QUALITY CONTROL IN AUTOMOTIVE INDUSTRY

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ABSTRACT

This thesis is focusing on the level of awareness of Quality Control (QC) among the workers in the automotive industry. The implemented of Quality Control (QC) will different in each industry. The Quality Control (QC) plays a fundamental role in determining the performance in automotive industries. In automotive industry Quality Control (QC) is a process through industry by companies to ensure that product quality is maintained or improved and manufacturing errors are reduced or eliminated. Quality Control is one of the process inspection and auditing to maintain the quality and legal standards to achieve the level of standard. This study was mainly carried out by preparing the letter to industry and do survey by distributed questionnaire, data collection, analysis of the data, result and discussion of the analysis, and conclusion. Finally, it is hope that the results from the study could contribute to the researcher for future improvement.
ABSTRAK

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This study is about “Quality control in the automotive industry”. Back to my study here at University Malaysia Pahang, I am taking Project Management course which is also study about Quality Management System. So that, I really need to know how the quality management help automotive industry to achieve the quality based on the standard or level.

Quality is a word that brings important significance between the seller and buyer. In the comprehensive market placed nowadays, most of the organizational recognized that is endurance in the business world be contingent highly on carrying high quality product and service to their client. In arrears to worldwide competition, some organization have definitely stress that quality need to be put in place, combined into totally aspect of products and service in their management system.

Under this research I am focus on quality control from the angle of the workers in the automotive industry at Kuantan, Pahang, which mean their understanding about quality. I choose DRB-HICOM Defence Technologies Sdn Bhd (DEFTECH) as my population for this research, The purpose under this chapter is to highlight the background and result of the study, problem statement, research objectives, defined the research question related to the study and provides the research hypothesis. Also, we defined scope of study and concluded by operational definition and expected result.

1.2 BACKGROUND OF STUDY

Approving a quality nation over the employment of quality management advantages in all phases of the business by directed in the direction of structure a continuous upgrading nation based on resources, human and financial, and meeting the client needs are patient for business success. Besides that, total quality control (QC) has converted progressively popular as
managerial strategies to advance product or service quality and make sure the continuously improvement (Shaari and Aspinwall, 2000)

Progressively, the Malaysia’s government is concentrating on techniques of rushing growth that create up their business sectors within the individuals corporations, as a way of developing the economy as a whole. Additionally, the organization need to strive globally, expanding their products and good abroad, rise productivity and diminish cost. Thus, a range of policies has been implemented, including highlighting the significance of total quality management.

Furthermore, Malaysia has established the automotive sector to help decreasing outcome of unstable changes in palm oil and rubber prices on its economy, escape having a huge trade deficit, and as a platform for economic enlargement. Furthermore, Malaysia trusts that a strong motor industry take along technology, employment and reputation. Motor industry or automotive industry can increase Malaysia economic development.

Ultimately, in the event of producing good quality cars, for example Proton is a one of the manufacturers in Malaysia that has dedicated to create good quality cars and to attain international recognized standard, which has received a great boost with technical inspection and certification of its network of automotive vendors, which are mainly consist of the small medium enterprises of the automotive industry, are required to undergo an inspection and to be accessed under the standards.

Hence, there is need organizations, containing of the small and medium enterprises to confirm the quality average in order to create a good quality cars. Total quality management is one of the dimensions or tools to make sure that the cars produced are dependable, gratified by the users at huge and to make sure effectiveness in the market as well as to comply with international level or standards.
1.3 PROBLEM STATEMENT

Quality control (QC) in Total quality management (TQM) would be an important issue of argument of discussion for organization to strive in today’s business environment. It is significant not only in terms of forming a long term success to the company or organizational. In order to fulfilling customer’s potentials and company’s presentation, it is also commanding component that providing competitive advantage.

The global automotive industry is characterized by intense competition, a sharp focus on cost, and regulatory oversight. The ongoing trend is towards global sourcing and distributed manufacturing or assembly operations. These factors are driving the need for an extensible and flexible quality management system that automates field-level tasks and provides real-time visibility into all aspects of quality management across global manufacturing facilities and supplier locations.

Most people probably don't think too much about their cars on a daily basis unless he or she happens to be a real car enthusiast, of course. But for the vast majority of buyers, a car is simply an appliance.

The thing is, despite recent high-profile recalls, on the whole, cars are more reliable than ever before. That's because car makers have begun to master a key step in automobile manufacturing: quality control. In any industry, quality control is a process that's used to insure that a product is free from bugs, operational issues and any number of other problems you can think of. In auto manufacturing, that means cars go through rigorous testing to make sure they're well-engineered, safe and comfortable.

The quality control process starts long before the first production models of a vehicle roll off the assembly line. When a car company releases a new product, they build prototypes, which are then tested to find weaknesses, mechanical problems and other details that could be improved. Once the prototypes have been vetted and polished, the design goes into production, where quality control continues on the production line, too. After being built, each car is tested for problems like fluid and air leaks, mechanical problems and proper assembly.
1.4 OBJECTIVE OF THE STUDY
There is an objective of this study:

1.4.1 To study the level awareness of Quality Control (QC) among the workers in the automotive industry

1.4.2 To know the level of awareness Quality Control (QC) tools used in the automotive industry

1.5 RESEARCH QUESTION

1.5.1 Are the employees aware with the Quality Control (QC) in their workplace?

1.5.2 Are the employees understand with the quality Control tools in their workplace?

1.6 SIGNIFICANCE OF STUDY

This study will give a significant as it discussed on the maintaining and improved the manufacturing error through reduced or eliminated by using Quality Control. It is aimed from the awareness from the angle of the workers. Workers are one of the elements in the production to maintain the quality of the product produced. It is aimed from the angle of worker by measure their level of awareness about Quality Control and measure their level of understand about the tools that used in Quality Control. This study also gives the benefits to the customers to fulfill their satisfaction. Besides that, all the employees in the company can understand about the level and standard of the quality product produced.
1.7 THEORETICAL FRAMEWORK

INDIPENCE VARIABLE  

Employee’s Discipline  

Quality course  

DEPENCE VARIABLE  

Level awareness of Quality Control  

Level awareness of Quality Control tools  

Figure 1.7.1

1.8 SCOPE OF STUDY

The study will stress on the awareness among the employees by execution of Quality Control (QC) in the automotive industry in Pekan, Pahang. The objective of this study is to study the level of awareness of Quality Control (QC) among the workers in the automotive industry and to know the level of awareness Quality Control (QC) tools used in the automotive industry. In the automotive industry, there are vendors and suppliers which are responsible to supply part for the car manufacturer and manufacture the car. Pekan would be the chosen area since many of these vendors are located in this area. Questionnaires will used as a tools, circulated to the employees of the company listed, focusing on Quality Control’s aspect in terms of reward and recognition, training, worker participation, product or service design, process control and improvement, client focus, vision and plan statement, evaluation of the job processes, stress management, leadership, learning organization and integrity.
1.9 OPERATIONAL DEFINITION

1.9.1 Perception
An ability of different senses to pick out something, whether it can be through seeing, hearing, smelling or touching. The physical stimulus of the body system consciously records an activity or incident in the human memory.

1.9.2 Awareness
Awareness refers to a consciousness someone to internal or external events or experiences, which are thought by some to separate human and non-human animals. Evidence of self-awareness in animals is most often determined by whether an individual can use a mirror to groom an otherwise unseen dirty spot on its own forehead. There are some tests to measure the level of awareness. The test was tested to a few chimpanzees, gorillas, and orangutans have shown this awareness and passed this test.

1.9.3 Quality Control
A process through which a business seeks to ensure that product quality is maintained or improved and manufacturing errors are reduced or eliminated. Quality control requires the business to create an environment in which both management and employees strive for perfection. This is done by training personnel, creating benchmarks for product quality, and testing products to check for statistically significant variations. According to Six Sigma, the three main elements of quality control are controls, competence and personnel. These elements are integrated and, when controlled properly, help a company perform successfully and efficiently by providing quality products and services.

The first element of quality control is personnel. Quality control begins with placing the right people in the right jobs. This element focuses on giving all personnel clear goals and holding them accountable for their work. Clear job descriptions and performing employee evaluations on a regular basis are important. Companies also emphasize that a key component in quality control is emphasizing that all personnel must realize they are working towards the game goal.
All employees must be competent in the jobs they are performing. They must have the appropriate knowledge, skills and qualifications to effectively complete a job. Many companies offer employee training and resources to assist in achieving this vital element of quality control.

Controlling the quality of goods and services includes good record keeping habits and regular audits. Quality control involves producing the highest quality goods that customers want, in the most efficient manner possible. Record keeping is a vital tool for this element. Companies need to know where revenues are coming from and where costs are incurred. Regularly scheduled audits help companies provide this knowledge. An audit is an assurance that the information contained in the company’s financial statements is correct, with room for little deviation. Audits are also used to evaluate the company’s internal control procedures, which are used to promote accurate financial recording and to avoid fraud from occurring.

1.9.4 Quality Control in Automotive industry.
In automotive industry quality control (QC) is the assessment of inspection staff to maintain the quality and legal standards to achieve the level of standard by inspection and auditing.

1.9.5 Total quality management (TQM)
Total quality management (TQM) encloses of organization-wide labors to connect and create enduring an environment in which an association always develops its ability, to deliver high-quality products and services to clients. TQM also appreciated general consideration during the late 1980s and early 1990s before being overshadowed such as ISO 9000, Lean manufacturing, and Six Sigma, although there is no widely agreed-upon method, TQM efforts typically draw heavily on the previously developed tools and techniques of quality control (QC).

Efforts in a TQM, all participants of organizations participate to improve the culture in work processes, products, and services. Techniques for employing this approach come from the teachings of such quality leaders like Philip B. Crosby, W. Edwards Deming, Armand V. Feigenbaum, Kaoru Ishikawa, and Joseph M. Juran
1.10 EXPECTED RESULT

Each research study requirement has a positive result which can give benefits to others. The expected result usually based on research objectives. After completing this chapter 1, it is expected research to achieve the objectives. It also gives advance to organization the important of total quality management within the organization itself. From the result, other researcher can make this study as orientations to produce more knowledge and good research. This study optimistically can give understanding to worker about the importance of quality based on their perspective.

1.11 CONCLUSION

In the conclusion, the information has been briefly mentioned. Which are problem background, problem statement, objectives, hypothesis study and scope of study are discuss in this chapter. Further discussion will be explained more in the next chapter for more understand on this study. In chapter two, the previous studies that related to research will be discuss and the past theories that other researcher had done.
CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

In business organizations, Quality Control (QC) refers to management procedures used to improve quality and productivity. QC is an inclusive management method that works parallel across an organization, involving all branches and workers and spreading backward and forward to include both suppliers and clients or customers.

This chapter reviews the several literatures for the level awareness of the Quality Control (QC). The chapter starts with the discussion on the Quality Control (QC) that focusing on the automotive industry. Following the background evidence is the discussion on the several literatures on Quality Control and its application. Therefore, it will include the discussion relating to measurement the level awareness of the Quality Control (QC) among the workers in the automotive industry.

2.2 QUALITY

In manufacturing, an amount of fineness of a public of presence free from faults, deficiencies and important differences. In order to fulfill specific client or user requests, it is carried by firm and continuous assurance to certain standards or level that attain uniformity of a product. ISO 8402-1986 level describes quality as "the totality of features and characteristics of a product or service that bears its ability to satisfy stated or indirect needs." If an automobile company finds a defect in one of their cars or products, they make a product recollection because client’s reliability and production will reduction because of trust will be missing in the car's quality.

According to Peter F. Drucker quotes that (American Educator and Writer, b.1909) “Quality in a creation or service is not what the supplier puts in. It is what the client gets out and is willing to fee for. A creation is not quality because it is tough to make and costs a lot of money, as manufacturers typically believe. This is uselessness. Clients pay only for what is of usage to them and gives them value. Nothing else establishes quality.”
“Quality is never a coincidence, it is always the result of high purpose, genuine determination, intelligent direction and skillful implementation, it characterizes the sensible choice of many alternatives.” stated by William A. Foster.

“Elevation your quality values as high as you can live with, escape worsening your time on routine problem, and always strain to work as carefully as possible at the boundary of your capabilities. Do this, because it is the only way of determining how that border should be moved forward.” By Edsger W. Dijkstra.

Besides that, a creation that exceeds the prospects can consider as quality. Thus, it is somewhat of an imperceptible established on awareness. Quality can quantified as equation:

\[ Q = \frac{P}{E} \]

Where \( Q \) = quality

\( P \) = performance

\( E \) = expectations

If \( Q \) is larger than 1.0, meaning that clients have good feelings about the service and product. Obviously, the purpose of \( P \) and \( E \) will be most likely being based on perceptions with the organization defining performance and the customer defining expectations.

Quality starts with market study, to create the right supplies for the service or product and the true requirements of the clients. On the other hand, for organization or industry to be actually real, quality must extent totally functions, people in the society or worker, all the branch and department including all the activities and be a common language for progress. Teamwork’s from everyone at every crossing point in necessary to attain a total quality organization. In Japan, they also use same technique to achieve this with companies that have huge quality control.
2.3 QUALITY CONTROL

Quality control (QC) is a procedure or set of procedures intended to ensure that a manufactured product or performed service adheres to a defined set of quality criteria or meets the requirements of the client or customer. QC is similar to, but not identical with, quality assurance (QA). QA is defined as a procedure or set of procedures intended to ensure that a product or service under development (before work is complete, as opposed to afterwards) meets specified requirements. QA is sometimes expressed together with QC as a single expression, quality assurance and control (QA/QC).

2.4 TOTAL QUALITY MANAGEMENT

Over the past 20 years ago, the status of quality management in business organization has developed expressively. Through a process of continuous development, Total Quality Management (TQM) is the optimization and combination of all the functions and processes of a business in order to deliver for excited customers. In order for companies to be economical in this environment they have seen the authoritative needs for quality, the years of 1990’s are its decade of globalization. However, there have been many “gurus” over and done with the decade’s most important to the 90's that have clearly featured the need for Total Quality Management Systems in companies. But, due to a lot of factors these ideas have either gone ignored, or been buzz word for a little time. It is potential that Total Quality Management (TQM) is once again a buzz word and a marketing device, but however it is a device that is being lengthily used in the 90's to help companies’ improvement and preserve a reasonable advantage over their competitors.

2.5 LEVEL

Level can define as a horizontal plane or line with respect to the distance above or below a given point. It is using to measure something.
2.6 AWARENESS

Awareness is the state or ability to perceive, to feel, or to be conscious of events, objects, thoughts, emotions, or sensory patterns. In this level of consciousness, sense data can be confirmed by an observer without necessarily implying understanding. More broadly, it is the state or quality of being aware of something. In biological psychology, awareness is defined as a human's or an animal's perception and cognitive reaction to a condition or event.

2.7 LEVEL OF AWARENESS

Level of awareness can describe as a medium to determine the extent of a person's perception about something and actions taken to implement it.

2.8 QUALITY AWARENESS

The Quality Awareness prepares people in all functions and at all levels of your organization to become effective participants in continuous improvement. It helps managers, supervisors and employees understand their roles in meeting customer requirements and expectations. It helps them to understand quality, as well as their roles in achieving the desired level of quality products and services in the organization.

2.9 WORKERS PARTICIPATION

Worker participation refers to a corporate human resource strategy built on the principles of co-operation and co-responsibility in decision making between employers and employees (Maller, 1992). Maller (1992:96) argues that this strategy often seeks to develop an approach to labor relations that stressed co-operation and generated high motivation levels amongst employees. The establishment of participatory structures in the workplace should be understood as a manifestation of the class contradictions inherent in the capitalist mode of production. Employers are engaged in a perpetual quest to control and dominate the labor process so as to maximize the extraction of excess that is, unpaid labour time (Mandel, 1973; Burawoy, 1979).

Mandel (1973) argues that the structural crisis of late capitalism and the concomitant consolidation of labor’s organizational presence are the primary driving forces that led to capitalist (re)invention of a more subtle means of domination this being worker participation. For
Mandel, worker participation is a capitalist tactic that seeks to associate workers with capital. Contrary to a traditional Marxist understanding of capitalist labor control as despotic or deskilling (Braverman, 1974), Burawoy suggests that capitalists (or employers) are increasingly using a more hegemonic methodology of co-optation and subtle coercion, thus manufacturing consent.

For Burawoy (1979) the main question should be about why workers work as hard as they do, instead of the traditional Marxist preoccupation with why workers work at all. According to Burawoy (1979), employers use a variety of tactics (or strategies) to manufacture consent at the center of these strategies is worker participation or participative management. A number of studies on worker participation that have hitherto been conducted—for example, in BMW (Masondo, 2003) and Anglo Platinum (Maller, 1992) confirm Burawoy’s theory that worker participation represents employers’ attempts to manufacture consent on the part of workers. In his study on trade liberalization and work restructuring at the BMW plant in South Africa, Masondo (2003) developed the concept of ideological flexibility to describe management’s attempts to change the behavior and attitudes of workers by introducing various worker participation structures.

Following massive dismissals of mineworkers in 1987, the Anglo American Corporation introduced an employee share ownership scheme which was designed to enhance employees’ identification with the company (Maller, 1992:7). It is worth noting that not all employers adopted the strategies of consent because management by consent is pertinent in labour processes characterized by high rates of capital investment and have acquired relatively high levels of skill or specialized dexterities (Maller, 1992:7).

In her seminal work titled Participation and Democratic Theory, Pateman (1970) makes a useful distinction between real and pseudo participation, partial and full participation, and task centered and power centered participation. Task centered participation can also be described as descending participation in so far as management invariably initiates the development for its own purposes and, as part of the change, may transfer authority and responsibility from itself to the employees for a limited range of work related decisions (Daitz and Rutstein, 1989:5). Task-centered pseudo participation involves employers’ interactive ways of communicating decisions
that have already been made, through briefing groups, quality circles and autonomous working
groups (Maller, 1992). Put simply, these structures are task centered primarily because they deal
with shop floor issues. Task centered participation includes initiatives such as regular
consultative meetings between workers and supervisors, briefing groups, quality circles, and so
on (Pateman, 1970). Such communication schemes do not give workers any real power to
influence decisions in a significant way (Pateman, 1970).

Partial participation refers to participation structures that enable workers to partly
influence decisions; because they are in the unequal position of permanent subordinates, the final
prerogative of decision making rests with permanent superiors, with management (Pateman,
1970:52). Unlike pseudo and partial participation, task centered full participation entails
workers’ prerogative to decide how a department or an enterprise as a whole should be run, with
reference to issues relating to production scheduling, time standards, investment, marketing,
(Pateman, 1970:78). Task centered participation has been criticized for being used by employers
solely for the purpose of improving productivity without giving workers any real power to
determine how the production should be done (Salamon, 1987).

2.10 AUTOMOTIVE INDUSTRIES

Totally firms and activities associated with the manufacture of the motor vehicles, plus
most components, like engines and bodies, but excluding tires, fuel and batteries. The industry's
major products are passenger of the automobiles and light trucks, including pickups, vans, and
sport usefulness vehicles. Commercial vehicles (i.e., delivery trucks and huge transport trucks,
only known as semis), though imperative to the industry, are secondary. The design of modern
automotive vehicles is deliberated in the articles automobile, bus, truck, and motorcycle;
automotive engines are defined in gasoline engine and diesel engine. The development of the
automobile is enclosed in transportation, history of: The rise of the automobile.

The main and the greatest significant specific of (QC) is the consideration decided by the
company to the clients. Within the automotive industry as well, quality must fulfill and overcome
clients’ prospects. The purpose is the empathy, then the meeting of all clients’ requirements.
(QC) confesses that a perfectly manufactured product has a reduced value as long as it is not what the client requirements. This is why we say that the quality level is definite by the client. In any case, it is not always easy to control what a client desires, because the tastes and preferences change. Also, clients’ prospects vary from a client to another. For example, in the automotive industry, the partialities change fast, from small cars to four-wheel drive vehicles and then back small cars. The companies must fold information continually, by research groups, market studies, and conferences with clients, in order to stay close to clients’ perceptions.
CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

In the research methodology, we will be explained about the research method. It is requires considerable attention to the research methods and the proposed data analysis in the design of any research project. Besides that, it we will explain the tools used in the research. The methods and tools used are to accumulate the data. Hence, it also described about the population and sampling technique, unit of analysis, questionnaire and instruments design and last but not least, analysis technique.

3.2 RESEARCH METHODOLOGY

In the study, we will used the quantitative method which is descriptive design of survey by using questionnaire for obtaining primary data to find out the Quality Control (QC) in the automotive industry from the angle of the worker. Secondary data also used in this study to obtain more information from analysis and research done by people, secondary data can be obtain from journals, books, articles, conferences and internet as well. Survey based method are used to collect detailed information. The questionnaire are used because of many aspects such as ease for respondents to complete the questionnaire without taking a long time, more respondents are selected as the sample for this research and save time and cost when compared with other data collection method.

The measurement scale that we use in this research is interval scale. Data that will collect from the respondents is the measurement that allows us to achieve certain arithmetical procedures. Interval scale also allows us to measure the distance between any two points on the scale. Hence, it will help us to calculate the means, standards deviation of the responses and variables.