

Emerging Organizations Follow Dr. Deming's Philosophy

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ABSTRACT

One of the major reason for the long-term success of organisations is their belief in the combined structure which consists of vision, mission, values, core competencies & their business system. It guides, directs, strengthens, and motivates them. It gives them security, strength, and awareness of their capabilities, as well as tools to help them to continuously change and improve.

Statement of the Problem-The philosophy that Dr. Deming stated year's back was in form of 14 points. There are various strategies adopted by various organisations these which have allowed them to sustain their competitive positions. Are these strategies based on Dr. Deming's Philosophy or the basis is something else?

Objectives –The major aim of the paper is to study an organisation which has sustained for more than 100 years and to find out which practices enabled it's sustenance. The other aim is to find out whether the practices the organisation used for it's sustenance has their roots in Dr. Deming's philosophy.

Methodology- One organisation was picked which has sustained for more than 100 years .The organisation which was selected is a multinational corporate organisation as it has it's presence in many industries belonging to different sectors in various nations .The non random sampling method convenience sampling was used as the organisation selected was convenient to study. The research design is exploratory and descriptive as it is based on secondary data analysis and observations. The limitation of the study is that only one location of one organisation was studied assuming that the organisation has a uniform culture and uniform practices across all locations and at all times.

Analysis -The day to day practices at the organisation were studied and correlations with Dr. Demings Philosophy were found.

Findings – When the combined structure which consists of vision, mission, values, core competencies & their business system of the selected organisation was penetrated, it was found that the organisation focuses on 1. Continuous improvement of processes 2. Elimination of management by objective 3.optimising team efforts 4. Learning with better supervision 5.awareness about quality and statistical methods encouraging education 6.removing barriers of workmanship7. Creating trust 8.driving out fear. These focal points were responsible for the sustenance of the organisation and it's leadership in the market **and these focal points are nothing but Dr. Demings philosophy.**

KEYWORDS: Organizational Culture, Dr. Deming's Philosophy, Vision, Mission, Business System

1. INTRODUCTION

Bosch Limited was selected for finding out the reasons of it's sustenance is a market leader and has sustained for more than 100 years .The combined structure which consists of the vision, mission, values ,core competencies and the business system of the organisation was studied. stated that this structure was responsible for it's long term success .It

guides, directs, strengthens, and motivates the entire organization. It gives security, strength, and awareness of capabilities as well as acts as a tool to continuously change and improve. This structure was called the House of Orientation and it's diagram is shown below.

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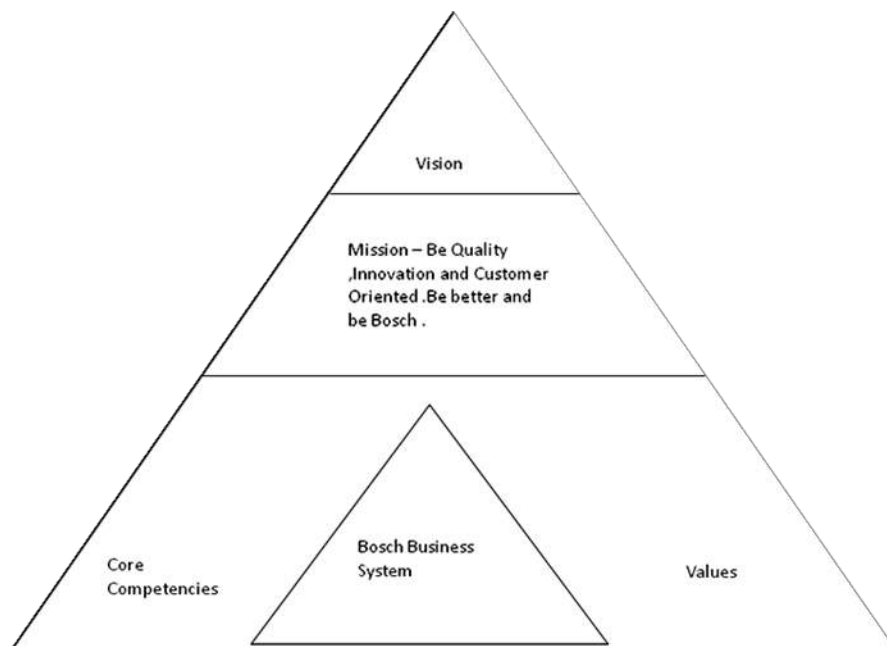


Figure 1 Bosch's House of Orientation (House of Orientation)

1.1. Bosch House of Orientation

Vision is what an organisation aims to achieve in future .The aim that the organisation wants to become the market leader in future may be it's vision .Bosch Vision is : **Creating and sharing Values.**

The mission is the reason for an organisations existence .The decision that organisation will manufacture products belonging to different sectors is a part of it's mission.

Bosch Mission is : Be QIK, Be Better, Be Bosch

The BeQIK mission ensures that are actions are relevant and allow the movement towards future goal. It reveals the focus areas of the organization and that greater speed can be achieved in everything if done focusing at Quality (Q), Innovation (I) and Customer Orientation (K).. The objective is to continuously improve internal processes, and CIP (Continuous Improvement Process) remains the benchmark for change at Bosch.

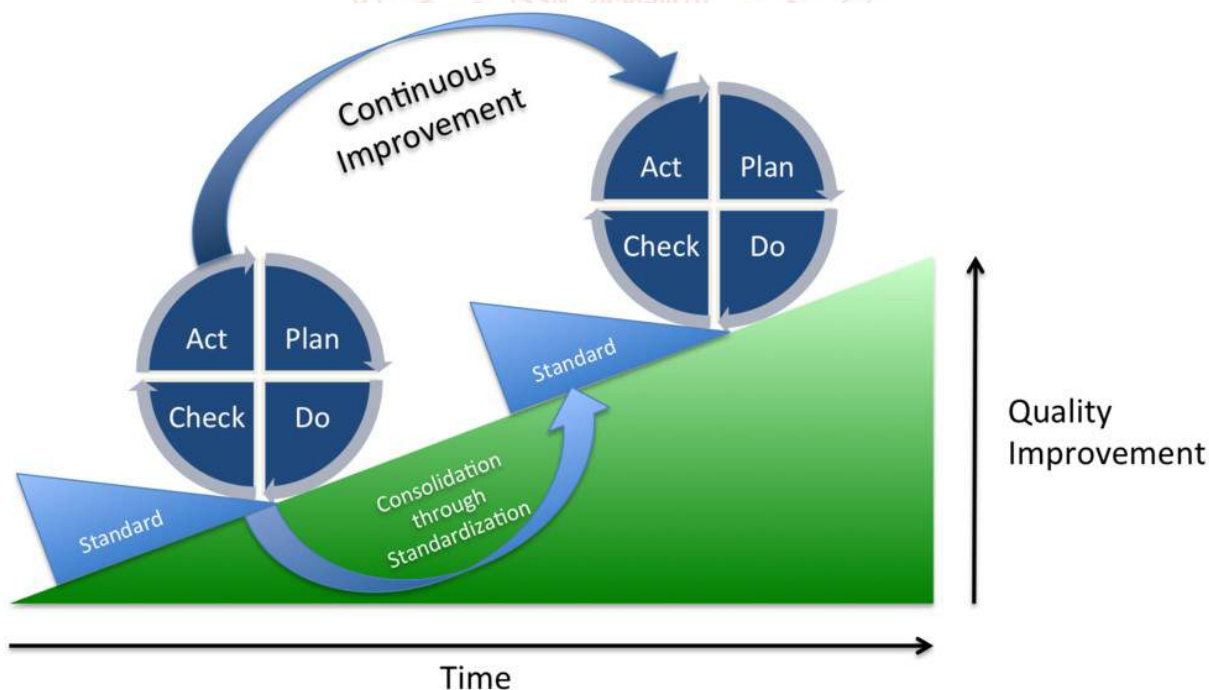


Figure 2 Continuous improvement (CIP)

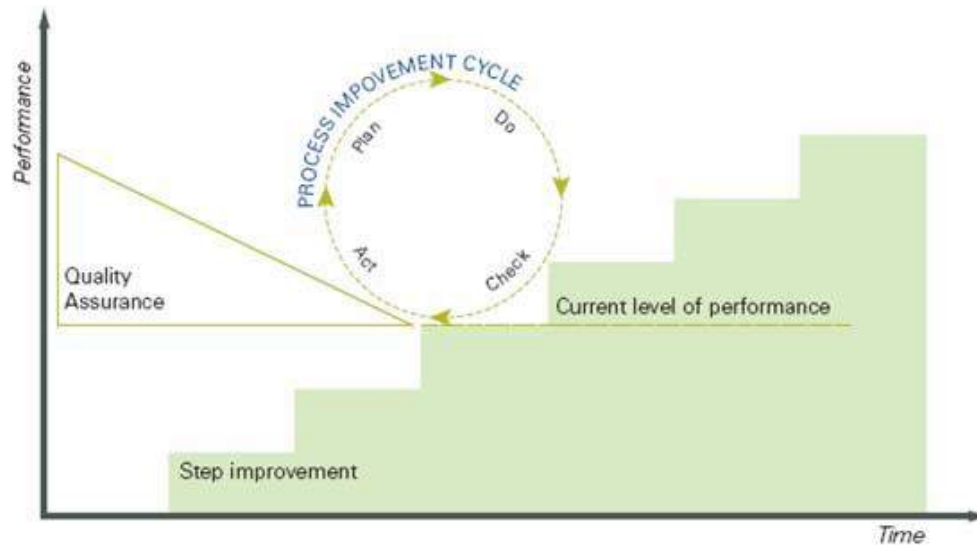


Figure 3 Continual Improvement (<http://blog.readytomanage.com/continual-improvement/>)

The difference between continual and continuous is that the strategies adopted for them are different. Continual improvement aim at kaizen (small step improvements in quality, cost and delivery) which are quick and continuous improvements aim at breakthrough improvements which happen slowly but are very big improvements.

This principle will ensure that profits are generated which are needed to secure growth and economic success to guarantee the long-term survival of the company. The company aims to offer products and services which are outstanding and Mr. Robert Bosch's promise of Quality proves that customer satisfaction overweighs the intention to earn profit at Bosch.

The Robert Bosch Promise of Quality (Quality) "It has always been an unbearable thought to me that someone could inspect my products and find them inferior. I have therefore always tried to ensure that only such products are delivered that will stand any objective test: in other words, work that is superior in every respect. I have acted on the principle: rather lose money than lose the confidence of my customers. The integrity of my promise, faith in the quality of my goods and given word always means more to me than temporary gain.

Values are the firm guiding principles and beliefs characteristic of an organisation. Values are a part of organization culture.

Bosch Values: The Bosch values are the foundation upon which the successes of the past were built, and upon which the future will be built. They guide the actions and tell us what is important and what the organisation should be committed to

- Future and result focus
- Openness and trust
- Responsibility
- Fairness
- Reliability, Credibility and Legality
- Initiative and determination
- Cultural Diversity

Core Competencies: Core competencies are the skills which the organisation possesses and which helps it to perform it's tasks differently from others and gives it competitive advantage that is producing products or services of superior quality at a price lower than others.

Bosch is built upon a unique mix of interrelated core competencies – a mix from which competitive advantage is derived and which also forms the basis for the future development of the company.

- Strategic Farsightedness
- Innovative Strength
- Efficient Processes
- Quality & Reliability
- Human Resources Development
- Global Presence

Bosch Business System: The Bosch Business System consists of Bosch Sales and Marketing, Bosch Product Engineering and Bosch Production System and these 3 function well with the help of the different Management and Support Systems in Center. The Bosch Production System is influenced by Toyota Production system and focuses on Pull approach rather than pushing the products to customer. The Pull approach is based on "Just in Time" and use of Kanban cards aiming at producing what is required in time. Just in time aims at "0 inventory" which can't be achieved as all the customers and suppliers are not located in the vicinity of the plant. (S.Martinich)

This system takes into account the special qualities of the processes and the different requirements resulting from them for management and the workforce. Using BBS, the vision, and the business objectives derived from it, are adjusted, fine-tuned and aligned and implemented across operating units and functions. In this way, the Bosch Business System helps fulfil the BeQIK mission's slogan to "Be Better," and is thus an important element of the House of Orientation.

Bosch intends to be better than its competitors and the indicator of that is the share in market, the environmental indicators, quality indicators, number of patents etc. The promises that Bosch has made with the society reflect in their policies like Quality Management System Policy, Environmental Management System Policy, Corporate Social Responsibility etc.

2. Dr. Deming: The Father of Quality Revolution

According to (Deming) William Edwards Deming (October 14, 1900 – December 20, 1993) was an American statistician, professor, author, lecturer and consultant. His outstanding contribution to quality can't be explained in words: He is perhaps best known for the "**Plan-Do-Check-Act**" cycle popularly named after him. In Japan he taught top management how to improve design, product and service quality, testing, and sales (the last through global markets) through various methods, including the application of statistical methods.

His philosophy or 14 points given in (M.Mahajan) (Cohen) (Ltd.) (Dale H.Besterfield) (team) which have worldwide recognition and acceptability are stated below.

1. Create and communicate to all employees a statement of the aims and purposes of the company.
2. Adapt to the new philosophy of the day; industries and economics are always changing.
3. Build quality into a product throughout production.
4. End the practice of awarding business on the basis of price tag alone; instead, try a long-term relationship based on established loyalty and trust.
5. Work to constantly improve quality and productivity.
6. Institute on-the-job training.
7. Teach and institute leadership to improve all job functions.
8. Drive out fear; create trust.
9. Strive to reduce intradepartmental conflicts.
10. Eliminate exhortations for the work force; instead, focus on the system and morale.
11. (a) Eliminate work standard quotas for production. Substitute leadership methods for improvement.
(b) Eliminate MBO. Avoid numerical goals. Alternatively, learn the capabilities of processes, and how to improve them.
12. Remove barriers that rob people of pride of workmanship
13. Educate with self-improvement programs.
14. Include everyone in the company to accomplish the transformation.

Dr. Deming believed that the following "Seven Deadly Diseases" will result if the above 14 focal points are not achieved

1. Lack of constancy of purpose
2. Emphasis on short-term profits
3. Evaluation by performance, merit rating, or annual review of performance
4. Mobility of management
5. Running a company on visible figures alone
6. Excessive medical costs
7. Excessive costs of warranty, fueled by lawyers who work for contingency fees

3. Comparing Deming's Philosophy & Bosch Practices

A. Create constancy of purpose for improving products and services.

Bosch has sustained over 126 years and the following actions across the globe uniformly have definitely helped it achieve what it has achieved over the years and definitely reflected that there is an urge for improvement. **Actions speak louder than words so here are the milestones which has helped Bosch to sustain so long** (Bosch Sustainability Report, 2011):

- 1906 :Promoting 8 hour working day
- 1910 :Donating 1 million dollars to Stuttgart Polytechnic paved the way for many more donation for upliftment of society and good causes .
- 1929 :Company Hlife benevolent fund established for pensions of employees
- 1937 : Conversion from stock corporation to close corporation
- 1961 : Donation of 1 million marks to support gifted young people
- 1973 : Implementation of environmental guideline
- 1985 : Sponsoring Jugend Forscht Competition
- 1993: Implementation of a regional center
- 1995 : Decision on implementing environmental management systems
- 1997 : Introduction of common rail high pressure diesel injection systems : helps to cut fuel consumption and lower harmful emissions
- 1999 :Setting of BMS (Bosch Management Support) to use knowledge of senior experts of Bosch
- 2004 : Signing up of Global Compact initiative with UN
- 2007 : Joins charter of diversity

- 2010 : First hybrid vehicle with Bosch drive technology, series production of Lithium Ion Batteries begins at SBLimotive, a joint venture with samsung .
- 2011 : Bosch Intercampus programme : the company will spend 50 million euros to support universities and research projects around the world over next 50 years .

B. Adopt the new philosophy. Bosch has taken wonderful initiatives to preserve and improve quality of products and services and the some of the initiatives are shown below :

Eg: Lakshya 99 ppm at Bosch Jaipur- Bosch Jaipur Plant aspired to become the first conventional product plant to achieve double digit 0-km customer view ppm. (99ppm) in 2011 and the various initiatives under this drive were as follows :

When the project approach was defined the gap analysis was done and areas of improvement were listed -

Poka Yoke (Mistake proofing): With robust poka yoke campaign associates were asked to find out ways in which pokayoke can be bypassed .This was a unique approach which helped in finding out the don'ts and then finding solutions to make the pokayokes more robust.

- **Enhancing Competency of People:** Competent workforce with rich knowledge on basic quality tools is a requirement for any plant target so strengthening was done by showing innovative videos to employees on Immediate Containment Action, Root Cause Analysis, Process Capability and Failure Mode Effect Analysis.
- **Voice of the Customers** should be heard in plant so Mr. Customer Videos were displayed in canteen in order to motivate people so that they come together and work for enhancing customer satisfaction.
- Every deviation has a large number of suspected sources of variations so while addressing the root cause it is also essential that the suspected sources of variation are also taken care of and completely eliminate all possibilities which can cause a defect .All critical characteristics were listed and their sources of variation were inspected .
- The learnstatts (a form of lecture) on **customer centric approach** and Bosch Jaipur Plant Learning cycle helped in enhancement of understanding the requirements and hence in progressing towards the target. The Key Performance Enablers were the Kaizens, Lessons Learned, Calibration(a stage in production where the distributor injection pumps were calibrated) first pass yield improvements and the Quality Problem Solving projects.The different recognitions for the Lakshya 99 drive from the customers were – 1.Quality Excellence Award from Volvo-Eicher 2.President's award from Mahindra and Mahindra 3.Best Assemblies award from Cummins .Awards for Quality Circles were – 1.Regional Quality Circle Award 2.International Quality Circle Award

C. Cease dependence on inspection to achieve quality.

Eg: Robust Pokayoke Campaign: Bosch Jaipur had a drive called Lakshya 99 where they aimed at achieving 99ppm by April 2011 which they achieved in the beginning of 2012. Under Lakshya 99 one of the projects was robust pokayoke campaign where they aimed at improvising the existing pokayokes from 1st level to 2nd and 3rd level. This was among the preventive measures apart from regular reviews of Failure Mode Effect Analysis, identification of critical characteristics and focusing on implementation of new Statistical Process Control (SPC) stations was another important step towards reducing dependency on 100% inspection. Critical characteristics are critical from the perspective of product quality, safety or process safety (Industrial safety). Any working station becomes a SPC station only after the machine and process capability are achieved at the station for a given variable.



Figure 4 Level 1 (visible alarm), Level 2(Barrier introduced at railway line to avoid accidents), level 3 (bridge introduced to avoid clashes and waste of time) Pokayoke

D. End the practice of awarding business on price alone; instead, minimize total cost by working with a single supplier.

Simultaneous deployment of Bosch plant improvements at the stakeholder suppliers is a way to promote suppliers and mutually beneficial supplier relations. Supplier Quality Assurance meetings help in reducing supplier defects and in turn costs. However with time alternate supplier sources are identified in order to strengthen the supply chain and perform well in uncertainties and to reduce cost.

E. Improve constantly and forever every process for planning, production, and service

WEP & RPP Projects: Waste Elimination Projects and other cost saving projects are good platforms for improvements and saving money. Other examples are projects under ROBUST POKAYOKE CAMPAIGN under Lakshya 99 drive where the aim was achieving 99ppm by April 2011 which was achieved in the beginning of 2012. It aimed at improvising the existing pokayokes from 1st level to 2nd and 3rd level. This was among the preventive measures and Failure Mode Effect Analysis were also reviewed to introduce and implement better solutions

F. Institute training on the job.

Trade apprenticeship is the best example for on the job training. However there are job rotations for the employees where they can work and learn different aspects of being in a Line (Production department) or Staff (Supporting service provider) department on job.

Bosch Ltd. has a full-fledged training center to develop a reservoir of skilled personnel required to produce quality products on sophisticated machines.

As a Bosch apprentice people are trained at its state-of- the-art "Bosch Ltd. Vocational Centre" where the learning and development is encouraged under the supervision of fully qualified instructors. Emphasis is placed on "Multi-skilling" with demands for accuracy (closeness to target requirements) and high quality aligned with global standards and requirements - A first step towards creating a future "Technocrat".

G. Adopt and institute leadership.

The Operational leadership round, Management review meetings and meetings at International and National level include the leaders where they discuss and think about the targets of the organisation and the present level of achievement of these targets. Layered Process Confirmation involves people of all levels within the department and Plant Management and Quality Head to confirm whether 5S, daily mechanisms for safety, quality and inventory management and maintenance management are functioning smoothly or not .In every defect there is a possibility of improvement.

The Bosch guidelines for leadership give direction to the employees and inspires them to act as leaders .The guidelines state the prominent areas of leadership (Leadership) which are 1.Aim for success 2.Demonstrate initiative 3.Demonstrate Courage 4.Keep your associates informed 5.Leadby goals 6.Give feedback to your associates 7.Trust your associates 8.Shift your perspective 9.Shape the future together 10.Develop your associates

H. Drive out fear.

Fear is something which not only affects performance but also acts as a barrier in tapping deepest creativity levels and realising individual potential.

I. Break down barriers between staff areas.

Communication acts as a means for breaking down silence and barriers which are not visible but definitely contribute in slowing down the pace of work. Monthly departmental meetings, sharing of department wise associate survey results, plant management information sharing etc. are all such examples of communication which improved teamwork .Example Departmental Meeting named as Bheja Fry -"Bheja Fry". If a person has seen the movie named "Bheja Fry" then his/her thought process will be about an expression of humour generated because of chaos which will come to his/her mind but at Bosch it was the name of Quality Methods and Management departmental meeting which was initiated by the Quality Department Head Mr. Naveen BV .



“ Team Work “,
“ Recognition “
“ Leadership “
“ Motivation “
“ Aspirations “



" Satisfaction does not come with achievement, but with effort. Full effort is full victory. " Mahatma Gandhi

Figure 5 Associate Survey result discussion meeting at Kanchan Kesari Resort at Ajmer Road

J. Eliminate slogans, exhortations, and targets for the workforce.

Rather than discussing what is to be achieved forcefully more focus should be on how it is to be achieved and with willingness. At Bosch the organisational targets were deployed to individuals and all individuals were having target monitoring sheets with action plans defined to attain the targets. The target deployment was done during performance review and employee development session with mutual consent between employee and his/her manager.

K. Eliminate numerical quotas for the workforce and numerical goals for management.

Focus on action plan rather than numerical figures. Numerical figures in form of targets showed the direction and drove to define an action plan. PDCA approach was widely accepted and implemented at Bosch.

L. Remove barriers that rob people of pride in their work, and eliminate the annual rating or merit system.

The employee involvement initiatives like Quality Problem Solving, Suggestion Scheme, Ideas, Kaizen, Waste Elimination projects were schemes which were open for all employees and the reward were same for their ideas irrespective of which category and group they belonged to.

M. Institute a vigorous program of education and self-improvement for everyone.

Bosch introduced Step Up training (Shop floor transformation excellence program) for all Managerial & Superintending Staff (Engineers and above). There were monthly calendars released and people trained after receiving nominations. Yearly targets were deployed to the training team and trainings conducted were identified in the beginning of the year for each employee. For employee development there were a lot of platforms at Bosch like Performance Review and Employee Development), Employee development discussion, Career advancement discussion etc, 360 degree feedbacks. In order to assure communication between all levels there were round table conferences and skip level interactions.

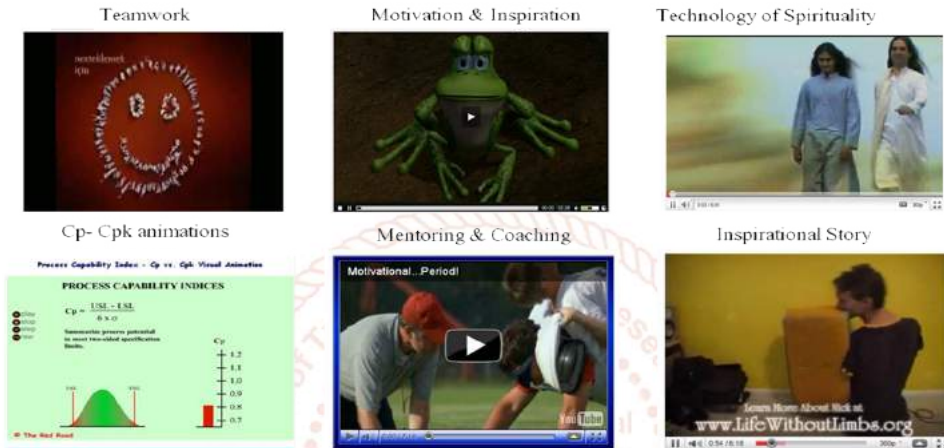


Figure 6 Video Lectures on various topics during “ Bheja Fry” departmental meeting

N. Put everybody in the company to work to accomplish the transformation..

Initiatives relevant to statistics were the implementation of Q DAS software for SPC and monitoring of all critical characteristics apart from other initiatives .Gauge capability studies were done and improvements were suggested in gauges through the platforms for employee involvement which are mentioned above.The gauge capability study is possible when the least count of the gauge is less than or equal to 10 % of the product specification and Bosch has a stricter criteria for same.

4. Conclusions

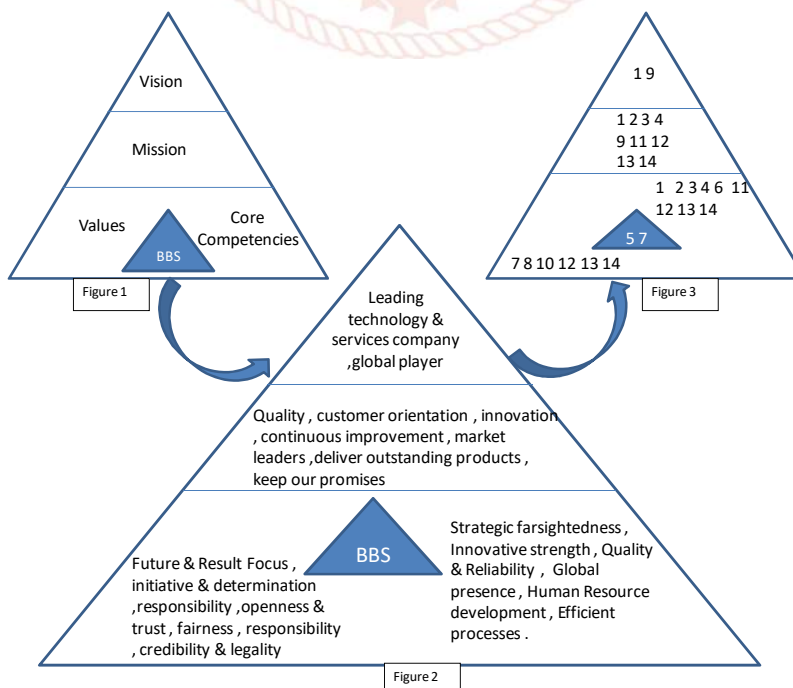


Figure 7 Correlation between Bosch House of Orientation and Dr.Deming's Philosophy

As shown in above diagram figure 2 is the elaborated format of Bosch House of Orientation and figure 3 shows how 14 principles (stated as numbers) of Dr.Deming are a part of values, core competencies, mission and vision and business system .

This illustration completely shows that Bosch House of Orientation which is the reason for Bosch's sustenance is nothing but Dr. Deming's philosophy or 14 principles.

5. Limitations

1. The study does not cover the points of improvements of the organisation as the focus was on practices related to Dr. Demings 14 points.
2. The conclusions are based on the observations done at one manufacturing location .One sample cannot be the representative of all manufacturing locations.
3. The conclusions are based on the observations from October 2008 to November 2012 during employment and being team member of the team competent people.

6. Acknowledgement

The paper is written based on the experiences within the organization hence would not have been possible without the knowledge shared by the Plant Heads Mr. Dinakar Murthy Krishna, Mr. Ashok Abraham, the Quality Head Mr. Naveen BV, the Change Management Head Mr. Vinod Venkatesh, the Technical Functions Head Mr. Ramamurthy K, Environmental Management Systems Head Mr. Krishna Prasad K., Human Resource Head Mr. Sudarshan P., Customer Logistics and Planning Head Mr. Purshottam Khandelwal, Purchase Head Mr. Phani Raj, Finance Head Mr. Sunil Kumar Vaya, Purchase Quality Head Mr. Rajesh Prasad, Manufacturing Heads Mr. Brahmhatt, Mr.Suraj Dev Singh, Mr. Deepanshu Dubey the Quality Group Heads Mr. Naresh Khandelwal & Mr.Gopalkrishna Udupi, Mr. Prateek Varshney, Mr. Deepanshu Dubey, the Project Coordinator Mrs. Arti Shandilya, External Consultant Mr. P.V Tantri and the entire Mr. Customers team (Mr. Pawan Kumar, Mr. Punit Singh, Mr. Parivesh Kumar, Mr. Abhishkek Joshi, Mr. Gaurav Agarwal, Mr. Vinod Gupta) and Mr. Sudhanshu Dharmadhikari, Mr. Tushar Kulshreshtha, Mr. Harjeet Singh and all Department heads and employees who held the above stated designations from 2010 to 2012.The successors of the above Plant Heads Mr. Basavraju Rajendra and Mr. Kumar Srinivas are also to be thanked.

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