

# THE SOHFTTEE

## Creative eBook

PROFESSIONAL TACTICS & TRAINING ON  
SOFT & HARD FACTORS IN DEMAND



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# Introduction

When deciding for a brighter prospect in your quality services & production, the term 'QUALITY' comes to mind.

This eBook serves to introduce you to Quality Improvement Practices (QIP) in your business. Simply use the content inside this ebook to provide the best information on your QIP strengths and identify your employees' training needs.

Here are the objectives for creating this eBook:

- **Incorporate Continuous Professional Development:** Refer to the contents for quick application of QIP and training support.
- **Assessment:** Complete the inventory to confirm your company strengths in QIP and the training needs of your staff.
- **Soft & Hard Factors Content:** Apply the soft and hard factors to ensure compliance with standards in QIP.







# **Chapter One : Definition of Quality**

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# What is 'Quality' to the SIFUs

There are various definitions of 'quality'. Nonetheless, as proposed by Garvin (1988), the term 'quality' is quite difficult to define as it is "an unusually slippery concept, easy to visualize and yet exasperatingly difficult to define" (Muhammad Madi, 2007, p. 38). What is more interesting is that although 'quality' has been given much emphasis in the literature, there are limited attempts of defining it exactly (Wilkinson, Redman, Snape, and Marchington, 1998).

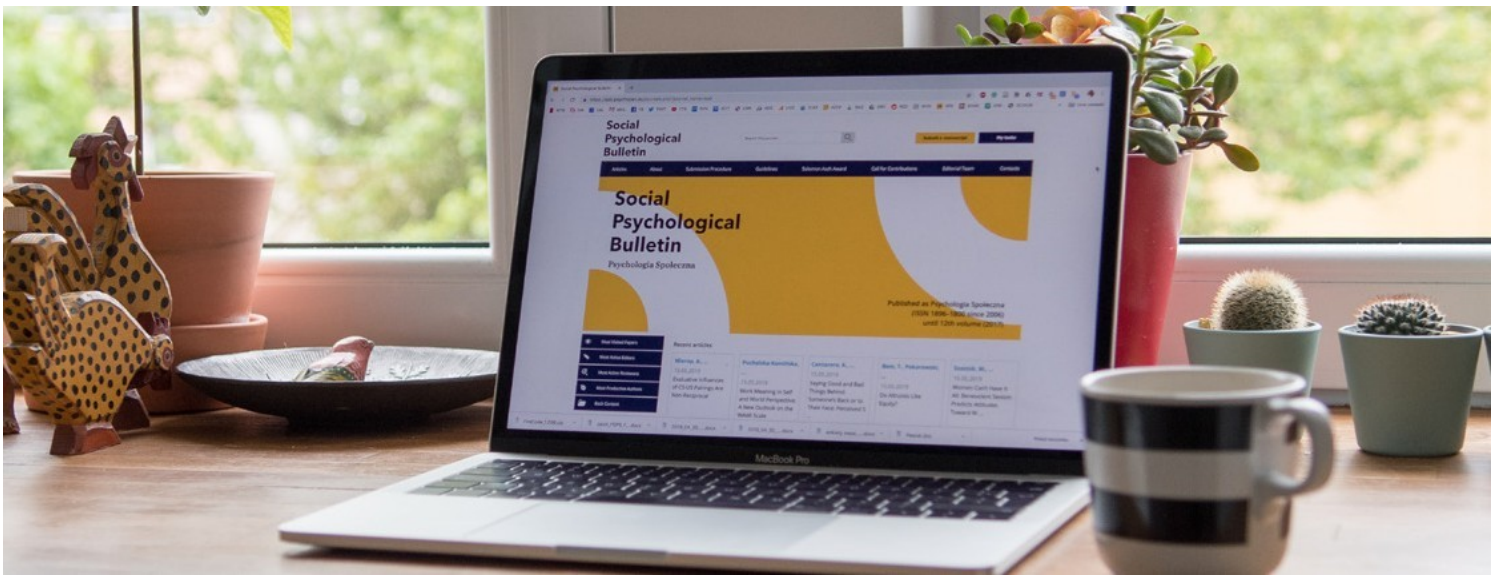
## **'Quality' as products, services & innovations**

'Quality' has been related to value (Abbott, 1995; Feigenbaum, 1983) for instance the conformance to standards, specifications or requirements (Levitt, 1972; Crosby, 1979), or fitness for use (Juran, 1989). The term has also been widely associated with excellence (Peters and Waterman, 1982). As an example, meeting customers' expectations (Parasuraman et al, 1985; Gronroos, 1983), and 'delighting the customers' (Peters, 1989).

*Deming (1982) and Juran (1982) have postulated that 'quality' is the ability to,*

*--- meet reliable and consistent standards in line with customer requirements; standards which may not be usually identified as exceptionally high but which nevertheless represent what customers say they want and quality is judged by the user rather than the producer" (Muhammad Madi, 2007, p.39).*





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# Total Quality Management (TQM)

As a strategy to compete in the current global market, manufacturers have adopted the concepts of Total Quality Management (TQM).

According to Pun (2002), TQM has been adopted by the industries as the “means of understanding and satisfying the needs and expectations of their customers” (Lewis, Pun, and Lalla, 2006, p. 540).

Ahmad and Yusof claim that “TQM is important in ensuring companies survive in this ever-growing competition in the global market” (2010, p. 11).



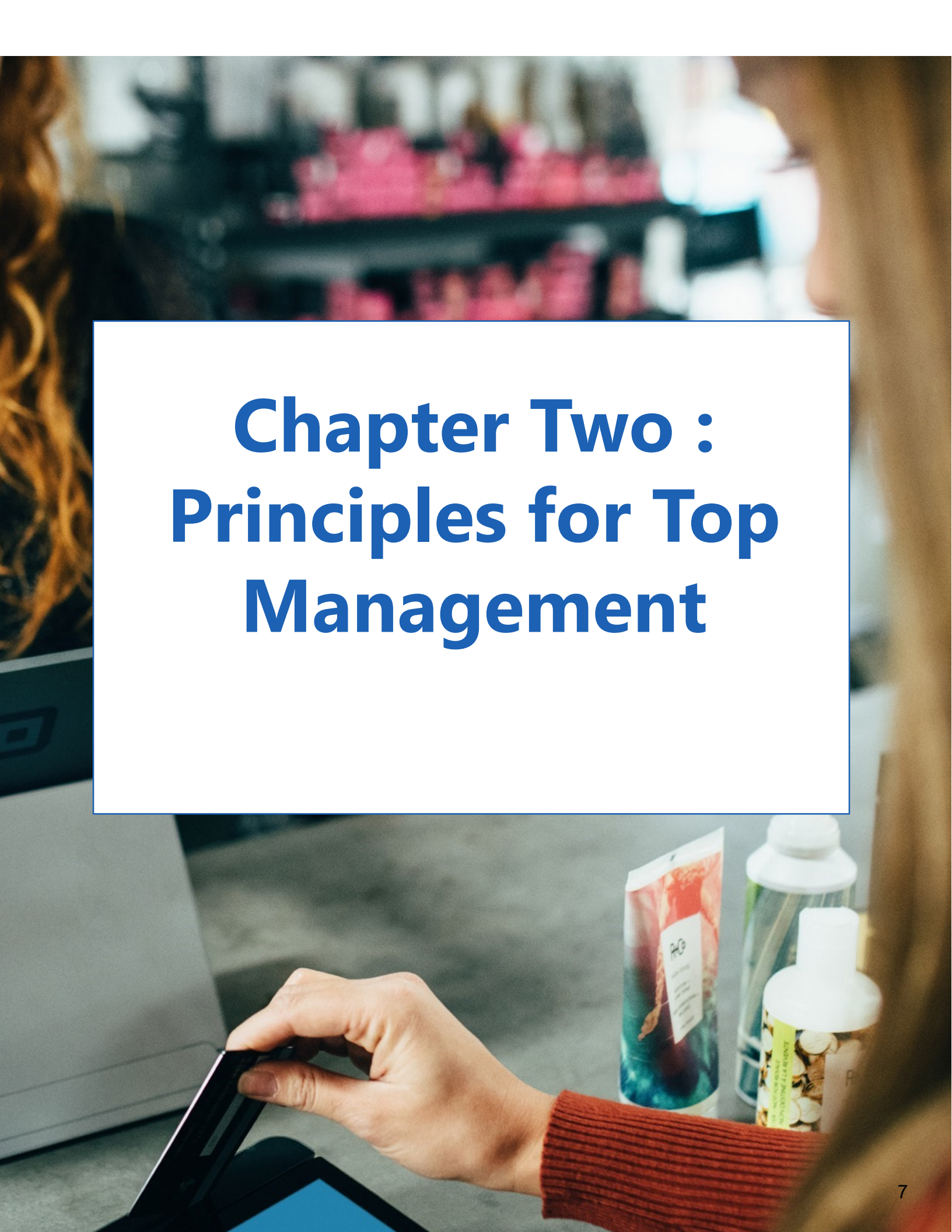
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# Quality Improvement Practices

Quality improvement practices are best referred to as the manufacturers' strategies to compete by providing superior value to the customer and by improving process efficiency (Deming, 1982; Kaynak, 2003).

The philosophies of quality improvement practices are grounded on the need to start and end with the customer in mind (Deming, 1986). This notion which is also known as Deming's 'chain reaction' suggests quality improvement inevitably leads to cost cut as less rework, mistakes, and delays need to be compromised.





# **Chapter Two : Principles for Top Management**



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# The 14 Principles for every Top Management

1. Create a constancy of purpose to improve products and services, take longer-term view, and innovate;
2. Adopt the new philosophy, except the management style which promotes constant improvement;
3. Cease dependence on mass inspection, concentrate on improving processes;
4. End the practice of awarding business on the basis of price tag alone, build relationships with suppliers to understand joint specifications of and uses for materials and other inputs;
5. Constantly improve the system, search continually for problems in all processes;
6. Institute modern methods of training on the job for all, make the best use of every employee;
7. Institute modern methods of supervision, focus on quality and not numbers;
8. Drive out fear so people can work more effectively;
9. Break down barriers between departments, need team work to tackle the problems;
10. Eliminate numerical goals for the workforce, make reasonable request for the workforce;
11. Eliminate work standards and numerical quotas, focus on quality and provide support;
12. Remove barriers that rob workers of pride in their work, for example defective materials, poor tools, lack of management support;
13. Institute a vigorous program of education and training for continual updating and improvement of the organizational members;
14. Create a top management structure to push the above (number 1 – 13), top management commitment is where it begins and ends.

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# Quality Improvement Practices

The emphasis of the quality improvement practices has brought to light the ability of controlling and managing the system and process respectively. In this instance, the top management is seen as most responsible to ensure this ability (Deming, 1986). Deming's Statistical Process Control (SPC), and other problem-solving method such as Plan-Do-Check-Action (PDCA) are some of the methods which top management could refer to in implementing quality practices. According to Deming, top management is most responsible to lead the required changes in the organization's process and systems in order to achieve quality.





# Chapter Three : Soft & Hard Factors



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# What is SOFT & HARD Factors?

Wilkinson (1992) has divided quality improvement practices into two distinct groups; hard and soft factors. The hard quality improvement practices are production and work process control technique which ensure the correct functioning of such processes, for example process design, ISO 9000 norm, and the seven basic quality tools (Wilkinson et al, 1998; Evans and Lindsay, 2002). In addition, Flynn et al (1994) confirm that hard quality practices are also the new product quality, process control, process management, design quality management.

The soft quality improvement practices on the other hand refer to the human aspects such as culture, trust, teamwork, employment continuity, education and training, top management leadership, employee involvement, customer satisfaction/involvement (Lau and Idris, 2001). Muhammad Madi (2007) states that the soft quality improvement practices are concerned with “the establishment of customer awareness and the management of human resources” (p. 73).

Guimaraes (1996) claims that TQM can only be successfully implemented when several people-oriented aspects of TQM needs are understood. This indirectly indicates the importance of the soft factors in quality improvement practise besides the hard factors. However, although the two distinct groups of quality improvement practices are identified and well documented in the literature, the soft quality improvement practices are often “neglected” (Ooi, Arumugam, and Hwa, 2005, p.280). Ho, Duffy, and Shih (2001) concur with this statement when they confirm that the soft aspects of quality improvement practices are not well defined in the quality management literature.

# List of SOFT & HARD Factors

HARD FACTORS	SOFT FACTORS
1. Use of advanced manufacturing Systems (Powell, 1995; Dow et al, 1999)	1. Top management leadership (Saraph et al, 1989; Flynn et al, 1994; Powell, 1985)
2. Usage of JIT principles (Dow et al, 1999)	2. Employee involvement (Saraph et al, 1989)
3. Process management (Saraph et al, 1989, Flynn et al, 1994)	3. Employee empowerment (Powell, 1995; Rahman, 2001)
4. Design quality management (Saraph et al, 1989; Flynn et al, 1994; Rahman, 2001)	4. Employee training and development (Saraph et al, 1989; Dow et al, 1999; Rahman, 2001)
5. Quality data and reporting (Saraph et al, 1989)	5. Teamwork and communication (Black & Porter, 1996; Dow et al, 1999)
6. SPC usage (Powell, 1995; Dow et al, 1999)	6. Strategic quality management (Black & Porter, 1996; Dow et al, 1999, Rahman, 2001)
7. Benchmarking (Powell, 1995; Dow et al, 1999)	
8. Zero defect mentality (Powell, 1995)	

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# SOFT & HARD Factors in The SOHFTTEE

HARD FACTORS	SOFT FACTORS
Information Feedback New Product Quality Interfunctional Design Process Process Control Process Management	Customer Involvement Supplier Involvement Quality Improvement Rewards Quality Leadership Selection For Teamwork Potential Teamwork Training and Education





A background image showing a person's hand interacting with a tablet device. The person is wearing a red sweater. The tablet screen displays a blue interface with a white arrow pointing up and the word 'Tap' below it. In the background, there are shelves with various products, including a red box and a white bottle. The overall scene appears to be a retail or service environment.

# **Chapter Four : The SOHFTTEE Components**

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# Components of The SOHFTTEE: HARD Factors

## **Information Feedback**

Information feedback refers to the organizational communication on the system and product. It reflects the provision of the latest information regarding the machinery, defect rates and quality performance all of which is for the consumption of the employees. Besides that, employees are also made known of their productivity and compliance with the standard.

## **New Product Quality**

New Product Quality refers to the efforts taken to ensure the new product will conform to the requirements and comply with the standard. The efforts are such as the thorough analysis of the customers' needs and requirements in the new product design. Additionally, during the design stage, it is more imperative to meet datelines before considering the quality of the product.

## **Interfunctional Design Process**

Interfunctional design process espouses the role of relevant employee's involvement in the introduction of new design and product. Its ultimate objective is to tap the creative energies of all employees and improve their motivation (Evans and Lindsay, 2002). It involves their involvement in market survey, identification of customers' requirements, and input such as comments and suggestion to ease the work flow during the assembly of the new product.

## **Process Control**

Process control reflects the organization's conformance to the statistical process control (SPC) procedures. As 'procedures' is the key term, it emphasizes on the importance of efficient processes. Hence, it aims to ensure the organization to put an effort in using the common seven (7) QC tools or the new QC tools such as pareto, affinity diagram, and scatter plots. The significance of the process control is as an indication of the organization's process history, whether it is within or out of control.

## **Process Management**

The keyword in the process management is '5S' which denotes the management of the operation and plant. It aims to facilitate the employees during their routine job such as finding tools, equipments, and components. It also details out the process the employees take in order to maintain their workplace neat and tidy.



# SOHFTTEE: Hard Factors





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# Components of The SOHFTTEE: SOFT Factors

## **Customer Involvement**

Ishikawa (1985) claims that to ensure quality, it is vital for the manufacturers to know what the customers want and what the manufacturers need to provide in order to meet the customers' requirements. The motto of putting customers first is often cited in many successful companies and it is materialised through their decision making and key practices in ensuring quality improvement (Zhang, 2000). As claimed by Flynn et al (1994), customers should be closely involved in the product design and development process. This is because their inputs are important at every stage of the process in the effort to avoid undesired circumstances such as quality problems once full production begins. Additionally, as Kanji and Tambi (1999) have put it, customers' satisfaction is the ultimate measure of the company's performance which in turn may predict the future success or failure of the company.

## **Supplier Involvement**

Besides customers, suppliers are also another stakeholders involved indirectly with the organization's quality ( Flynn et al, 1994). As much as the organization needs to know about their customers' requirements, the same information is equally important to be passed on to the suppliers. Additionally, the quality of the suppliers is of obvious concern of the organization as there is a direct implication on the quality of the organization's end product.

## **Quality Improvement Rewards**

Reward can be defined as benefits such as increased salary, bonuses, and promotions based on annual appraisal. According to Juran and Gryna, (1993), rewards are a form of acknowledgement and recognition of performance excellence with respect to goals. There is a positive relationship between rewards and employee morale as discovered by Kasscieh and Yourstone (1998). A renowned motivation theorist, Herzberg (1996) contends that recognition is one of the motivators that can implicate employees' attitudes. As rewards are valued by employees, its presence could provide motivation and incentives which in turn could encourage active employee participation. O'Driscoll et al (1999) who conducted a research on the relationship between reward and employees' attitudes towards work and their organization have confirmed the positive relationship between the two variables.

## **Quality Leadership**

Quality leadership is a prerequisite for an organization's TQM implementation efforts (Ooi et al, 2005). As Shamir et al (1993) claim, effective leaders are able to infuse their employees with positive values which in turn results in a positive working environment. Many researches have confirmed the positive relationship between charismatic leadership and employees' efforts (De Hoogh et al, 2005; De Grot et al, 2000).

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# Components of The SOHFTTEE: SOFT Factors

## **Selection for Teamwork Potential**

In carrying out quality practices, employees are the most influential contributor to the success or failure of the effort. Hence, in determining employees share similar aspirations or at least could be trained to follow the organization's aspiration, several employee selection criteria is stipulated. For example, the evidence of ability to work in a team, and the ability to solve problems are some of the employee selection criteria. Additionally, the evaluation of the potential employees' work ethics and values are also emphasized.

## **Teamwork**

Adebanjo and Kehoe (2001) claim that teamwork has become an important key to productivity and employee involvement in the workplace. This is because teamwork enables the possibility of collaborating and meeting the different needs of individual employees and those different levels within the same organization. Osland (1997) has confirmed that working together as a team could lead to better employee attitude (Ooi, Arumugam, Mohammad Samaun, and Nooh, 2007).

## **Training and Education**

Lau and Idris (2001) state that an active education and training process for all employees is focused on business and customer issues and improvements. Its objectives include continuous improvement, enhancing the empowered worker, flexibility, employment stability, and meeting future needs. Management should demonstrate a commitment to fully educate and train people prior to the implementation of new technologies and processes. The education and training process recognizes people at all levels as experts in their areas, communicates objectives, and fully involves people in the process of changing their jobs. The education and training approach is based on the principles of behaviour change in an organisation rather than merely a process of fact transfer regarding a specific technology.

# SOHFTTEE: Soft Factors





# Chapter Five : The SOHFTTEE Inventory

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# The SOHFTTEE Inventory

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## QUALITY IMPROVEMENT INVENTORY

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### INTRODUCTION

#### Definition of Quality Improvement

Quality Improvement refers to a set of activities and practices whose purpose is to enhance efficiency and effectiveness for the benefit of the organization and its customers. Improvements can be achieved by looking for ways to improve process efficiency and effectiveness.

### INSTRUCTIONS

In this section you are asked to assess your company's effort to improve quality products and services it provides to the customers. Please read each statement carefully.

Please indicate the extent to which you agree or disagree that the statement characterizes your company by fill up the appropriate figure [ 1 ~ 10].

Strongly DISAGREE	<-----	----->	Strongly AGREE						
<div>1</div>	<div>2</div>	<div>3</div>	<div>4</div>	<div>5</div>	<div>6</div>	<div>7</div>	<div>8</div>	<div>9</div>	<div>10</div>

In answering the questions, you should think about what the company is actually like now, not how you might be in the future or how you might wish it to be.

Be sure to answer ALL questions and DON'T leave any question unanswered.

**Note: (R) denotes a Reverse Score. You must read carefully.**

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# The SOHFTTEE Inventory

## Scale 1: Customer Involvement

1. Our customers **seldom** visit our plant. **(R)**-----☐
2. Our customers give us feedback on quality and delivery performance.-----☐
3. We are frequently in close contact with our customers.-----☐

## Scale 2: Feedback

1. Charts plotting the frequency of machine breakdowns are available.-----☐
2. Charts showing defect rates are available.-----☐
3. Information on quality performance is readily available.-----☐
4. Charts showing schedule compliance are available.-----☐
5. Information on productivity is readily available.-----☐

## Scale 3: Interfunctional Design Process

1. Direct labor employees are involved to a great extent (on teams, or -----☐  
consulted) before introducing new products or making product changes.
2. Manufacturing engineers are involved to a great extent before the -----☐  
introduction of new products.
3. There is **little involvement** of manufacturing and quality people in -----☐  
the early design of products, before they reach the plant . **(R)**
4. We work in teams, with members from a variety of areas (marketing, -----☐  
manufacturing, etc.) involved in the introduction of new products.



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# The SOHFTTEE Inventory

## Scale 4: New Product Quality

1. Customer requirements are thoroughly analyzed in the new product -----☐  
design process.
2. **Reducing the cost** of new products is a more important priority than -----☐  
new product quality. **(R)**
3. In the new product development process, **schedule** concerns are -----☐  
more important than quality. **(R)**

## Scale 5: Process Control

1. A large percentage of the processes or equipment at the production -----☐  
line are currently subject to statistical process control (SPC) procedures.
2. Processes in our plant are designed to be robust.-----☐  
*Robust : Capable of coping well with variations (sometimes unpredictable variations)  
in its operating environment with minimal damage, alteration or loss of functionality.*
3. We make extensive use of statistical techniques to identify and reduce ----☐  
variance in processes.

## Scale 6: Process Management

1. Our plant is **disorganized** and **dirty**. **(R)**-----☐
2. Our plant is kept clean at all times.-----☐
3. Employees **often have trouble** finding the tools/equipment they need. **(R)**-----☐
4. Our plant emphasizes the importance of good housekeeping with tools ----☐  
and fixtures in their normal storage location.
5. We take pride in keeping our plant neat and clean.-----☐

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# The SOHFTTEE Inventory

## Scale 7: Quality Improvement Rewards

1. If an employee improves quality, management will reward him/her.-----☐
2. Non-financial incentives are used to reward quality improvement.-----☐
3. Supervisors are rewarded for quality improvement.-----☐
4. We pay a group incentive for quality improvement ideas.-----☐
5. Workers are rewarded for quality improvement.-----☐

## Scale 8: Quality Leadership

1. All managers within our plant accept their responsibility for quality.-----☐
2. All managers within our plant work toward encouraging -----☐  
just-in-time production.
3. At plant level, management provides personal leadership for -----☐  
quality products and quality improvement.
4. The top priority in evaluating plant management is quality performance.----☐
5. Top management strongly encourages employee involvement -----☐  
in the production process.

## Scale 9: Supplier Involvement

1. Our suppliers are actively involved in our new product -----☐  
development process.
2. Quality is our number one criterion in selecting suppliers.-----☐
3. We rely on small number of high quality suppliers.-----☐
4. We strive to establish long-term relationships with suppliers.-----☐

## Scale 10: Selection for Teamwork Potential

1. We use ability to work in a team as a criterion in employee selection.-----☐
2. We use problem-solving ability as a criterion in selecting employees.-----☐
3. We use work values and ethics as a criterion in employee selection.-----☐

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# The SOHFTTEE Inventory

## Scale 11: Teamwork

1. During problem solving sessions, we make an effort to get all team ----- ☐  
members opinions and ideas before making a decision.
2. In the past 3 years, many problems have been solved through ----- ☐  
small team sessions.
3. Our plant forms teams in order to solve problems.----- ☐
4. Our plant is organized into permanent production teams.----- ☐

## Scale 12: Training and education

1. Employees are encouraged to accept education and training.----- ☐
2. Resources are available for employee education and training.----- ☐
3. Most employees are trained on how to use quality improvement ----- ☐  
methods (tools).
4. Quality awareness education is given to employees.----- ☐
5. Specific work-skills training is given to all employees.----- ☐
6. Employees are regarded as valuable, long-term resources worthy ----- ☐  
of receiving education and training throughout their career.



# Interpreting the Inventory

The relevant items in the inventory were based on a Lickert scale of 1 to 10 with 1 being “Strongly disagree” and 10 being “Strongly agree”. Hence, for the purpose of data interpretation and discussion, the following mean score range and level are referred to.

## Overall Quality Improvement Level:

Mean Score	Level
1.00 ~ 1.99	Poor
2.00 ~ 3.99	Low
4.00 ~ 5.99	Moderate
6.00 to 7.99	Good
8.00 to 10.00	Excellent

The levels for each mean score range was determined by mutually dividing the maximum mean score, which is 10 with the intended 5 levels; Poor, Low, Moderate, Good, and Excellent).



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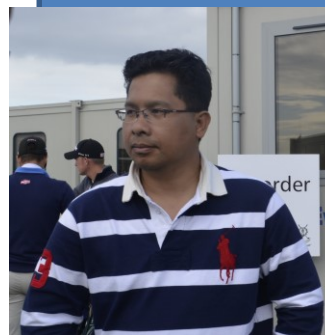
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