and resolved through Cross functional Team approach.
- eFSR to improve Preventive Maintenance (PM) quality: We introduced eFSR (electronic Field Service Report) to enhance PM quality. The salient features of eFSR are:
 - It ensures all checks are done as per reference sheet and real time submission of reports.
 - Options of taking photographs of site conditions for enabling the Tower companies to improve their processes.
- Service Level Adherence (SLA): We introduced eConnect with an aim to enhance responsiveness to customer. This IT solution has enabled us to improve our SLAs (resolution of complaints within 48hrs).

2. International Business

As a new entrant to global business we identified a challenge of establishing strong after sales service support. Our products were new for our international partners and their capabilities needed improvement. We started focusing on building capability of our field service team launched Global Capability Development Program (GCDP). We have formulated training modules on installation, commissioning, operations, maintenance, and field concern resolution. This has helped us in enhancing the team's technical skills for maintaining the products. With our focused efforts we have been able to reduce customer complaints

(5) Remaining Problems:

- Reduction of field failures to provide defect free products to customer for diversified businesses
- Strengthening of Quality Assurance in New Product Development for delivering first time right products.
- Enhance problem solving capabilities of people by using advanced statistical tools.

4.4 Employee Involvement and Development:

(1) Overview

We believe that quality of products is dependent on quality of people. Hence we have focused on Human Resource Management. We strongly believe that Human Resource has a significant role to play in our pursuit of vision to be a market leader for Off- Grid power solutions. It is people who make this happen and hence development and nurturing of human resource is accorded great importance. Our total strength is 427 members with its presence across India. As per our organization structure, the HR department is responsible for developing Powerol team members. Development of our partner members is taken care by our corresponding departments like, PSM, Retail Sales and Customer Care. CMS team members deputed at plants facilitates the CMS HR team in upgrading the skills of CMS team members. Retail Sales trains and focuses on improving the sales members of our GOEMs and Sales Dealers. The PQIG facilitates the GOEMs' HR team on establishing and institutionalizing system for their

employees' involvement and development. During growth phase we faced challenges pertaining to employee development and engagement of Powerol and Partner team members. The major challenges that we faced were:

1. Initiatives for Powerol Team

Challenges

- Imbibe **Rise** behavior and build **Rise** culture among all the employees
- Limited efforts for employees development & engagement
- Inadequate formal communication channel between the top management and employees activities
- To reinforce **Rise** behavior and culture within Powerol, quarterly all India **Rise** communication was initiated. This gave employees a platform to share their accomplishments and achievements in the form of '*Rise stories*' in which an individual or a team demonstrate one or more of the **Rise** Behaviors. Their presentations highlighting their efforts inspire others to create their own **Rise** experiences.
- 'Experiential Rise workshops' were conducted for all the employees across India, to help employees understand & practice the Rise behaviors under our Rise Pillars. 92% of the employees were covered under these workshops in F13 and 25% for F14-YTDQ3.

There is an overall improvement in the Powerol ESI score by 1 point.

2. Initiatives for CMS

Challenges

The major challenges faced at CMS were:

- Capability of CMS management to upgrade the team to meet challenges of diversification phase.
- Need to establish an approach for Employee engagement at CMS

While the CMS plants were created to address the Telecom DG set demand, in the Growth phase, the subsequent diversification created challenges in managing the CMS plants.

- i. We prepared stage wise skill requirement plan to increase the capabilities of our CMS operators
- ii. We established dexterity rooms at CMS plants for giving trainings to operators on safety and quality assurance.
- iii. To improve employee engagement we initiated following activities:
 - Suggestion scheme
 - Kaizen scheme
 - Small group activity (OIT) under Halla Bol (*Attack on Waste*) initiative

3. Initiatives for GOEMs

Challenges

The major challenges we faced at GOEMs were:

- Lack of training and low skill level.
- Inadequate systems leading to operational issues like quality defects, high delivery times and inventory etc.

Overall skills improvement of our GOEMs was a challenge for us since our partners were traditional businessmen with limited experience and interest in systematic way of working. We have taken various initiatives towards bringing the GOEM employees together and enhance their capability by sharing the best practices in all areas of business.

i. Training and skill up gradation.(Promoting Kaizens, MYB/MGB culture)

We established team called Partner Quality Improvement Group (PQIG) to facilitate our partners for standardization of the products and processes. We also utilized our experts from Mahindra Institute of quality (MIQ) for providing training to our GOEMs on various subjects like QMS, 7QC tools, Kaizens, MYBs etc.

ii. Training and skill up gradation of Sales Team

In channel development the sales staff is trained under Vijeta (Winner) Training Program. Sales Managers of GOEM/Dealers are trained under "Abhyudaya (Elevation) Program". Dealers are trained under "Category

Accordingly several initiatives are devised for Employee Involvement and Development for our other partners

4. Remaining Problems

- Powerol Team -Developing the internal functional trainers to build the functional competencies of the employees
- Driving Collaboration and making it a way of life with the help of senior leadership team Partners Team, CMS, GOEMs and MAGIECs
- Capability building of sales team in HkVA of GOEMs
- Improving capability on application of QC tools
- 100% involvement in Kaizen drive
- IT enable QMS systems at all GOEM

4.5 Leveraging IT for business growth:

(1) Overview

We attribute our rapid growth to better accessibility and faster response. We have harnessed Information Technology (IT) to do so. In our quest for growth through diversification, we have leveraging IT as a strategic enabler. In this section, we shall present how we have deployed IT in various functions to offer better access and response to our customers and stakeholders. The deployment of these systems is summarized in Table 4.5

#	IT system	Department	Stake holders
1	Powerol Sales System (PSS)	Retail Sales	Retail Sales, Sales Dealers, GOEMs
2	Product Data Management	PAE	PAE and PSM
3	Portal at CMS plants	PSM	PSM, CMS plants and GOEMs
4	eFSR and eConnect	Customer Care	Customer Care and MAGIECs

Table 4.5: IT Systems by various departments

Among these systems, three IT systems are described here:

(2) Powerol Sales System (PSS) in Retail Sales

PSS is an enquiry management and sales analysis system developed for Retail Sales. The PSS was conceptualized and designed for monitoring customer enquires in systematic manner and analyzing the enquiry conversion (win/loss). It covers the entire Sales process starting from enquiry management to sales conversion analysis. The enquiry management module helps the dealers to plan the enquiry pipe-line and achieve their monthly sales target, assign enquiries to his sales force, track the conversion of enquiries into sales, plan and measure the effectiveness of market development activities.

The Sales analysis module helps us to study/ identify growth segments, demand for various DG set rating, and key factors for winning or losing business in a given market. The PSS helps in doing this analysis through various reports like Win/Loss analysis, Major DG rating in demand, Key segments, etc.

(3) Product Data Management in PAE

In PAE we use Product Data Management (PDM) software called 'Team Centre'. PDM is a backbone of PAE department in Powerol. PDM integrates people, product information, 2D drawings and 3D models right from product conception through Design, Manufacturing, and Customer Service. It helps in setting up a single system of record for the diverse needs of various departments within Powerol. PDM helps to deliver increasingly complex product to market while maximizing productivity & streamlining operations across various Powerol plants.

All the Drawings related to New Product or Change Request are released through PDM system which can be very easily accessed by the Sourcing team, PSM, Manufacturing & Customer Care Team through a PDM link. This link can be accessed through a Local Area Network or through internet, provided there is an access authority with the individual looking for information. PDM system is also linked with SAP. Any new part number created in PDM system can be viewed in SAP.

In addition to the managing new parts, PDM is used for:

- Maintaining part history (warranty, failure modes, etc.)
- Testing and validation data
- Production Part Approval Process (PPAP)

(4) eFSR and eConnect in Customer Care

As our Service business grew, we observed variation in service practices. This would result into customer not accepting the service quality and subsequent delay in payment. This delay forced to spend more time in generating reports and following up customers for payments. To overcome this problem we developed two IT systems – eFSR and eConnect.

electronic Field Service Report (eFSR): eFSR is electronically made using affordable smart phones with inbuilt camera, signature pad and internet connectivity. The system guides the technician to follow a standard process for attending a site complaint. Actual site condition of the DG set is captured by camera and stored as a record in the system. The service done is also captured along with the customer's acknowledgement. The eFSR cannot be generated without customers due acknowledgment or approval. The eFSR can be generated in multiple Indian languages. Once the eFSR is generated it is virtually loaded in our Customer Service portal from the field along with photo of site condition and time signature.

By eFSR the customer could benefit by improved service quality with 100% adherence to all check points of PM. With prompt availability of service MIS data we could reduce the lag between the service and invoice dates by 30 days.

eConnect: We developed an online complaint tracking system which can be accessed by the customers through mobile phone. In this system the customer has to just SMS his site id and a short description of complaint. This complaint is logged into the system and is tracked by keeping the customer in the loop. There is an automatic time bound escalation mechanism. The customer is informed about the action taken by SMS and email. The system also informs the customer the escalation mechanism available to him if he is not satisfied with the complaint resolution. This is a unique initiative in DG set industry which keeps the customer informed about the complaint resolution on a real-time basis.

5.1 Overview:

While our Base building strategies would help to strengthen our organization and systems, we also identified challenging strategies with an aim to achieve competitive advantage and realize our vision.

We have identified following challenging strategies:

- Leveraging partnerships for business growth
- Service as a differentiator
- Transformation from Product supplier to Solution provider

Each of these strategies has significant role in achieving our Promise 2016 objectives. We have tabulated below the linkage of these strategies with our Promise 2016 objectives.

#	Strategy	Promise 2016 linkage	Intent
1	Leveraging partnerships for business growth	<ul style="list-style-type: none"> • Be a Rs. 11 bn business • Capabilities to execute for DG Set orders up to 1000 kVA • Deliver superior financial performance 	<ul style="list-style-type: none"> • Seeks alignment and development of partners for future growth • Key enabler for delivering superior financial results • Leverage partners capabilities for business growth.
2	Service as a differentiator	<ul style="list-style-type: none"> • Be No.1 in CSI in Powergen industry • No.1 player in Retail LkVA • Exports revenue • HUPS Revenue 	<ul style="list-style-type: none"> • Customer centric initiatives in Customer Service for gaining competitive advantage. • IT systems for offering better response and accessibility to customers
3	Transformation from Product supplier to Solution provider	<ul style="list-style-type: none"> • Leadership in Telecom Energy Management Solutions • Be a Rs. 11 bn business • 10% revenue from alternate energy solutions 	<ul style="list-style-type: none"> • Our response to customer demand for green solutions • Leverage customer engagement to our competitive advantage • Our response to shrinking Telecom DG segment • Main driver of our future growth

Table 5.1 (1) : Challenging Strategies

These strategies are deployed across various functions:

#	Strategy	Lead Role	Supporting Role
1	Leveraging partnerships for business growth	PSM, Customer Care and Retail Sales	Accounts
2	Service as a differentiator	Customer care	HUPS, International Business, PAE and PSM
3	Transformation from Product supplier to Solution provider	Telecom Sales and PAE	PSM and Customer Care

Table 5.1 (2): Challenging Strategies and their deployment in different departments

5.2 Leveraging partnerships for business growth:

(1) Overview

We have leveraged our partners to grow and become a significant player in the DG set industry. In the following sections we shall share how we manage our operations by tapping the resources and capabilities of our partners.

• **CMS Plants**

We call our outsourced manufacturing plants as 'Contract Manufacturing Setup' (CMS) plants. The CMS plants deploy our unique 'Lean Asset' model of manufacturing, in collaboration with our partners. The key differences are:

Conventional Contract Manufacturing	Powerol Lean Asset Model
The contract manufacturer is completely responsible for sourcing the material, manufacture the product and shipping it under the customer firm's brand-name	Our partner provides the facility and scalable workforce for manufacturing the product. We procure the material, provide for working capital and manage the entire manufacturing operations
The contract manufacturer is completely responsible for process design and product quality.	We design the manufacturing process and are responsible for the product quality; while our partner provides the first level supervisors.

Table 5.2 (1) : Powerol's Lean Asset Model

• **GOEMs**

We cater to the Retail segment through our GOEM network. Our engagement with our GOEMs is much different than that of the competition

Competition's management of GOEMs	Our approach of managing the GOEMs
Limited number (3-5) of GOEMs	Our network of 12 GOEMs gives us country wide reach
Relationship restricted to sale of engines for DG sets	We help our GOEM to plan the business and manage the operations.
The branding of the DG set is done by the GOEM and he is responsible for quality	We co-brand the DG set made by our GOEM and are responsible for its quality

Table 5.2 (2) : Comparison of our approach for managing our GOEMs with that of competition

• **MAGIECs**

We provide countrywide service through our network of MAGIECs. Our approach in managing our MAGIECs is also different from the competition

Competition's management of Service Dealers	Our approach of managing the MAGIECs
All the customer complaints are handled by the Service dealer directly	We capture the customer complaints and get them addressed through our MAGIECs
Management systems are not integrated	We have extended our IT systems e-Suvidha, eFSR, and eConnect to our MAGIECs

Table 5.2 (3): Comparison of our approach for managing our MAGIECs with that of competition

• **Dealers**

We created a network of Dealers to cover the market. We also created branded showrooms, where a customer can touch and feel the product.

Competition's management of Dealers	Our approach of managing Dealers
The dealers are attached to the GOEMs	The dealers are attached to us. The GOEMs role is to supply DG set and provide commercial support.
DG set is sold as industrial good	Through our dealer network we market DG set as a consumer good and promote the brand market development activities

Table 5.2 (4): Comparison of our approach for managing our MAGIECs with that of competition

(2) Challenges

- Need for upgrading systems and processes at our CMS plants and MAGIECs
- Lack of standardization in DG sets made by the GOEMs
- Limited long term thinking capability among our GOEMs, Dealers and their Managers
- Limited knowledge and skills for selling DG sets, particularly in HkVA

(3) Response to Challenges

Focus on establishing system and processes:

CMS Plants: When we started our CMS plants, manufacturing and assuring quality systems were inadequate. As a result, we had high internal and external rejections. The workforce comprised mostly of contract operators. We established the following systems for delivering a quality product to our customers.

The Lean Asset model helped us in ramping the capacity up or down as per the demand, with agility. In F09, we made 48,000 DG sets for Telecom segment from our CMS plants.

MAGIECs: To standardize our systems and processes we went for ISO 9001 accreditation. We also made our MAGIECs to take the same approach. Working for the accreditation has helped us in streamlining and documenting our processes through SOPs. Along with us 90 of our MAGIECs have received the ISO 9001 accreditation. To fasten some of the business processes we have started an e-portal in F09, named 'Mahindra Powerol e-Suvidha'. Through this portal we have standardized our spares order and warranty claim settlement processes.

GOEM council for Product standardization among GOEMs

To bring standardization in products and processes we have a GOEM council. This council comprises of our GOEMs, the Partner Quality Improvement Group (PQIG) and concerned department heads. This council meets at certain intervals and is guided by the Business Head. Apart from discussing quality, safety the council also explores areas of synergy.

Through the council meetings we have achieved standardization in major quality characteristics of DG sets.

Long-terms development program for GOEMs and Dealers

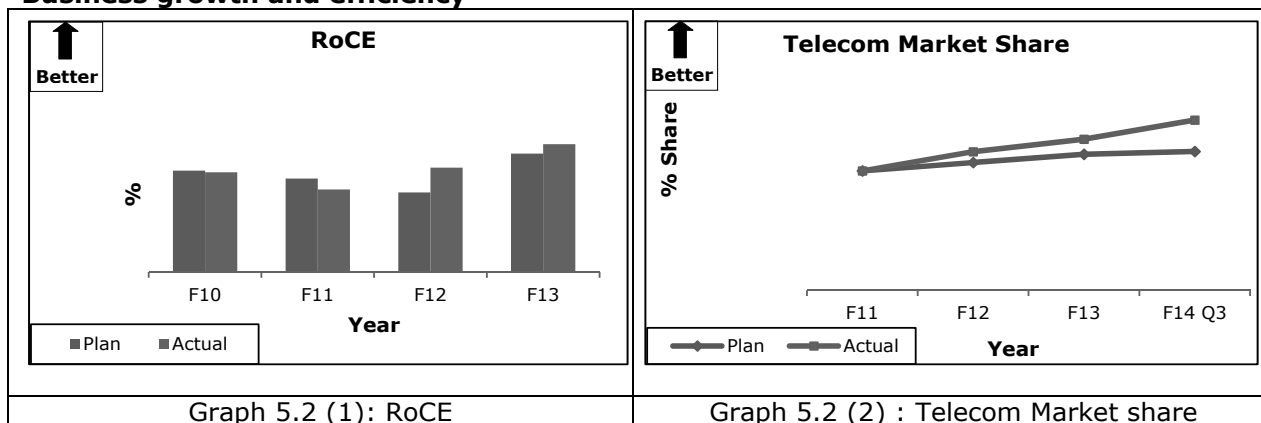
GOEMs: We organized a 3-day program for our GOEMs at the premier management institute – IIM, Bangalore. The program stimulated our GOEMs to think like CEOs against a small time entrepreneur.

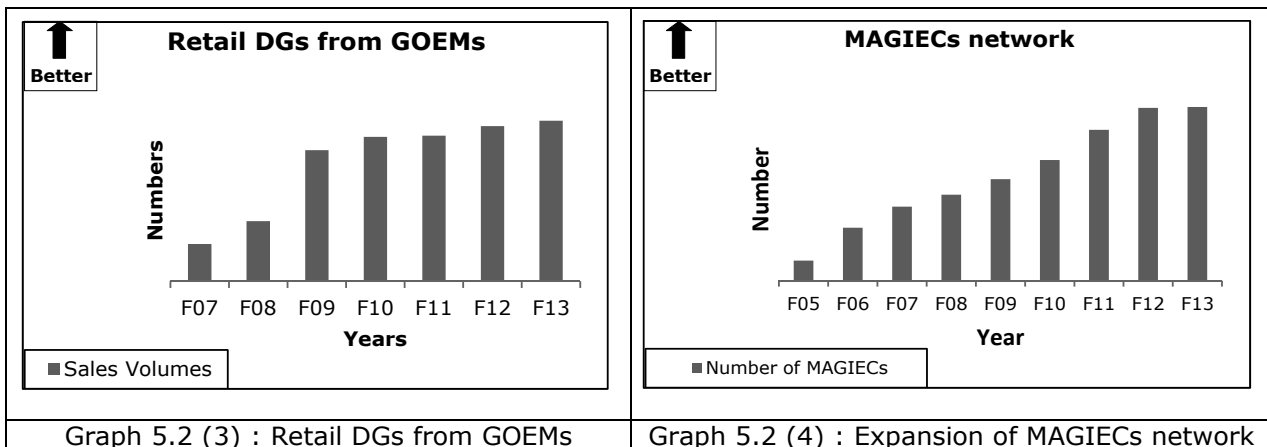
Selling skills development through 'Vijeta' (Winner) program for Salesman

We have designed and launched Vijeta program for our sales force at dealers and GOEMs. This program has been designed to develop the technical competencies and soft skills required for effective closure of sales. We started the Vijeta program in F12 and over the years made improvements in the same. In F12 the focus was on basic electrical and mechanical engineering concepts pertaining to DG sets. In F13 we introduced the behavioral skills module. In F14 we focused on developing the HkVA capabilities of a select pool of our salesman. Beside the soft skills, the HkVA program covered areas like understanding customer usage pattern, making complete system proposal and sales closure. The program is enriched by the use of video modules, role plays and case studies.

(4) Effects

Business growth and efficiency





5.3 Service as a differentiator:

(1) Overview

We believe that our Customer Service differentiates us from the competition. While our fuel efficient engines give us the strength or advantage of Fuel efficiency; our Customer Service gives us distinct advantage, both in terms of Geographical coverage and Agility. Over and above these two strengths, through our various customer centric initiatives we have developed engagement with customers which is difficult for our competitors to copy. And we achieved this advantage through alignment & involvement of our MAGIECs.

(2) Challenges

This advantage has been developed over a period in which we overcome several challenges for serving our customers. Some key challenges that we faced were:

- Customers' preference for established brands like Kirloskar and Cummins
- Limitations of our service network in terms of reach and capabilities
- Challenges in servicing customers coupled with commercial complexities

(3) Response to Challenges

We are presenting here four initiatives which exemplify how we have overcome these challenges and differentiated ourselves through our Service:

1. Taking complete responsibility for 'end-to-end' services for DG sets
2. Enriching Preventive Maintenance quality through eFSR
3. Delighting customers through 'Powering smiles'
4. Enhancing the useful of life of Customers' DG set by refurbishment

We are presenting in the following sections, details about two of our response to the challenges

Taking complete responsibility for 'end-to-end' services for DG sets

When our Telecom customers were expanding their operations, they wanted their DG set supplier to take complete responsibility for the DG set across the country. This was an industry first. Apart from presenting a single face to the customer we also expanded our network and improved the DG set availability through better service practices.

- Single window Service to reduce hassle
- Network expansion for improving response

Enriching Preventive Maintenance quality through eFSR and TPM

As our Service business grew, we observed variation in service practices across MAGIECs in various regions of the country. This resulted into customer raising some concerns about service quality and subsequent delay in payment.

The concerns over service quality were attributed to:

1. Variation in rendering Services by our technician
2. Gaps in capturing complete service data on Field Service Report (FSR).
3. Our inability to provide site hygiene data to customers for enabling them to take corrective actions.

Leveraging the IT expertise of our group company, Bristlecone, we evolved innovative IT solution to address above concerns in the form of eFSR system. The competition was not willing to take up such sustained engagement with our Telecom customers.

We have also deployed TPM practices to improve quality of service in the field. Details about TPM practices in Service are provided in department DTQMP of Customer Care.

Manual FSR		e-FSR																																																																																																																																																																
<p>Manual FSR</p> <p>ABHA GENSETS PVT. LTD. "Ashok", 885, 1st 'D' Road, Behind Metro Park Sardepura, JODHPUR • Ph: 0291-2854010, 14</p> <p>FIELD SERVICE JOB CARD Ticket No.:</p> <p>Ref. No.: 13-14/11104</p> <p>NAME OF CUSTOMER: <i>ABHA GENSETS PVT. LTD.</i> Reported by: <i>ABHA GENSETS PVT. LTD.</i> Reported on: Date: 20/3/14 Time: <i>10:30 AM</i></p> <p>Cut / Self / Call Cent / OEM / Sales Dis. Resolved on: Date: 20/3/14 Time: <i>12:00 PM</i></p> <p>Customer ID: <i>3305</i> ENG Model: <i>20KVA</i> KVA / HP / Application: <i>10/20/20</i> OEM: <i>10/20/20</i></p> <p>Engine Sr. No.: <i>V330131413</i> Hours: <i>150</i></p> <p>Type of Visit: WTY <input type="checkbox"/> PAID <input type="checkbox"/> COURTNEY <input type="checkbox"/> AMIC <input type="checkbox"/> FS <input type="checkbox"/> PM <input type="checkbox"/> BD <input type="checkbox"/> RR <input type="checkbox"/> O/N <input type="checkbox"/></p> <p>Type of Job: PI <input type="checkbox"/> INS <input type="checkbox"/> COM <input type="checkbox"/> FS <input type="checkbox"/> PM <input type="checkbox"/> BD <input type="checkbox"/> RR <input type="checkbox"/> O/N <input type="checkbox"/></p> <p>Complaint Reported / Visit Objective: <i>सुगा मोटर चलाए रहने देना है</i></p> <p>OBSERVATION</p> <table border="1"> <tr> <td>Leakage</td> <td>Cleanliness</td> <td>Safety</td> <td>Hoses</td> <td>Belts</td> <td>Air Cleaner</td> <td>Radiator</td> <td>Battery</td> <td>Control Panel</td> <td>Earthing</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table> <p>Engine: <i>OK</i></p> <p>Alternator No. & Make: <i>OK</i></p> <p>Panel: <i>Manual</i></p> <p>Other: <i>सुगा मोटर चलाए रहने देना है</i></p> <p>Analysis & Work Done: <i>सुगा मोटर चलाए रहने देना है</i></p> <table border="1"> <thead> <tr> <th>Part No.</th> <th>Qty</th> <th>Description</th> <th>Price / POC</th> <th>Parameter</th> <th>Reading</th> </tr> </thead> <tbody> <tr> <td><i>1</i></td> <td><i>1</i></td> <td><i>Water Temp</i></td> 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<i>Rajeshwar</i> Signature: <i>Bhonsale</i></p> <p>Format No.: F18/Cust Care/11 Revision No.: 00 Revision Date: 29/06/11 NISM COPY Toll Free: 1800 419 1999</p> <p>http://www.mahindrapowerolsuvidha.com/MahindraPowerolWeb/warrantySearchView.do... 3/20/2014</p>		Leakage	Cleanliness	Safety	Hoses	Belts	Air Cleaner	Radiator	Battery	Control Panel	Earthing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Part No.	Qty	Description	Price / POC	Parameter	Reading	<i>1</i>	<i>1</i>	<i>Water Temp</i>	<i>180</i>	<i>Water Temp</i>	<i>180</i>	<i>2</i>	<i>1</i>	<i>Lube Oil Pt</i>	<i>100</i>	<i>Lube Oil Pt</i>	<i>100</i>	<i>3</i>	<i>1</i>	<i>No Load RPM</i>	<i>1400</i>	<i>No Load 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Figure 5.3 : Sample of Manual and eFSR

With the deployment of eFSR our customers accrue following benefits:

1. Real-time updating of service provided along with empowering customers to authenticate the service with their digital signature. Prior to implementation the same process used to take around 7 days.
2. Receive inputs on site hygiene and gaps enabling better operations.
3. Better service quality from our technicians through improved practices. The improvement in practices is possible due to data made available on the system

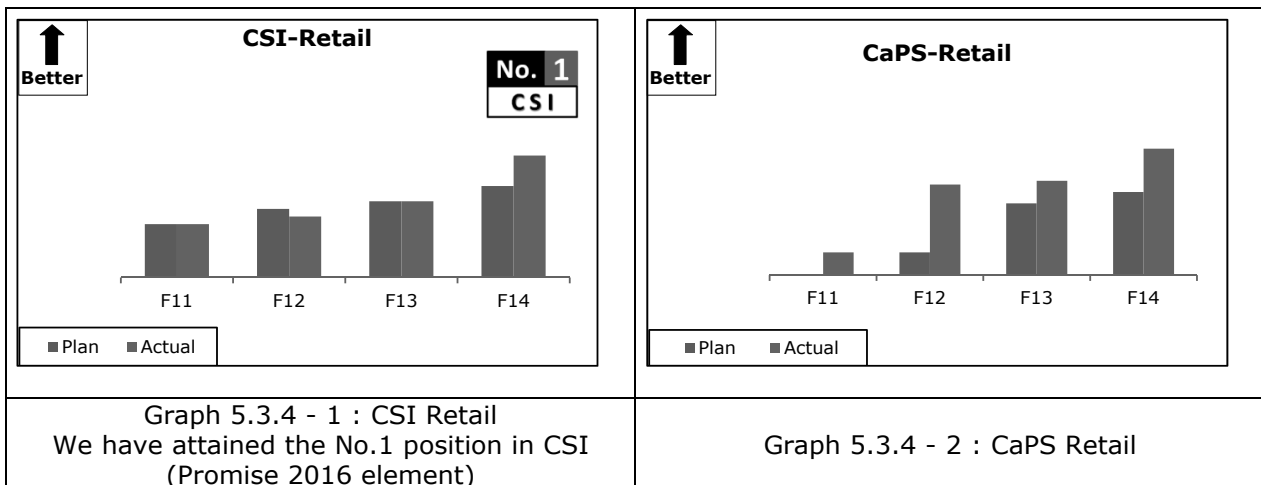
(4) Service setup for new businesses

Responding to the challenges of diversification we created teams to provide customer service in new businesses. Thus we created team for Retail segment in F10; International Business and HUPS in F11; and Industrial Engines in F14.

(5) Effects

Service Performance Indicators:

- Our SLA & PM adherence has increased in Telecom and Retail Segment.
- Through the eConnect the time to inform the customer about closure of complaint has reduced from 1 day to real-time alerts.
- The above improvements have helped in overall improvement in CSI and CaPS



5.4 Transformation from Production Supplier to Solution Provider:

(1) Overview

As explained in chapter 2 one of the insights from SWOT done after F13 was that Telecom customers may seek solutions to optimize their investments and operating cost. As a 'Solution Provider' we focus on the customer's pain and address the issue with our or other partner's offerings (product and services).

Using our expertise in offering a basket of services for maintaining DG sets, we started offering **TIM solutions** for Tower sites. We worked along with our customers to develop **environment friendly and energy efficient DG sets**. After getting assurance from our performance in TIM operations and our efforts to drive energy efficiency, our Telecom customers asked us to offer energy solutions for Tower sites. Thus, we started offering **EMS solutions**. By becoming a solution provider, we intend to develop better customer engagement, capture better share of customer spend and get better margins.

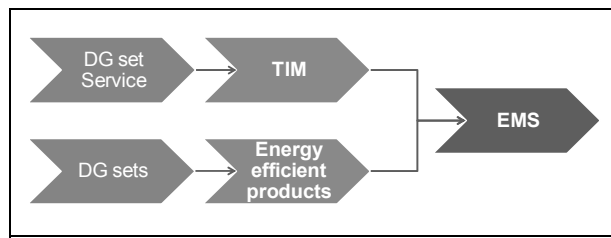


Figure 5.4 (1) : Building blocks of EMS business

Our evolution as a solution provider can be grouped in three stages:

- Integrated Solution Offering: Tele-Infra Management (TIM)
- Energy Saving Solutions: Energy efficient products
- Energy Optimization Solutions: Energy Management Solutions (EMS)

(2) Challenges & our response

TIM

As we started the TIM operations, there were many learning from the day-to-day operations. Processing our learning through PDCA cycles on regular basis, we have improvised our TIM operations. Some of our key initiatives towards this end are:

Challenge	Our Response
Too many varieties of equipments are integrated together in a site to ensure uninterrupted power supply to the electronic equipment.	<p>Beat vehicles for Maintenance</p> <p>We have deployed 'Beat vehicles for Maintenance', which is stored with essential spares for all equipment including DG set, air conditioners, battery banks and others. A team of engineers goes to a site and completes the preventive maintenance of all components at the site thereby ensuring better availability of the Tower. As a result of this improvement our adherence to Preventive Maintenance plan has improved</p>

Table 5.4 (2) : Challenges in TIM and our response

Energy Efficient products

The key challenge in reducing the diesel consumption of DG sets for a Telecom Tower was the use of over-rated DG set for a given site. As we started reviewing customer’s problem, we identified the challenge for our product and came out with the innovative variable speed energy efficient DG set. We have described our response in the table below:

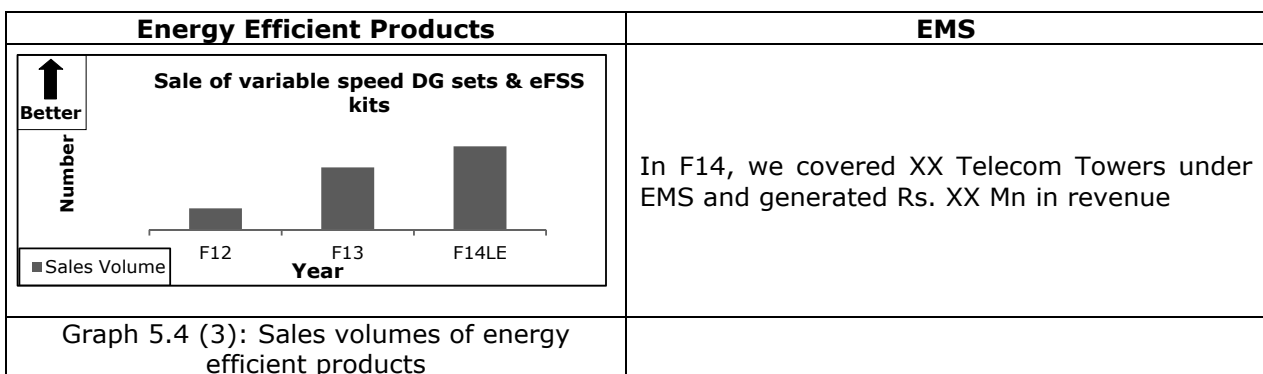
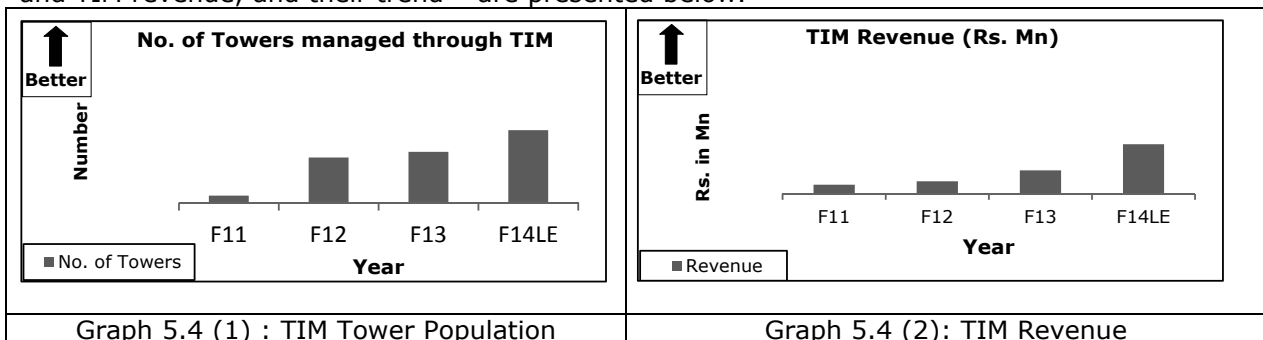
Customer’s pain	Use of overrated DG set at partial loads consumes high fuel
Challenge for the product	Limitations on reducing fuel consumption while running at fixed speed
Our response	
Variable Speed DG Concept	
Electronic Fuel Saving System (eFSS) - Variable speed DG conversion kit	
The eFSS has been able to provide fuel savings between 15-30%. We have patented this product.	
Table 5.4 (3) : Challenges in Energy efficiency and our response	

EMS

Our EMS business has just started and we are planning to grow it by converting our TIM sites to EMS. The key challenge in EMS was the partnership with Technology providers in the field of alternate/green energy solutions. For providing DG + Solar hybrid energy solutions, we needed expertise in Solar energy to understand customer requirements; system configuration, procurement of solar modules and execution at site. While, we were proficient in DG sets, our capabilities in the field of solar energy were limited. Living up to the **Rise** philosophy of the Mahindra group, **we approached our group company, Mahindra Solar, who had the relevant expertise.** We jointly worked upon the customer requirements and evolved the system design. We propose to use their expertise for undertaking similar assignments in the future.

(3) Effects

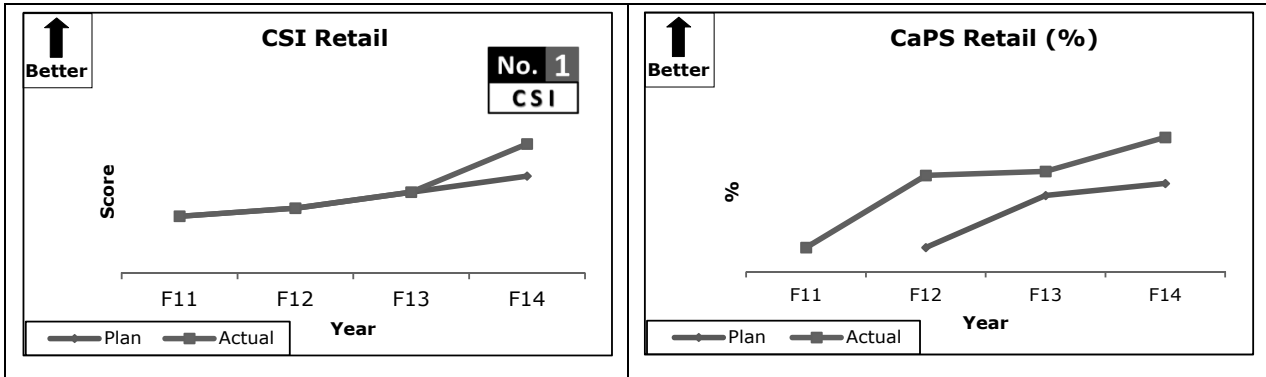
TIM: Today, we are the largest TIM operator in the country. Our key indicators – Tower sites and TIM revenue, and their trend – are presented below.



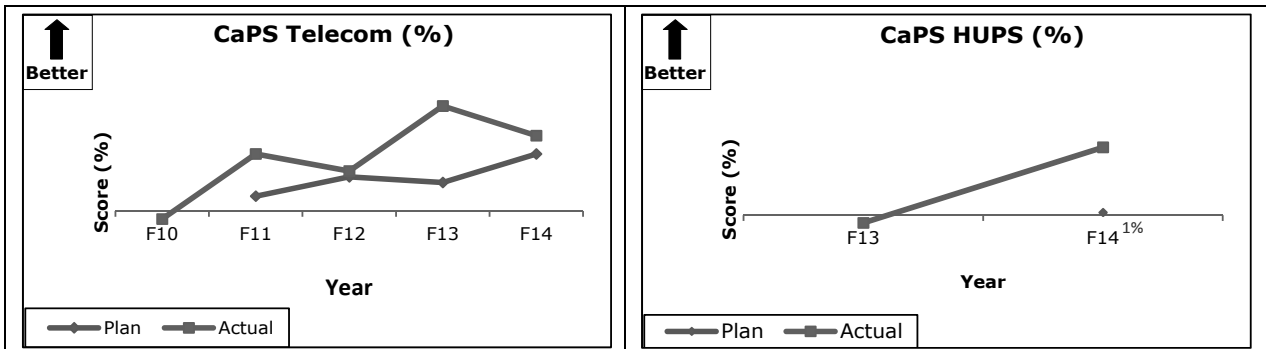
We present our performance against the objectives of F14 policy, Customer objectives, Business objectives and PQCDSM

6.1 Tangible Effects:

(1) F14 policy

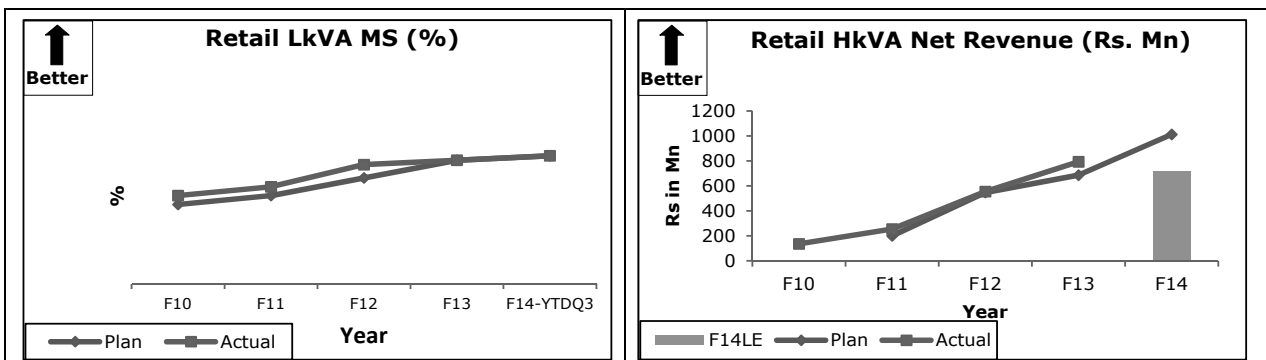


Working on the improvement areas identified in the CSI has helped us in improving our customer loyalty, which is measured through the CaPS survey. (Details about the CaPS provided in Glossary). **We have achieved our Promise 2016 element of becoming No.1 in CSI**



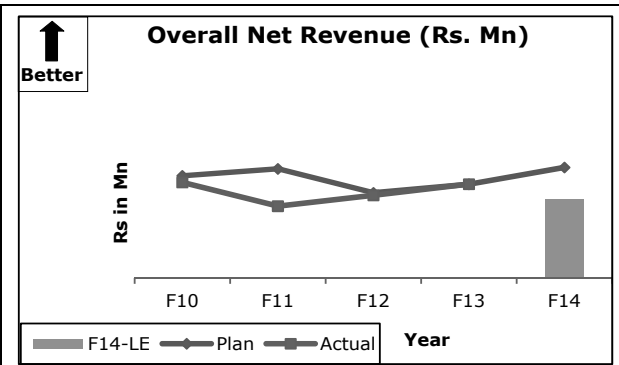
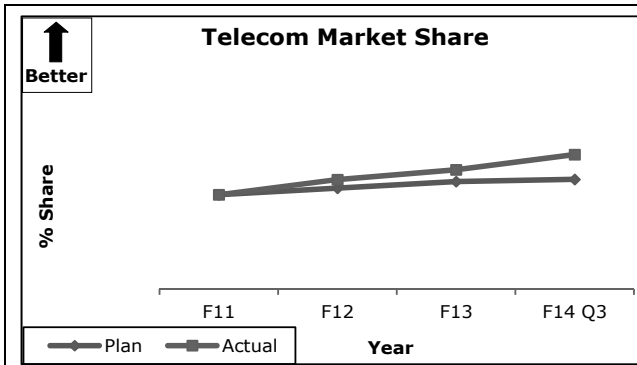
Our CaPS for Telecom is better the Mahindra group average of 50%.

We initiated CaPS for HUPS in F13 and have improved our score significantly in F14



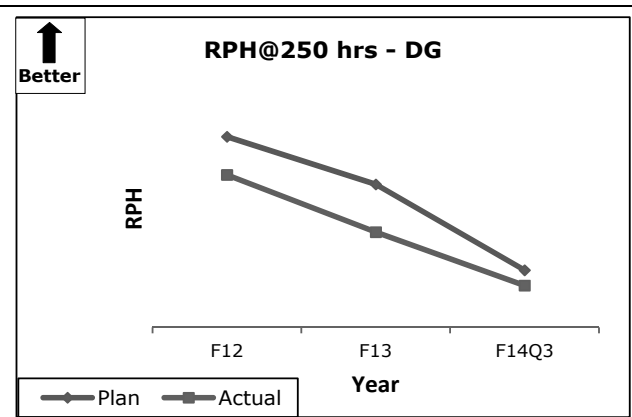
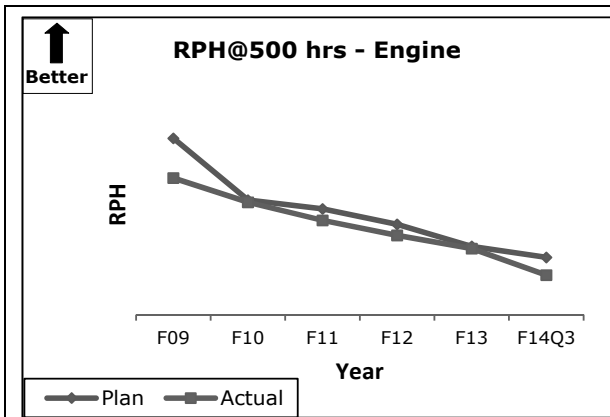
We have steadily improved our market share in Retail LkVA segment.

Leveraging our partnerships, we have expanded our HkVA range and also increased our revenue. Revenue for F14 is lagging due to industry drop by almost 20%



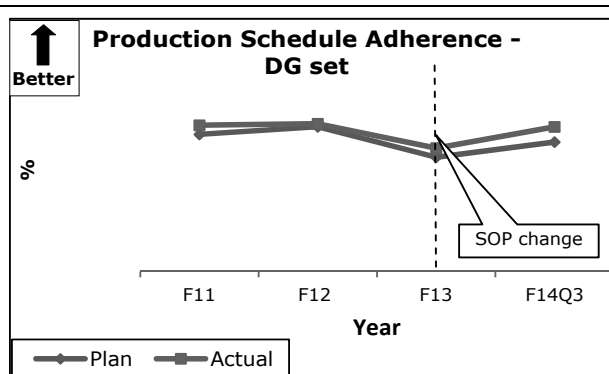
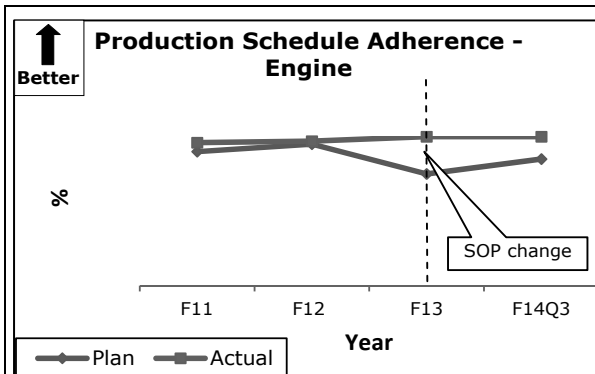
Though, the Telecom market has been shrinking, we have improved our share.

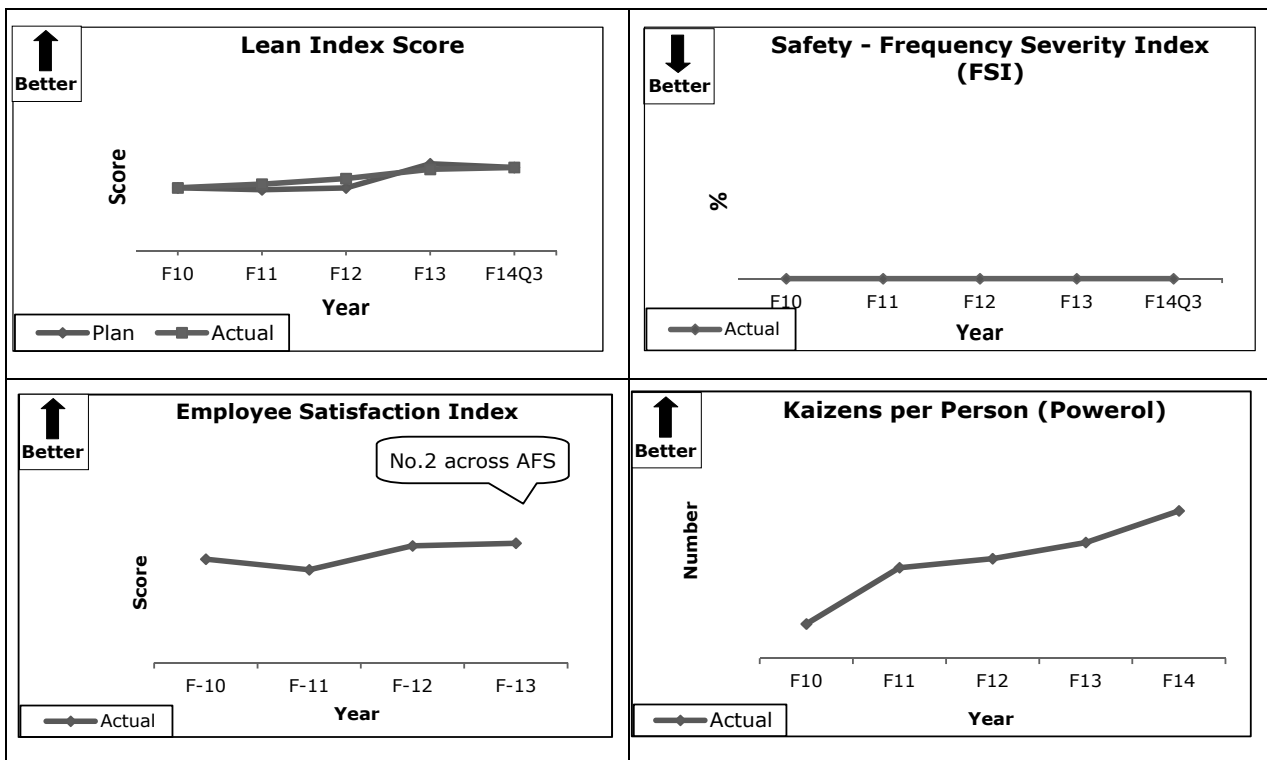
(2) PQCDSM objectives



Using TQM approach we have brought down the field failures in our engines in a systematic manner

We have now started working on reducing the field failures on DG level





(3) Customer Recognition

- Voice of the Customer awards from Frost & Sullivan: We have received the awards in the categories (from 10 contenders):
 - Best DG set supplier in Telecom segment
 - Best 'Bang for the Buck' (Value for money)
 - Most Preferred Genset
 - Customer Value Enhancement
- No.1 vendor for Indus Towers: Indus has conferred on us the title, 'Preferred Partner', from among 350 vendors
- EPS World Award: Outstanding Genset Brand
- Service Excellence Awards from Indus Towers:
 - Platinum award for Partner of the Year
 - Gold award for Best Infra Equipment Supplier
 - Silver award for Subject Matter Expertise (SME)

(4) Recognition in other forums

- Best innovation award at 'Business Model' level in the Mahindra group from total ~950 entries.

6.2 Intangible Benefits:

Some of the major intangible benefits of the TQM journey are listed below:

- Contribution to growth of Mahindra-AFS
- Established Mahindra Powerol Brand in Market
- Initiation of a cultural transformation that encourages a scientific approach for managing business.

We have reviewed our progress against Promise 2016 milestone for F14. We have attained the market leadership in terms of customer satisfaction, two years in advance. We have maintained our strong leadership in Telecom segment, and reduced the gap with the market leader in Retail-LkVA segment. We have successfully launched the new EMS business. In doing so, we have maintained high level of employee engagement.

Due to an industry drop of 20% in DG set industry and 60% drop in HUPS, our overall revenue is estimated to drop by 18%.

We made our Promise 2016 in F13Q4, where we had targeted overall revenue of Rs. 200 bn. In view of the industry drop we have reviewed our Promise 2016 and modified certain parameters related only to revenue.

Our learning:

We have identified the root causes for the success and non-achievement of targets for F14 against each element of Promise 2016. This analysis has been used while preparing our F15 policy. Given below is example of the gap analysis for two elements:

Attainment of No.1 position in CSI (Promise 2016)

- Success factors
 - Improvement actions emerging from findings of the CaPS and CSI survey of F13 were systematically deployed. For example through the Uday program alignment was planned among the Service technicians across all states.
 - eFSR and eConnect initiatives were extended to Retail Service leading to improvement in SLA.
 - Sustained efforts to reduce the field failures at engine and DG set level have contributed to enhancing customer satisfaction.
 - Planning of segment specific market development activities based on the data from PSS helped in acquiring new customers and delivering superior sales experience.
- Actions planned to sustain performance in F15
 - Calibrate improvement efforts based on the findings of CaPS and CSI survey
 - Sustained reduction in field failures at engine and DG level.

Non-achievement of Exports revenue

- Root causes
 - Shelving of new towers plan by our single Telecom customer.
 - Limited understanding of Retail segment in various African countries.
 - High gestation period in Retail segment of African countries.
 - Targets were ambitious
- Course correction planned in F15
 - Targets for F15 planned after doing the PDCA of F14
 - Focus on S.Asia and M.East markets
 - Revise the Sales processes to have sustained revenue from Retail segment

After learning from F14 performance and our Promise 2016 roadmap, we have planned to take actions for achievement of Promise 2016

Promise 2019:

We shall start preparing for Promise 2019 in F16. This will be a part of the strategy development process for the period F17-19. While drafting the Promise 2019, we shall review our progress against Promise 2016 and our capability buildup as per our Technology roadmap specific objectives and strategies to achieve our vision will be incorporated at that time. We will strive to maintain the highest level of customer satisfaction, sustain strong partnership bonds and focus on institutionalizing the TQM way at Powerol and partners.

Terminology and Glossary

	S.No	Word	Meaning
A	1	AFS	Automotive & Farm Equipment Sector
	2	AMC	Annual Maintenance Contract
	3	Abhyudaya	Hindi word meaning "Elevation" - A long term development program for managers of our GOEMs and Sales dealers.
C	1	CAMC	Comprehensive Annual Maintenance Contract
	2	CPCB	Central Pollution Control Board of India
	3	CaPS	Customer as Promoter Score
D	1	dB	Decibel - "Units for measurement of noise level of Diesel Generator".
E	1	EMS	Energy Management Solutions
	2	ER	Engineering Release
	3	eFSR	Electronic Field Service Report
	4	eConnect	Electronic Connect
	5	eFSS	Electronic Fuel Saving System
F	1	FES	Farm Equipment Sector
	2	FTR	Field Technical Report
	3	FSI	Frequency Severity Index
	4	FSR	Field Service Report
G	1	GRR	Good Receipt Rejection
	2	GCDP	Global Capability Development Program
H	1	HkVA	Higher Kilo Volt Ampere
	2	Halla Bol	Meaning "Attack on Waste" in local language.
	3	HUPS	Home Un-interrupted Power Supply
I	1	I & C	Installation & Commissioning
	2	IS	International Standard
	3	ISMS	Information Security Management System
	4	IIM	Indian Institute of Management- Management Institute.
	5	INR	Indian National Rupee
K	1	KOEL	Kirloskar Oil Engines Limited- Competitor of Mahindra Powerol Business which manufactures Engines & DGs.
	2	KAM	Key Account Management
	3	KYC	Know Your Customer
L	1	LkVA	Lower Kilo Volt Ampere
	2	LR	Line Rejection
	3	LAM	Lean Asset Model
	4	LE	Latest Estimate
	5	LAR	Lot Acceptance Ratio
M	1	MSQI	MAGIEC Service Quality Index

Terminology and Glossary

	S.No	Word	Meaning
M	2	MCARES	Mahindra Career, Alignment ,Reward & Recognition , Empowerment & Strive, an annual employee satisfaction survey conducted by HR.
	3	MW	Megawatt
	4	MHEPL	Mahindra Heavy Engines Pvt Ltd.
	5	MIQ	Mahindra Institute of Quality- Institute which propagates TQM Culture in entire Mahindra Group
O	1	OJT	On Job Training
	2	ORC	Open Resolve & Close
	3	OPQ	Operational Personality Questionnaire
	4	OFI	Opportunities For Improvement
P	1	PMS	Preventive Maintenance Service
	2	PSM	Product Supply Management
	3	PMS	Performance Management System- System for measuring the performance of each officer.
	4	PQCDSM	Productivity, Quality, Cost, Delivery, Safety, Morale.
Q	1	QP	Quality Point - At Assembly line, where Product Inspection takes place.
	2	QRT	Quick Reaction Teams
	3	QFD	Quality Function Deployment- TQM Tool used for capturing the customer's voice.
R	1	Reach out	Quarterly Communication Forum of Senior Management with entire Management Team
	2	RPH	Repairs Per Hundred
	3	RoCE	Return on Capital Employed
	4	RWUP	Real World Usage Practices
S	1	SLA	Service Level Adherence
	2	SOVP	Start Of Volume Production
	3	SPI	Supplier Performance Index
	4	SRM	Supplier Relationship Management
T	1	Tejas	Meaning "Brightness" in local language - A training program designed by HUPS team which will help to change the life of the electricians who are involved in electrical works and House wiring.
U	1	UDAY	Meaning "Rise" in local language-Soft Skill training program for MAGIEC Team Member.
V	1	VACDGM	Variable Speed Alternating Current Diesel Generator
	2	VC	Video Conferencing
	3	Vijeta	Meaning "Winner" in local language-Training Program designed by Retails Sales team for Sales persons at Dealer and GOEMs.