

Implementing ISO 9001:2008 in the Ventilation Company

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Abstract- This is an assignment report of the Quality and Environmental Management course [course responsible was Gunn-Mari Lofdahl and Jessica Magnusson at University of Boras] about sales and installation of the ventilation equipment. There are several ventilation equipments but we deal mainly with air conditioning and air cooling machine. Our company's name is Vent AB. It is situated at Knalleland, Boras. We are supplying and installing the ventilation equipment to the Textile industries in Sweden. Our big customer is Yusi Textile Industries located in Boras. The number of employees in our company is twelve. Our company is located at Knalleland, Boras. In this report, we are going to illustrate about the quality aspect of our company.

Index Terms- Non-conformity, Ventilation, PDCA approach, ISO 9001:2008, QMS, SDCM [Supply and Demand Chain Management].

I. INTRODUCTION

As we are an organization consists of only 12 employees, we cannot produce ventilation equipment. We are buying the goods from our supplier and then delivering it to the customers including installation service. It is mentionable that our suppliers have ISO 9001:2008 certified quality management system but we are trying to implement it in our company. Moreover we are going to audit our suppliers work as we are concern more about our image. Our motto is to sell best quality air conditioning machine at minimum price that ensure the world standards. We have experienced personnel's to install the machine in our customer place. The Ventilations Equipment includes:

- Large Diameter Industrial Fan.
- Centrifugal roof ventilators.
- Propeller and wall Ventilators.
- Kitchen Exhaust air purification or cleaning system.
- Air Conditioners [air cooled, water cooled, low temperature, server and mobile cooled] etc.

The Company also offer minor services to this equipment on quarterly basis or as requested by customer. In a situation where major repairs are required the manufacturer is always informed at the client's expense.

Air conditioning machine is our major equipment.

1.1. Goals of our company:

To produce better service, we have set up some goals for our company which is mentioned below:

- To delight the Customer.
- To enhance our reputation for services that are better than expected
- To deliver products on time without error.

- To continue to meet the customer's services need every time.
- To improve continually - all systems, all processes, and all products.
- To promote our company's culture that thrives on improving services and processes.

1.2. Why we shall develop Quality management system:

Our quest to solve the present and unforeseen future challenges and continual improvement of the organization management processes, made it mandatory to implement Quality management system. In view of the market competitiveness which arise from customer satisfaction, supply chain management, profit margins, increase in customers and in compliance with quality and environmental standards etc, the company cannot afford to operate without the QMS. We would like to have branches across the country and other EU countries putting into consideration the standard qualities and specifications of goods and services. So we would like to actualize our organizational goals through implementing the Quality management system by measuring our customer's expectations and needs as the input and customer's satisfaction as the output with continual improvement as well as employee satisfactions. We are a very small company of 12 employees. As a consequence, we have few customers and few profits. But we want to improve as a company day by day by implementing quality management system. We are trying to implement PDCA [plan-do-check-act] wheel approach within our process. As we are service providing company, we committed to fulfill all requirements, including those specified by our customers, industry standards and statutory regulations. We are committed to the continual improvement of products, services and processes; including improving the effectiveness of the Quality Management System. We are committed to provide Customer Satisfaction through the achievement of Quality Objectives consistently.

1.3. Which areas we will have to develop:

- Lack of training for the employees.
- Problems in forecasting of customer demand. For instance we need a model 25 pieces but we have 14 pieces and vice versa.
- We cannot provide the customer at highest chief price as we are not able to make the equipment. We are buying it from others and they are getting profit from us as well.
- Lack of information process. As a result, lack of co-operation.
- Problems in design control. If the customer wants to change a design, we cannot implement it to our supplier's production rapidly.
- Top management can not handle all things together.

- Increase in the running cost of the company.
- Inconsistency in the expected time of delivery of products to customers.
- Reduction in the turnover of the company.
- Inability to meet customer present expectation and needs.
- Time management and lack of managerial skill and strategies.
- Variability in the schedule of delivery of products by our supplier.

II. HOW WE DEVELOP QMS

2.1. Establish process: To make a process, we have to think about the problem that can happen when it will run and how to handle the problem or prevent it to happen further. As example, Chernobyl accident. There the employees were performing a test of nuclear reaction under low power which results in accident. They could not forecast the total work process.

2.1.1. The TQM consists of ten steps:

- Pursue new strategic thinking.
- Know your customers.
- Definition of client needs.
- Focus on prevention, not correction.
- Reduce chronic waste.
- Pursue a continuous improvement strategy.
- Use structured methodology for process improvement.
- Reducing variation.
- Use a balanced approach.
- Apply to all functions.

To find problem in each process we can use “what if analysis” technique. For example, we are showing it in case of a genetically modified organism.

What if... modified genes are spread to other organisms?

What if... the GMO has a higher survival capability than others? What if...the GMO produces toxic components?

What if... the modified genes are instable?

What if...the genes are pathogenic, causing illness in other organisms? What if... the GMO proliferate rapidly?

On the other hand, we can perform different risk analysis task for a process. For instance, “FMEA approach” for a process. The process is described below:

Risk Priority Number, $RPN = S \cdot O \cdot D$

S= Severity ranking [consequence] and scale 1-10 [10 highest].

O= Occurrence ranking [probability] and scale 1-10 [10 highest].

D= Detection ranking [early warning possibilities] scale 1-10 [10 highest]. We shall look to reach a low RPN.

We can make “cost-effective analysis” for a new process: CEA is a technique for comparing the relative value of different strategies. In its most common form, a new strategy is compared with current practice (the low cost alternative) in the calculation of the cost- effectiveness ratio.

CE ratio= $\frac{\text{Costnew strategy- Costcurrent practice}}{\text{Effectnew strategy- Effectcurrent practice}}$

Moreover we shall try to introduce lean and agile approach within our process.

2.2. Perfect documentation: We shall keep the document of our design, process, and manufacturing, installation information in a decent way. It is very essential for a company. Because if one company wants to produce a new product that was made in the company few years before or something match almost with that, it will help the company to produce easily. But we have to put the files in an organized way. It is mentionable that, the documents before using should be checked by expert person.

2.3. Management commitment: The top management should be committed to develop the quality of product continuously, also customer requirement, and customer satisfaction. They must have proper knowledge about the total scenario of the company process and ability to direct it others clearly.

2.4. Communication: We are using e-mail via internet in our company for communication. As we have few employees, it helps us to perform our communication with customer, supplier and within the organization. We can make internet webpage of our company where everyone will get required information about our company including we can establish related departments close to each other. There should be a time keeping machine and entrance card for each employee.

2.5. Resource management: Top management should have a proper plan to use the resource perfectly. For example, employees, raw materials.

2.6. Involvement: Top management should arrange meeting weekly or monthly within the company. There all will participate and express about their working. Everyone will be warned about their responsibility and importance to perform the job. Because the industry is dependent on its entire unit for a complete production. As a result, they will be sincere about their duty.

2.7. Competence: It is very essential to have competence within the worker of a company as well as among different companies. If it is available, then the industry will improve automatically. Top management can deposit bonus money for good performance.

2.8. Emergency: As we are working with installation of ventilation equipment, it is very necessary for our technicians to know how to protect them from any imminent danger. It will protect our materials as well as employees. For instance, if any fire occurs in company, pesonnels cannot use lift.

2.9. Training: We need to arrange training for the employees regularly to make the more qualified and competitive in the business field. We can arrange practical and theoretical training for them to make them fit for doing the job properly. Now a day’s many companies are hiring advisors to learn the employee’s theoretical knowledge. We will train them about how to go into a company and audit the work. To say, if a worker is very conservative then you have to ask them the polite questions at first about his work and then gradually you can go to your main questions. If a worker is cordial enough, you can ask him questions but you have to listen him carefully.

2.10. Infrastructure and working condition: We must have a proper structure of the company. It should have more space for documentation, sufficient and good communication facilities etc.. We must protect our company from problematic sound. We should have proper lighting for customer to look the

air conditioning machine and helpful for employees to work. The management can set air conditioning machine to control the temperature within the company. We have to look that whether we have acceptable employees to accomplish the work or not. Do we have necessary equipments to do the work? When we will go to install air conditioning machine to our customer of Textile Company. We know that in Textile Company they are using the air conditioning machine mainly in the laboratory. It is necessary to keep the temperature optimum in the laboratory to keep the machine and chemicals fit. The air cooling machine sucks the dust from the internal environment. So if the dust is high in the room. It can not control the temperature and humidity properly. So the room should be always cleaned regularly.

2.11. Purchasing product: We shall make a proper identification, location, description of a product that we will store in our company. We shall check that purchased goods were purchased on demand and it has the right quality to meet the customer expectation.

2.12. Increasing in productivity: By improving the quality we will have fewer defects or delay in our service [production] process, consequently we will reduce costs. In other words, we will increase productivity. Your staff will be satisfied in their job. Existing customers will find our product with fewer defects so the new customers will be attracted to our products. Improved quality → Reduced cost → increase in productivity → more customers because of better quality and lower price → improve in our business

2.13. Reduce Waste: We can implement lean to reduce waste; this philosophy says that we can reduce 7 kind of waste [over production, waiting time, transport, extra processing, inventory, extra steps, and defects]. We have to use a pull process to reduce waste in our company.

2.14. Authenticity: Company shall provide dependable information to the customer and everything will be very easy to trace for all. But if it is confidential information, it should be hidden like manufacturing techniques and installation techniques.

2.15. Monitoring: Top management should always monitor the production process and make amendment where it is necessary. They will look whether the workers are working on a safe environment or not. They will have to make a proper

instruction about the maintenance department. For instance, some places may require schedule maintenance and some others may need preventive maintenance. In addition, they will always try to innovate some better ways of work. In fact it will eliminate the non conformity during the work process.

2.16. Continual improvement: We are implementing total quality management system in our company to get the improvement consistently. It will be established by reviewing non conformities reason and make a reasonable platform to avoid this. Including, it will achieve by innovation of some new techniques, improvement of skills and outstanding leadership.

2.17. Price Control system and time Management: Over the years there have been big burden on the Company as a result of continual increase in price of product supplied. The Company was initially, of the opinion to either to be exporting the product from a manufacturing Company in Asia at cheaper rate and of the same quality for customer satisfaction. But considering the time required for the shipment and other logistics involved, we decided to produce locally. Due to the high market competitiveness of the product, it would be of paramount importance price control system within the company. We have selected our supplier by arranging a bid of several suppliers. From them, we have chosen the cheapest but qualified one.

2.18. Setting up of Staff care [Confidential counseling]: The Company recognizes that from time to time staff may require support in the form of professional counseling in order to help them in resolving personal and other issues like behavioral and emotional that may impact on their working life, and affect their performance or attendance at work. The Counselor schedule visit on weekly basis to help about challenges facing the employees. [3]

III. THE STRUCTURE OF OUR QUALITY MANAGEMENT SYSTEM

We have made the structure by taking help from the ISO 9001:2008 standard. So it is very helpful for the product quality and customer satisfaction.

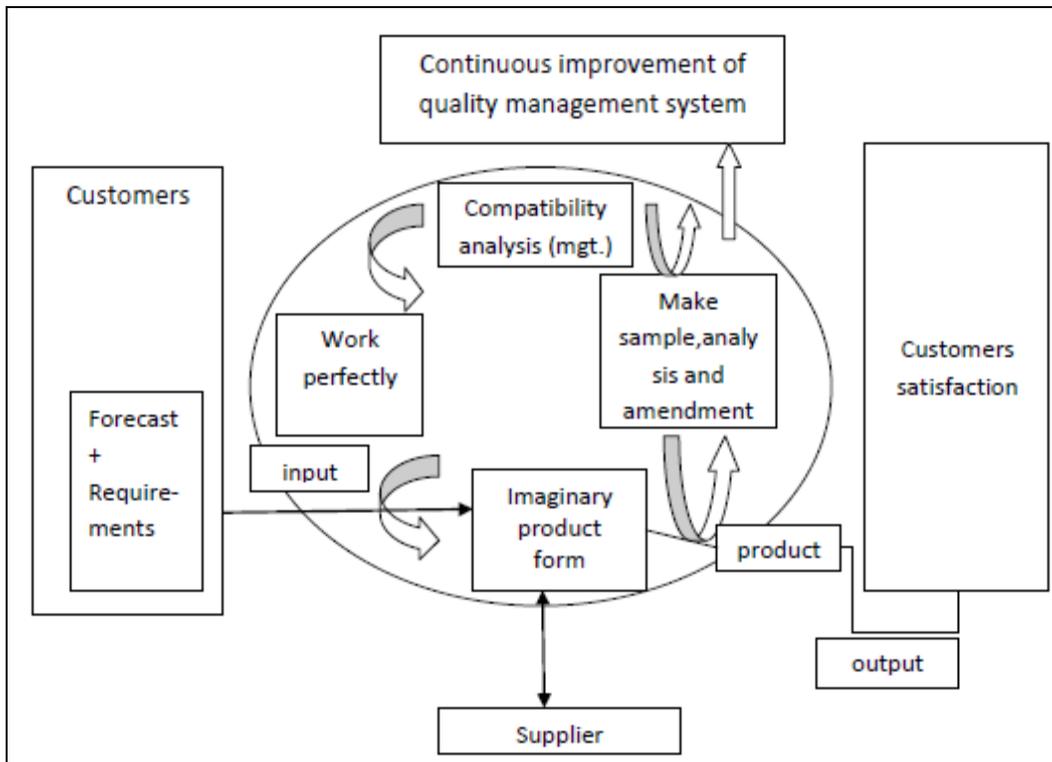


Figure-1: The structure of the QMS of Vent AB, Knalleland, Boras Company established by taking help from the QMS structure of SS-EN ISO 9001:2008 compendiums.

We are trying to implement PDCA approach not only for our company but also for our supplier. Firstly, we are studying about the demand and specification of our customer. We have internet web shop for the customer to express their demand to us. Then we make a possible design of the products. We are also making a flow diagram of the process to fulfill the product manufacturing. Secondly, we are producing the product and adding value to the product according to customer requirements. Thirdly, we are scrutinizing the quality standard of the product and instructing to the producer if any changes are required. At last, we are getting the output [Product].

3.1. ISO 9001:2008 covers:

ISO 9001:2008 standard covers all features of a company activities that include identifying its key processes, explaining roles, responsibilities, policies, objectives, requirements for documentation, understanding and meeting customer requirements, resource requirements, training for staff, product and process planning, design the processes, purchasing, production and service, measurement of products and processes, customer satisfaction, internal audit, management review, and improvement processes.

3.2. The benefits of implementing ISO 9001:2008:

As many organizations initially implemented ISO 9001:2008 because they had to, their customers demanded it or their competitors had it. But these companies soon understand that if ISO 9001:2008 properly implemented, then it gave them many significant and noticeable benefits.

For management a significant benefit has always been improved financial performance. Several studies have shown that those companies implementing a quality management system have appreciated cost savings through improved process effectiveness and efficiency. As well, benefiting the bottom line, companies also grasps many other advantages, including enhanced employee and customer satisfaction, resulting from better defined and implemented business processes.

As we are service providing company, so we implement a Quality Management System in our company, it will encourage team members by defining their key roles and responsibilities. In this way we can save the cost by improving our efficiency and productivity, as service deficiencies will be highlighted. As we apply ISO 9001:2008, our company progress can be developed, resulting in less waste, rejected work and fewer complaints. Customers will observe that orders are met consistently, on time and to the correct specification. QMS can open up the market place to increased opportunities for our company. [1]

3.3. Direct benefits for a company apply ISO 9001:2008:

- Financial performance improvements –as studies have consistently exposed that ISO 9001:2008 certified outperform non-certified companies.
- This gives motivated to staff- understands their roles and how their work affects quality of service of company.
- Increase customer satisfaction – as delivery of products or service that consistently meet customer requirements
- Enhanced management and operational processes which resulting in less waste of time and materials, increased productivity, efficiency and cost savings.

3.4. Derivative benefits are:

- Enhanced reputation.
- Repeat business- as customer satisfied with quality of service.
- Skill to compete more effectively globally, both on quality and price
- Access to new markets, you can work those customer who just work with ISO 9001:2008 certified companies.
- We can improve customer and supplier relationships.
- We can improve employee morale. [2]

IV. HOW TO GET A CERTIFICATION

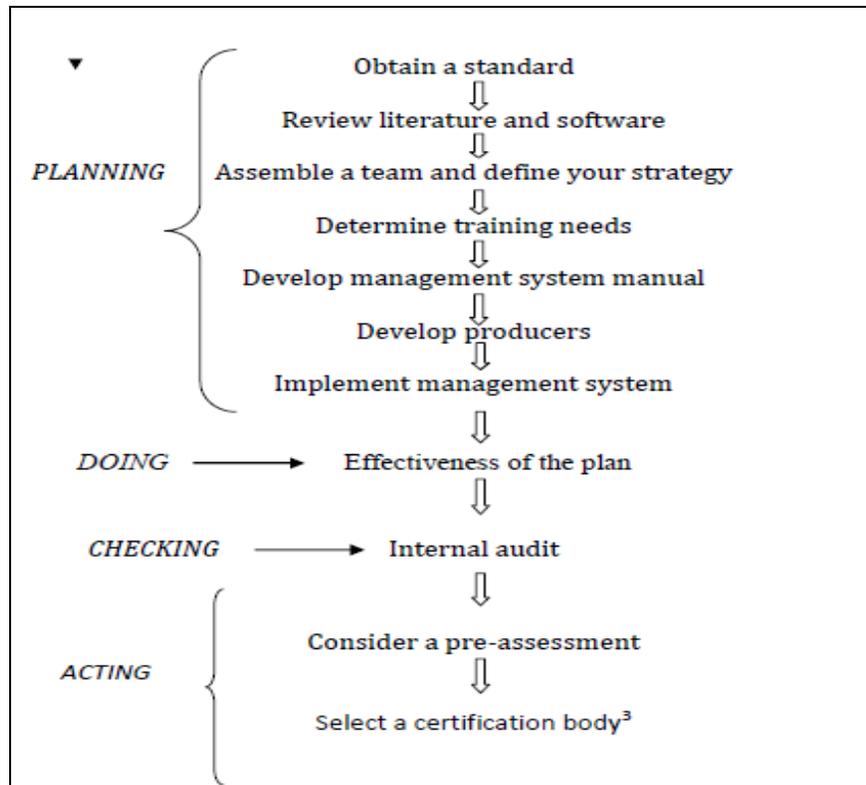
Before to get a certification the company shall clear which management system is going to implement, for that we have some tips to begin:

Make sure that the company begins with the best attitude.

We use the ISO 9001:2008 as a guide template to define the system management. Know what application and implications of the standard will mean to our company.

Keep in mind all the risk and processes that affect our company [American Society for Quality].

4.1. General steps to get certification:



4.1.1. Planning:

- **Obtain a standard:** To obtain the standard the company shall read it for a time being to decide if certification to this standard makes good sense for. It is really important step because this step is the base of the certification and without a good base the project could fall in every moment.
- **Review literature and software:** The Company shall be supported by itself with some information. This information is designed to assist the company in understanding and implementing a standard.
- **Assemble a team and define your strategy:** The Company shall define the strategic decision how the company is going to adapt a management system. They decide the business strategy that an efficient management system should support. To get the easy way is vital to define a group work which one is dedicate to develop and implement their management system.
- **Determine training needs:** The members of the group work shall know the full details of the applicable standard. For this are a lot of companies which they offer some courses.
- **Human resource and training needs:** We will frequently provide appropriate changes to train our staff's skill, improving their techniques, and give them some related knowledge. We will make effort to make our stalls aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives. We have a process to motivate our employees to achieve quality objectives and make continual improvements, which is used the ISO 9001:2008 as a quality standard.
- **Develop a management systems manual:** Manual is used for a quality document, let everybody know its responsibility and instruct their operation. So the manual is the crucial things to control the quality system.
- **Develop procedures:** Our products focus on customers need. We will use least time to produce qualified products through lean production.

- **Implement management system:** Communication and training are key to a successful implementation. During the implementation phase, our organization will be working according to the procedures that were developed to document and demonstrate the effectiveness of the management system.

4.1.2. Doing:

Effectiveness of the plan: We shall evaluate the performance of our plan by performing few sample works by following ISO 9001:2008. It will help us to know our value of work. For instance, in textiles company before going to bulk production they produce few samples to look whether it is ok or not.

4.1.3. Checking:

Internal audit: Management will see the performance and check whether it is ok for us to apply for an ISO 9001:2008 certificate or not. For instance, when the Textile Company produces sample for buyer, they first send a swatch to the top management to look at it. If it is correct, they arrange to send it to the different certified test centres to get a certificate. After that, they send it to buyer for final evaluation.

Obtain a standard	1 month.
Review literature and software	1 month.
Assemble a team and define your strategy	1 month.
Determine training needs	1 month.
Develop a management system manual	2 months.
Implement management system	1 month.
Effectiveness of the plan	2 months.
Internal audit	2 months.
Consider a pre-assessment	1-2 months.
Select a certification body or registrar	2 months.
Certification	1-2 months.

[3][Quality management system requirements [SS-EN ISO 9001:2008]].

V. DISCUSSION

The Vent AB will never be a complete satisfactory company according to us unless it can establish control over its supplier fully or they will have to do everything themselves.

For instance, they cannot make a rapid change in the manufacturing process of supplier instantly including they cannot buy the equipments from supplier cheaply and they cannot control the lead times for delivery to customer although we have mentioned a way of bidding to get rid from it to a little extent. So in this competitive world, it is very difficult to satisfy customer and earn money spontaneously. It is very essential to reduce waste and save time and money. As we are using QMS which includes PDCA approach within the company, it will help us a lot to do it. Because firstly, we are making sample. So we will be able to make product according to customer satisfaction without wasting it. If we get ISO 9001:2008 certificates, it will help us to enrich our sells to a great extent. In order to get this certificate, we are developing our employees by training, good management, better communication, ultimate emergency response, co-operation of working, removing non-conformity and so on. Infact we are developing day by day. As we are improving our

4.1.4. Acting:

Consider a pre-assessment: We can arrange to have a preliminary evaluation of our QMS by a certification body. The target of this is to identify areas of non-conformity and allow us to correct these areas before we begin the accredited certification process. Receiving a non-conformance means that a particular area of our management systems is not compliant with the requirements of the standard.

Select a certification body: The function of a certification body is to audit our company’s person, product and system. When the product is finished, certification body will verify it. If the product has not passed the certification, it cannot be put in the market. [3] [Det Norske Veritas, 2009].

4.2. Schedule for implementation:

The VENT AB is a small company so it will take maximum 14-15 months to implement ISO standard 9001:2008 within our company. Below are the time frames in which we will get the certificate from ISO:

customer service due to that mission, it will help us to get few new customers as well.

VI. CONCLUSION

It is very prolific for a company to have ISO 9001:2008 certifications as the markets are very competitive, customers are tantalizing, and the suppliers are always trying to increase the price of their products by innovating something new and make a control over us. If we have ISO 9001:2008 certificate, we will be authentic about quality to our customer and others as well. To success this mission, we have changed our total SDCM with improved QMS. It helped us to improve in different areas, to say-communication, coordination, skills, lead time management, non-conformity within the process, emergency handling etcetera. We have a plan to get ISO 9001:2008 certificates within 14 months. If it success, it will enhance positive view of our customers about us. In the long run, it will open an opportunity to get few new customers, to increase the demand and price of our products, to increase the dimension of our company. But we have a suggestion to the Vent AB that they should try to be a big company depending on their caliber otherwise they can fall.

