

Quality Management in a Military Organization: a case of ISO 9000 certification

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ABSTRACT

In recent years, quality has attracted the attention of professionals in all areas of operations management. In the production of goods and services, the demand for literature about quality has provided a lot of emerging theories. These theories, sometimes, do not offer innovations, they are evolutions of others. It is in this context that aviation quality comes out. Regardless of the size, type or location, if it supplies a product or service, that which is delivered must be of an acceptable quality. This paper examines the experience of a Brazilian Military Organization to achieve ISO 9002 certification, in order to improve quality of maintenance of ejection equipment. A review of the literature on quality in a general way and on the aviation industry shows that the quality systems approaches have been present throughout aviation history.

Keywords: ISO 9000, Military Organization, Aeronautical Industry

1.0 Introduction

In scientific literature it is possible to find techniques, formulation and methods of implementation of quality improvement programs.

In spite of the amount of written texts, little attention has been given to the efforts undertaken by public organizations in programs of quality improvement of its goods and services. Among them, military organizations are even less known in the literature on administration.

This article intends to bring a bit more information on the subject of the quality in the military area. Therefore, a Brazilian Air Force organization was chosen which has developed, in two different periods programs aimed at quality improvement, although the most recent one is still in the implementation phase. The chosen organization was the Depot of Aeronautical Material of São Paulo (PAMA-SP) which, on a general level, is a large center for maintenance and supply for various Brazilian Air Force aircraft. Besides the generic objective above, this text intends to present how the quality improvement program was implemented in the organization.

1.1 The History and Importance of Quality in the Aviation Industry

In a broad sense, quality assurance refers to any action directed toward providing consumers with products (goods and services) of appropriate quality. Quality assurance has been an important aspect of production operations throughout history. (Evans, 1993:3).

As a concept, we understand the quality of millenniums ago. However, its managerial form is somewhat recent. The form, which was previously used, has returned for the exclusive use in departments of production and operations, today more diverse applications are involved. Nevertheless, this change didn't happen at an impervious moment in the history of quality.

Greek mythology tells us that Daedalus and Icarus, father and son, were held prisoners on the Island of Crete. Daedalus studied the flight of birds and he made for himself and his son pairs of wings. He used a framework of wood covered with cloth, and with melted wax he attached feathers. Before take-off, Daedalus warned his son that if he flew too close to the sea, the spray would wet his feathers and make flight difficult, and Icarus was warned that if he climbed too high, the heat from the sun would melt the wax that held his feathers and flying would be impossible.

This may have been the first forewarning of a need for procedural control of process as well as a prophecy of a procedural noncompliance.

The aviation industry and people within the industry have always been considered a little different to others. This may be attributable to the hundreds or thousands of years attempting to do what many considered was impossible. (Dreikorn, 1995)

In July 1914, under the direction of the Equipment Division of the U.S Army Signal Corps, the Aircraft Production Board (PAB) was established. That was the first governmental action in order to control the quality and planning in the aviation industry.

In 1915, the president of the United States created the National Consulting Council for Aeronautical Subjects.

In July of 1917, the Association of Aircraft Manufacturers was created. The association was open to those wishing to participate, although, with all the influence of the industry, non-members certainly discovered failure.

With the threat of World War II, on May 16th, 1940, President Roosevelt, of the United States, requested the production of 50,000 aircraft. Previous to this dramatic increase in production, diverse actions had to be taken by the industry. Factories had to expand, new installations had to be constructed, people had to be contracted and trained, and new production processes had to be developed. (Dreikorn, 1995).

Main (1994) says that North American equipment had spectacular development in World War II, and this occurred due to the control of quality statistics. In his notes, Main wrote that in World War II, Grumman carried out the first test flight of the F6F Hellcat in June, 1942; started to produce the plane the next January and the marines sent it into combat in August, 1943. A simple and robust aircraft, the Hellcat outperformed the threat of the Zero of Mitsubishi. Grumman, besides taking the Hellcat from the test phase to combat in 14 months, a factory was constructed to produce this aircraft in the same time. Women who had never worked in a factory before were mainly used in the construction of the aircraft. The factory was avant-garde in administration. A service called "green car service" was created, which intended to resolve all the problems which could keep its employees away from the work place. For example: resolve a problem of a broken pipe in a residence. The company also had a nursery. The factory, additionally, practiced a rudimentary system of just-in-time, long before it was invented by Toyota.

During World War II, individual military activities also began to create their own standards for process and system control of such products as aircraft tires, glass, plastics, sheet metal, and practically anything else one could think of. The standards were also created to control the quality systems of their sub contractors. These standards are still around today and, of course, have been revised with the advancement of technology. Presently, in the USA, the Department of Defense controls its suppliers' quality systems under military standards MIL-I-45208 or MIL-Q-9858A, and the corrective action process MIL-STD-1520C. (These military standards are referred to as "mil-specs" within the industry.) However, in 1993 the Department of Defense, together with NASA, announced that it will begin to accept registration to ISO 9001 (ANSI/ASQC Q9001-1994) as evidence of an acceptable quality system.

2 Methodology

For this research, data was collected from three sources: semi-structured interviews, direct observation and content analysis of various documents. Interviews were conducted with chief engineers, project managers, quality control and blue-collar personnel. Direct observation is fundamental to understanding a specific setting in qualitative research. Related documents, quality manuals, customer files, performance indicators history, job descriptions and project status records were used as elements or end products revealing the practices leading to their existence and actual form.

During the interviews it was possible to conclude that the managers were stressing the critical importance of quality. They felt that it is very important for them to inspire people to do things they do not believe they can do and that they have blue collar personnel that were once trained, and now are demonstrating commitment to and involvement in quality.

3 Quality Program in a Specific Military Organization

After five years and three Directors, in February of 2000 the Management decided to resume the quality approach for PAMA-SP, which establishes the guidelines for the implementation of a new quality program. The Director of the Organization, who we will call the leader of the process, bases his proposal on two basic premises, which are responsible for the orientation of the formulation and the implementation of the new quality program. These premises would be:

1. The implementation of the Quality Program should be gradual; and
2. The first sectors to receive the attention of the Quality Program would be chosen according to the sensitivity of the activities carried out by the sector in relation to flight safety.

The putting into operation of these two premises should happen through the following strategies:

- a) Resuming the Total Quality Program, recovering the basic concepts of understanding, training, motivation, respect for the internal culture and values.
- b) Choice of an area or sector for investment in the implementation of ISO 9002.
- c) Identification of Human Resources who will follow the Program.
- d) Diagnosis and verification of the procedures and current processes.
- e) Planning of all implementation phases.
- f) Training of personnel involved.
- g) Hiring of a consulting company for the implementation of ISO 9000.
- h) Expansion of the certification process to the other sectors of PAMA-SP.

The objectives of the Program were: to improve the internal organization of the workshops, subjects of the program; to act to prevent potential causes of defects and of non conformities; to guarantee the quality of the services; to obtain the degree of safety required for the product; to establish a relationship of trust with the customers; to generate an innovative, challenging atmosphere and an exempla for the personnel of the sector and for the Organization as a whole; to start an implementation process section by section; and to comply with the decisions of the higher divisions, to which PAMA-SP is subordinated.

The target to be reached by the Quality Program would just be Ejection Seat sector, seats of the Martin Baker type, model: MKBR10LY. The ejection seat is a piece of equipment that it is designated as a safety item, the last resort that a pilot of a combat aircraft counts on to save his life, in situations where the loss of the aircraft is inevitable. Due to its importance and because its operation is based on explosives, its maintenance and the establishment of inspection processes and completely safe repairs becomes a priority, (PAMA-SP2001: item 1).

With the aim established, the quality manual was written, and establishes the policy that will guide the proactive actions that will avoid situations that potentially generate defects. For the established policy the following statements were considered:

- a) The sector should maintain the revised seats in perfect operation, within the conditions specified by the maker;
- b) The safety of the internal processes of execution of the services should be a priority;

- c) The customers' expectations in relation to the quality standard and technical assistance should be satisfied;
- d) the ability to trace the final product and the processes employed should be assured;
- e) the continuous updating of the technicians involved by periodic training; and
- f) The suppliers should establish quality commitments and compliance with supply dates of necessary materials for the maintenance of the seats.

These six components of the policy, to be controlled, needed to be transformed into objectives or performance goals, with indicators for evaluation. The result was detailed in the enclosure 5.3 of the Quality Manual, called the objectives of quality and expressed as indexes, periods, means and responsibilities. As an illustrative example, we present some of these objectives:

1. Objective: to maintain a high level of successful ejections .

Goal: 100%. Period: Dec. 2001. Method of evaluation: the customer's formal documents. Person responsible: head of the section.

2. Objective: To comply with the time scales on the service orders.

Goal: 80% of the orders should be executed in the scheduled time. Period: Dec. 2001. Method: report from the internal computerized system, Person Responsible : head of the section.

3. Objective: To minimize the rejection level.

Goal: to obtain 90% of approval in the final inspection of the product. Period: Dec. 2001. Method: final product inspection reports. Person Responsible: Inspector.

Besides these 3 examples of performance inspection shown, several others were formulated for the control of the effectiveness of the quality policy. It was considered by the leader of the process that the implementation of the quality program, inside certain restricted limits, would benefit PAMA-SP as an institution and its staff, civil and military. Below are listed the main expected benefits, (Xavier, 2001:slide23).

For PAMA-SP, the benefits would be:

- Implementation of the program shows the interest of the administration in taking precautions against defects that affect safety and can have implications of responsibility;
- The program facilitates the demonstration of non conformity;
- Facilitate in assisting the orientation of the higher divisions for all the logistical organizations of the Brazilian Air Force;
- Allow to offer to external customers greater reliability in relation to the services that are rendered by PAMA-SP;
- Allow greater efficiency in the application of resources, increasing the productivity and the quality;
- Provide Systematic Management , by taking preventive actions that influence the potential causes of non conformity and defects.

The benefits expected for the employees of the Organization would be:

- To provide less conflicts at work and greater integration among the sectors;
- To promote greater individual development in each task, with the consequent improvement of performance;
- To offer greater training possibilities;
- To offer better ways to accompany and to control the processes; and
- To offer better work conditions and personal development.

Top management practices goes promoting quality included: demonstrating personal commitment and involvement in quality by serving on quality improvement teams, providing the quality working environment where employees talk openly about problems, and make people conscious that their work is relevant, not only to increase quality, but their work can be the most important key to keep the pilot alive, when the aircraft crash is inevitable.

The benefit of ISO 9000 is that it should produce an affective quality system which will assist in eliminating errors and therefore save money on, for example, rework and scrap. In fact, ISO 9000 does not ensure high-quality goods or services, but having a quality system in place ensures that organizations may have the capability to provide quality goods and services to their customers.

4 Conclusions

Quality is a basic premise to be adopted by the companies that need to survive in the many different areas of business. According to Garvin (1992: xi), quality fast became one of the highlights of competition in the 80s and 90s. And it became the target of greater attention as a result of joint action of factors such as the need for imports and exports, federal and state incentive programs, increase of consumer sensibility, etc. These factors, acting together or separately caused a renewed interest in the administration of quality and an ever growing recognition of the strategic importance of quality.

The globalization process imposes a very high degree of dedication on the part of the companies that intend to compete in other markets or for those that need to face its competitors in the internal market.

On the other hand, the companies of the aeronautical industry need to maintain a high degree of quality in their products, not only because of market pressure but for the responsibility for human life, be it crew members, passengers or people in general whom, because of a flaw in the manufacture, or in a service of maintenance of an equipment or for a simple inspection item that was not accomplished in an aeronautical item, can have their own property or lives threatened.

As we pointed out at the beginning, when dealing with quality and ISO 9000, there are many different approaches and texts, describing cases of implementation in the various different types of business. But, at the same time, there is a great shortage of texts showing cases related to ISO implementation in governmental organizations.

Even though it is not effective yet, the ISO certification in the organization, object of this study, the analysis of this case showed that it is possible for a company to seek ISO 9000 certification, without the objective of only increase profitability and market share, the Depot of Aeronautical Material of São Paulo, seeks its certification with the aim of assuring that the ejection seat equipment: the last alternative of a military aircraft pilot, in the case of an accident with the inevitable loss of the aircraft; works in a safe way at the moment that it is triggered, trying to preserve the largest asset of any organization: a human life.

The main conclusion arising from this thesis is that it is possible to try pursue ISO 9000 certifications with a target other than increasing profitability or market share, in other words, it is possible, to try to obtain ISO 9000 in order to save lives.

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ISO 9000 could be quality management normal that presents pointers meant to extend business potency and client satisfaction. The goal of ISO 9000 is to introduce a high-quality management system at intervals a company, increasing productivity, reducing excess prices, and making a certain quality of processes and merchandise. ISO 9001 applies to businesses and organizations from each sector. The method destined approach makes the quality applicable to service organizations also. This freedom permits the ISO 9000 normal to be employed in a good vary of organizations and businesses giant and tiny. SUGGESTION: There are a few opinions and suggestions by family and friends whom I discussed my project findings with; they are given below ISO 9000 did require organizations to establish a quality system as a means of ensuring product met specified requirements. What many organizations failed to appreciate was that they all have a management system "a way of doing things and because the language used in ISO 9000 was not consistent with the language of their business, many people did not see the connection between what they did already and what the standard required. The 1994 version required a system to be established and documented. If the system was a set of documents, why then require it to be established as well as documented? The persistence of the auditors to require documentation led to situations where documentation only existed in case something went wrong "in case. Elements of iso 9000 quality management systems. The standards of ISO 9000 detail 20 requirements for an organization's quality management system in the following areas: Increased customer satisfaction"Since the ISO 9000 certification process almost inevitably uncovers areas in which final product quality can be improved, such efforts often bring about higher levels of customer satisfaction. In addition, by seeking and securing ISO 9000 certification, companies can provide their clients with the opportunity to tout their suppliers' dedication to quality in their own business dealings.